FASHION REIMAGINE

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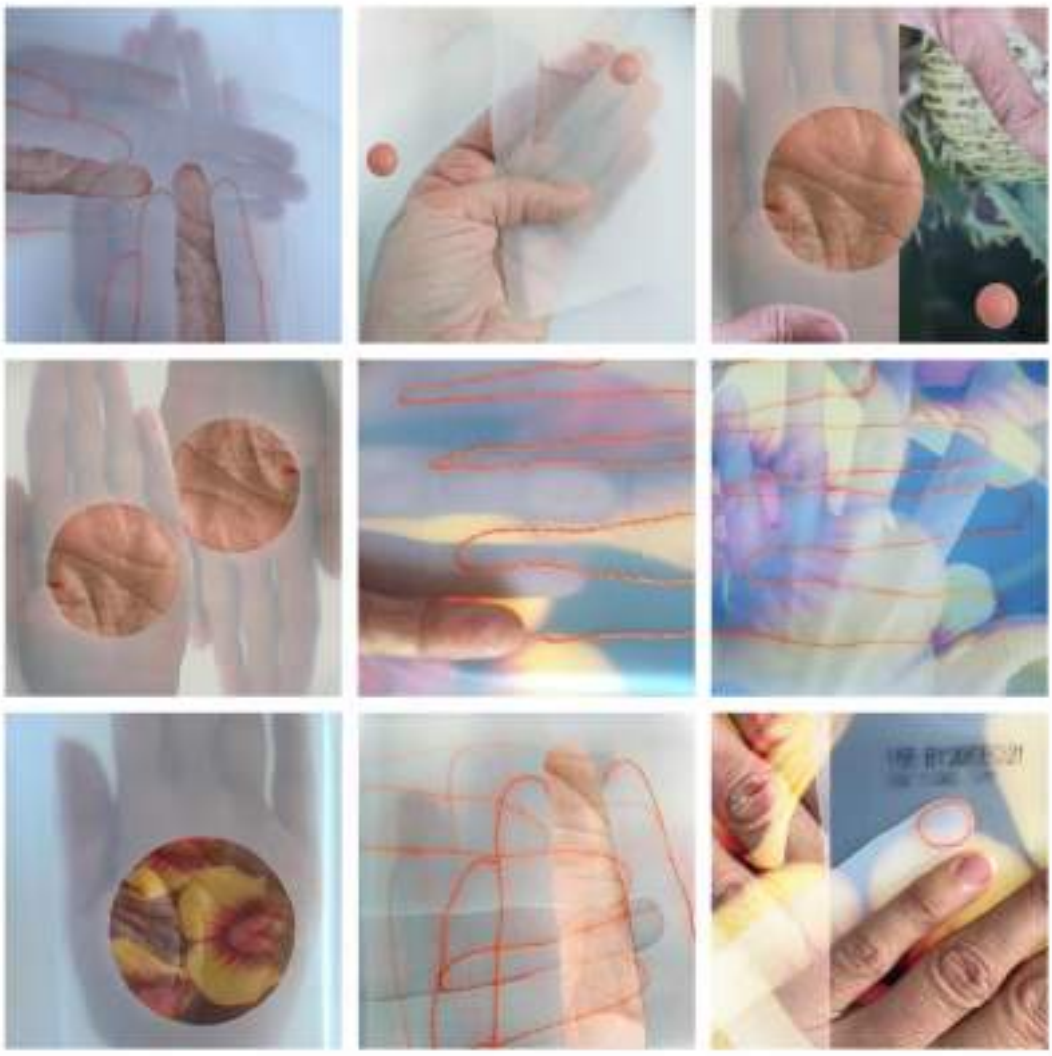
Nottingham Trent University



FEELING FASHION by Emma Lynas

Image credit: Banksia Fuscobractea and Daviesia Bursarioides by Andrew Crawford.

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ACKNOWLEDGMENTS

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Conference reviewers

The conference papers, posters, workshops and practice-based submissions could not have been presented without the consistent help and support of our reviewers. Our grateful thanks go to:

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Professor David Zajtmann

Dr. Lei Zeng

Eden Zhang

The conference organisers would also like to congratulate our award winners in the following categories:

Doctoral students:

Sally Cooke, Nottingham Trent University. Material encounters: using video elicitation and journaling techniques to understand the hands-on experience of beginners learning to sew clothes for themselves during a global pandemic.

Jan Tepe, Boras University. Wearing Body Shapes: Designing and Experiencing Dress as Poly-Body Objects at the Intersection of the Physical and the Digital.

Early Career Researcher:

Martin Bonney, Lasalle College, Singapore. Disrupting Place-Based Fashion Futures.

Lauren Copeland, Kent State University. Revolution RETOLD: Classroom to Real World.

Senior researchers:

Vanessa Brown, Nottingham Trent University. Fashion's awkward relationship with cool - and why it matters now.

Nithya Venkataraman, National Institute of Fashion Technology, Bengaluru. Moving beyond the innovative- An experiment in demystifying Deconstructed Fashion.

INTRODUCTION

This year saw the conference return to a face-to-face format for the first time since 2019 and it was very good to meet old friends again as well as making new ones. However, many colleagues were unable to join us due to Covid19 travel restrictions so - also for the first time - we held the conference in a simultaneous online and offline mode. Whether delegates attended in person or on the Internet, they were able to view presentations in advance of and during the conference and to join in the discussions in real time or in summary sessions at the start and end of the day. Overall, 130 delegates attended the conference, of whom 48 were online.

The conference theme was "Fashion Re-imagined". When Covid 19 was changing certainties about fashion around the world, it seemed a good time to stand back and re-imagine what fashion is and could be. "Fashion Re-imagined" sought to re-interpret and re-wire an unsustainable fashion system, through new ways of working, thinking, and practising. We invited submissions under five subthemes: "Where is fashion?" recognised the importance of digital advances and the increasingly blurred boundaries between physical and digital fashion as well as the landscapes, places and spaces of fashion. "When is fashion?" spanned all aspects of time, space and place including histories of fashion and fashion culture, trends and forecasts. The third theme, "Mediating fashion" was concerned with the increasingly complex ways in which products, brands, images, messages and stories are viewed, used and exchanged. "Doing fashion" challenged delegates to explore different contexts in which the practices of fashion take place: in education but also economic, social or self-realisation activities undertaken by individuals, enterprises and organisations. The final theme was "What is fashion?", an invitation to re-imagine fashion systems and objects and to reflect on and provide critical, theoretical and philosophical insights into the state of fashion and its future possibilities at all levels of the fashion system

For the first time, this IFFTI conference welcomed new types of submission. In addition to research papers and practice-based projects, we included development papers - working papers up to 2000 words in length - posters and in-session workshops that took place alongside the paper presentations. These formats were very well received and in these Proceedings we have included the submitted papers but also poster images, workshop Abstracts and selected practice-based research images.

Although the details of the panel discussion and keynote presentations are not included here, it's appropriate to recognise the breadth of the re-imagining of fashion at the conference. "African fashion" was a new panel discussion in which Akosua Amankwah and Alberta St.John-James from KNUST Kumasi, Ghana, joined Anne Pierson-Smith from NTU to discuss developments in fashion design, production and consumption in Africa. IFFTI will introduce a new category of membership, 'Outreach' for applicant institutions from around the world and we look forward to welcoming KNUST as the first new member.

The organisers were pleased to host Keynote speakers on both the full days of the conference and this enabled us to explore different aspects of fashion. Sports and athleisure have become an essential fashion element and two of our speakers, Jack Richardson from Canterbury Sports

and Tom Waller at Adidas provided contrasting views on the value of this sector and its appeal to fashion consumers. From design practice, Grace Wales-Bonner, an award-winning British designer, presented her unique hybrid European and Afro-Atlantic contribution to contemporary fashion. Turning to fashion manufacturing, John Smedley are distinguished by the continuity of their knitwear production from their factory since 1784. Tim Clarke and Jane Middleton-Smith presented a history of knitwear manufacturing and the company's current focus on high quality cotton and wool shirts and pullovers. By contrast, Professor Tilak Dias presented the latest developments in smart textiles from the Advanced Textiles Research Group at Nottingham Trent University. These were recorded and will be made available to delegates through a separate channel.

In re-imagining fashion the conference demonstrated the extent and depth of research, practice and education in the field. It is clear that IFFTI members uniquely provide world-leading insights into all these dimensions of fashion. Where other conferences and meetings can only focus on one or two aspects of fashion, the IFFTI conference is an exceptional meeting place to share ideas, practices and thinking, a place where research informs education, fashion education itself can be explored and design and creativity have a central place in our discussions.

Amanda Briggs- Goode and Tony Kent

Conference organisers

FULL PAPERS

THE STRUCTURE OF THE GHANA FASHION INDUSTRY IN THE IMPLEMENTATION OF SUSTAINABLE STRATEGIES

Authors

Akosua Mawuse Amankwah, Edward Appiah, Charles Frimpong and Anthony Kent*
Faculty of Art, CABE, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
*Nottingham Trent University, Nottingham, United Kingdom

Keywords

Fashion Industry, Structure, Industry Practice, Sustainability, Sustainable Strategies

Abstract

The fashion industry has gained a reputation for contributing to the adverse effects on the planetary system and social foundations due to its traditional model of production. The advocacy for imbibing sustainability in fashion businesses has been on the rise. The structure of the fashion industry in different geographical locations, production history, and practices play a significant role in the adoption and implementation of sustainable strategies. This study looks at the history and structure of the fashion industry in Ghana as a prerequisite to the consideration of the adoption and implementation of sustainable strategies. As a preliminary study to aid the selection of respondents for substantive doctoral research, a google survey, employing a snowball technique in identifying respondents within the two major cities in Ghana (Accra and Kumasi) was adopted The survey targeted fashion producers within the SMEs sector who have physical retail outlets. From 84 respondents, findings reveal young businesses of a sole proprietorship, whose founders double as lead designers with the minimum educational qualification from Basic Schools. The majority are informal businesses that mostly use foreign imported fabrics as supplements for local textile, and products sold primarily to local consumers, through direct-to-end user transactions. They engaged in customization, timeless design, and design for longevity. Although previous studies have documented similar findings, this study ties the findings to the adoption of sustainable strategies in businesses that have owners as creative heads who take major decisions that affect the implementation of sustainable strategies. The study reveals that sustainability and sustainable practices are relatively new to SMEs in Ghana. While end product transactions are done predominantly at the production site by walk-in customers, physical retail outlets are rising steadily. The study recommends further studies on formal businesses with retail outlets on their awareness of Circular Strategies and their willingness for the adoption and implementation of models that are sustainable in the face of industrialization drive.

Introduction

The textiles and clothing sector is a significant part of the world's economy. The fashion industry is one of the largest industrial sectors in the world (Mukherjee, 2015). A significant part of the sector is dominated by developing countries particularly Asia, accounting for half of the world export, by which China is the lead. The production of textile for apparel is predominantly produced in developing countries (WRAP, 2012). Characterized by a complex supply chain, the fashion industry globally operates in different capacities, classified as large, medium, and small to micro- scale industries with dominating players designated as Small to Medium-scale Enterprises. According to the International Finance Corporation (IFC, 2012), small and medium enterprises (SMEs) account for about 90 percent of businesses, and more than 50 percent of employment worldwide. The report indicated that SMEs are key engines of job creation and economic growth in developing countries, and that includes Ghana. As a developing economy engaged in fashion production, sustainability issues and implementation of sustainable strategies (SS) should be a concern to producers who have a nagging desire to scale up production. This study aims at examining fashion business ownership, functions, and operations, and how these influence the adoption and implementation of Circular strategies in Ghana.

Literature

Industry Practice

Broadly, the fashion industry is structured on four independent but mutually inclusive levels regarding, primary, secondary, retail, and auxiliary. These culminate into a complex supply chain (Boone, 2009, DEFRA, 2011, Lehmann *et al.*, 2018) quite different from other industries. Bhardwaj and Fairhurst, (2010) provide a comprehensive analysis of changes in the fashion industry, thanks to fast fashion. Along with its complex nature are adverse negative environmental and social impacts outlined by most researchers (Allwood *et al.*, 2006, Kozlowski, Bardecki and Searcy, 2012, Lehmann *et al.*, 2018, Koszewska, 2018, Karell and Niinimäki, 2020). Akin to the activities of the industry are sustainability issues that have to be managed locally and globally by all nations (Bhamra, T.A., Hernandez-Pardo, 2013). With the domination of SMEs in the Ghanaian garment production sector (Ghana Statistical Service, 2015, Japan International Corporation Agency, 2008), Williamson, Lynch-Wood and Ramsay (2006) purported that there is a lack of data on the environmental image and damage caused by SMEs, however, with many small activities, their cumulative impact could be significant.

Sustainability and Sustainable Strategies

Sustainability issues are rife in the fashion industry, owing to the enormous environmental and social impact of both consumers and all industry actors. Hence most companies, both large and small are embracing sustainability (Shields and Shelleman, 2015, Kozlowski, et al., 2015).

Kozlowski, Searcy and Bardecki (2015) asserted that the last decade has witnessed the sustainability awareness of the environmental and social impacts and research into sustainable strategies. Sustainable strategy is largely used to cover different models or classifications to achieve sustainability (Cooper et al., 2013, Gwilt and Rissanen, 2011, Niinimäki, 2013, Niinimäki, 2015, Bocken *et al.*, 2014). There has been an advocacy for a massive system transformation (Environmental Audit Committee, 2019, WRAP, 2015, Lehmann, et al., 2019, Kozlowski, et al., 2018). According to Murray (2013), Sustainable design (also called Eco-design, green design, and environmental design) is the philosophy of designing physical objects, the built environment, and services to comply with the principles of sustainability (environmental, economic, and social). One of the system transformation approaches is the Circular economy (Macarthur, 2010, WRAP, 2017) with its core three principles which include; reduce, reuse and recycle. How companies adopt and implement these values is dependent on the organizational structure and business objective. The circular economy accordingly is regarded more transformational as it incorporates both the environmental and social dimensions of sustainability (Bocken et al., 2014).

Adopting Sustainable Strategies

According to Karell and Niinimäki (2020), a significant number of fashion/clothing brands of different sizes and in different geographical locations are embracing the call of change in the fashion industry, and sustainable business strategies are on a steady rise, according to Shields and Shelleman (2015). There is a substantial body of literature on large-scale businesses with little focus on small to medium scale enterprises (Ates & Butitci, 2011 cited Sloan, Klingenberg and Rider, 2013, Sloan et al, 2013). However, operating capacities differ and hence issues regarding sustainability in the fashion industry may relate to the designations differently. Again Sloan et al., cited in Demartini et al. (2011), report that at present, there exists no convincing evidence that sustainability strategies now being used by large companies are viable for SMEs.

According to Claxton and Kent, (2017), particularly for fashion businesses, mainstream and niche fashion brands' approach to sustainability is likely to differ due to organizational and managerial factors. Even though there is a generic sequence of activity (Gwilt & Rissanen, 2011), Sinha, (2002), is of the view that the ‘fashion designer must be a market researcher of visual and qualitative data, an analyst of the collected data, an interpreter of meanings and a negotiator in an expansive decision-making process’. Sinha cited Stecker (1996) purporting that the definition of the modern fashion designer is dependent on the designer’s experience, the company, the type of garments produced, and the constraints upon the design. Aligning to Stecker’s definition, especially on the variable on company type, Claxton and Kent (2017) are of the view that ‘for small designer-led businesses the designer can be at the center of the process, and affirm Curwen, Park and Sarkar, (2012) assertion that the designer must have the mandate through the alignment of business culture, objectives, structure, and processes.

The Designer Role

It has also been articulated by many authors that designers have the capacity of influencing sustainability at the early stages of design (Gwilt and Rissanen, 2011, Murray, 2013, Koszewska, 2018). As much as "80% of the environmental and social impacts of a product, incurred throughout its whole life-cycle" could be influenced already in the product design and development phase (Tischner & Charter 2001 as cited in Karell & Niinimäki 2020, Murray, 2013). Kozlowski, Bardecki, and Searcy (2018) emphasized that fashion designers are key agents of change in the transformation to a sustainable fashion industry. As material (textile production) is a huge factor in environmental sustainability, the choice of raw materials (Lehmann et al., 2018) can determine up to half of a fashion brand's environmental footprint of businesses across sectors and requires proactive decisions at the initial stages of production activities to get it right.

The Study Framework

This study draws on Claxton and Kent's assertion of the possibility of designers to be at the forefront of design activities in small designer-led businesses as a foundation and adapts the Innovative design-driven sustainable business model developed by Kozlowski, Bardecki, and Searcy (2018) as a guide for the conceptual framework for the study analysis. They outlined four major obstacles to the implementation of sustainability in the design process to include: company capacity and mindset; industry practices and norms; consumer behavior and expectation; technological restrictions. This study is focused on company capacity, and industry practices and norms. Building on Meadows, (2008) it is imperative to examine the elements in the structure of small designer-led businesses and how these elements jointly impact the adoption and implementation of sustainable strategies in Ghana. Figure 1 shows the adapted framework of Meadows (2008) and Kozlowski et al. (2018).

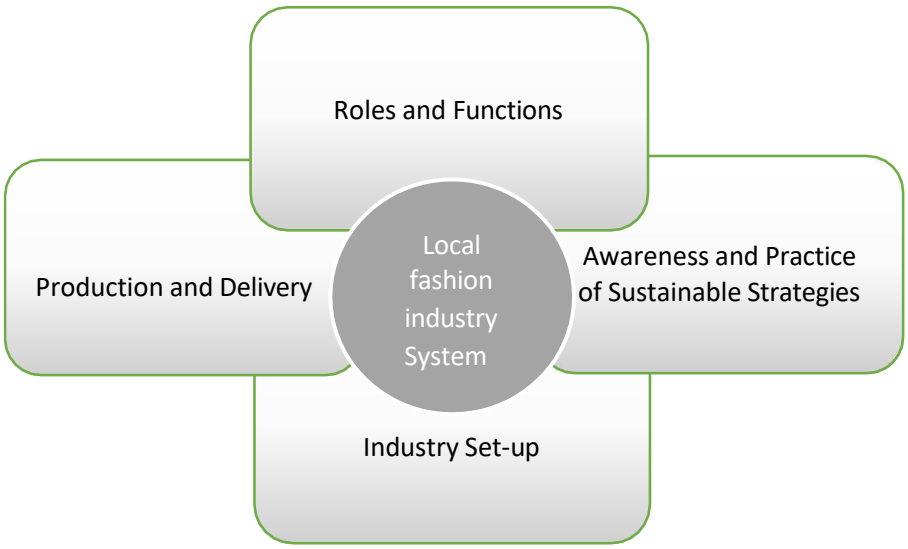

Figure 1. Thinking in Fashion System. Adapted Framework from Meadows (2008) and Kozlowski et al. (2018)

Meadows (2008) talks about a system as an interconnected set of elements that is coherently organized in a way that achieves something and creates its pattern of behavior over time. In essence, Fig 1, represents elements that connect in the practice of fashion production as far as the industry in Ghana is concerned. Accordingly, once the structure is identified and understood, it will help in identifying underlining patterns of how things work (Meadows 2008), and mitigations necessary for better behavior patterns towards sustainability. In general terms, the four elements in fig 1 are indications of how garment producers in Ghana generally operate, how they identify with sustainable strategies, and the opportunities available for local producers. This forms the basis of the study analysis.

Method

As a preliminary investigation into doctoral research, the study sought to find out the basic structure of the Ghanaian fashion industry to enable the selection of targeted respondents for ongoing research. To have a vast knowledge of an industry characterized by micro, small to medium-scale enterprises, a quantitative case study approach was employed to explain what practices generally exist, and the willingness of respondents to participate in further investigation. Yin (2018), explained that where numerical evidence is required, a quantitative approach to a case study is an option.

Data Collection and Analysis

This phase of the study which comprises the planning, dissemination, analysis, and reporting took place between May and November 2021. Closed-ended questions were developed to include, respondent background information and role in the firm, basic information of the firm, size and sector of operation, fabric types used and source, awareness, and practice of sustainable strategies. The survey sample was largely dependent on fashion producers with at least a basic education, in the two main regions in Ghana, who own and operate a firm. This was to gauge their current production strategies and awareness of sustainable fashion in anticipation of the implementation of a circular approach. The structure of these firms was deemed relevant in this regard. As data collection was occasioned amid the Covid 19 pandemic, google form was employed. A purposive sampling strategy (Maxwell, 2012) was adopted to ensure that data was collected from garment producers with formal education as some questions were deemed technical. Hence a snowball technique (Cohen et al., 2007) was employed as respondents were asked to identify and forward questions to other qualified respondents. Initial respondents were known to the researchers and therefore provided data on several other respondents. A total of 104 respondents were reached, out of which 84 responses were recorded. The collected data from the google forms were collated with Microsoft excel and analyzed. Although the survey was intended for the two major regions in Ghana (Accra and Kumasi) some strayed responses were identified to have emerged from Ho and Tarkoradi both in the Volta and Western regions of Ghana with total responses of 4(5.2%) and 1(1.3%) respectively. The results have been categorized into four major areas and are presented and discussed in the following text.

Results and Discussions

The primary focus of the survey was to establish business ownership and functions and how these influence the implementation of Circular Strategies in Ghana. Table one (1) presents the basic demographic information of respondents

ITEM	Frequency	Percentage
Level of Education		
Basic	6	7.80
Secondary	12	15.60
Diploma	5	6.50
1st Degree	42	54.50
2nd Degree	11	14.30
None	1	1.30

Table 1. Level of education of respondents. Source: Authors

From table one, it is evident that the majority of respondents (54.50%) are operating with first degree, followed by secondary education (15.60%) and second degree (14.30%). Although education is not a key consideration for this study, an impressive number with higher education makes room for easy comprehension of current issues facing the fashion industry both in Ghana and globally. It was however surprising to note that only 6.50% of respondents were diploma holders, given that fashion education in the tertiary level started with the Polytechnic and hence would have recorded significant scores. This low representation can be explained with the google form circulation by initial respondents.

Roles and Functions

Following the educational background, the survey sought to identify the Founder/Owner of the firm, current position, description of the role, and the approach of design of the respondents. Table 2 provides information on this segment.

ITEM	FREQUENCY	PERCENTAGE
FOUNDER		
Myself	44	57.1
Partnership	4	5.2
Other	29	37.66
POSITION IN FIRM		
Creative Director	55	71.4
Pattern Designer	7	9.10
Production Manager	9	11.60
	2	2.60

Marketing Manager	3	3.90
CEO		
ROLE DESCRIPTION	27	35.10
Designer	1	1.30
Producer	49	63.60
Designer/Producer		
DESIGNER APPROACH	24	31.20
Apparel Designer	53	68.80
Fashion Designer		

Table 2: Respondent Roles and Function, Source: Authors

Inferring from table 2, 57.1% of respondents established their firm against 5.2% and 37.66 % for partnership and other means of establishment. This confirms the claim of the Ghana Statistical Service (GSS, 2016) report that ownership of fashion enterprises in Ghana are predominantly sole proprietors. Again, 71.4% indicated that they are the Creative Directors of their firms, followed by 9.10% as Pattern Designers, 11.60% as Production Managers, 2.60% as Marketing Managers, and 3.10% as CEO. The founder is also the creative lead of the firm. From the analysis on role description, 35.10% referred to themselves as Designers, 1.30% as Producers, and 63.60% as Designers/Producers. This is leaning towards founders who design and produce their fashion products. Results from the designers' approach indicated that 68.8% see themselves as fashion designers while 31.20% see their approach as apparel designers. From the results, the majority of designers are also the owners and creative leads, who see to the production of their designed garments and coordinate the entire development process. Certainly, they will have the mandate to align business culture, objective, structure, and processes, as asserted by Curwen, Park and Sarkar, (2012) in the event of adopting and implementing sustainable strategies. Because the majority see themselves as fashion designers as opposed to apparel, influences of trends and the practice of sustainable strategies (Hur & Cassidy, 2019) are issues for consideration in the adoption and implementation. It must be noted that, in contrast to the design approach in the West, consumers in Ghana play a direct and very significant role in the fashion design process, in terms of material, style, and aesthetic, and may greatly influence the designer on the outcome of garments produced. Hence, although local designers have a high level of sovereignty, consumers' direct participation in the process will greatly impact the adoption and implementation of sustainable strategies. By this, consumers bring to bear their preferred strategies through a direct dialogue with the creative lead of the firm, albeit aligned with the objectives of the firm. On the other hand, the few firms that operate an absolute ready-to-wear module, with a relatively smaller customer base as opposed to advanced fashion markets tend to audit their product offerings to respond swiftly to emerging customer preferences in real-time as production sites are in the same location or proximity to retail outlets.

Industry Set-Up

Having looked at the roles and functions of respondents, it was necessary to examine the firm location, size, duration of operation, and product category. These elements are important considerations in the description of an industry structure as these influence to a large extent how the firm operates (Minai, 2014) and its influence on sustainability. The following demonstrates a view of these elements in the structure of the fashion industry in Ghana.

Firm Location

The study analysis showed that the majority of respondents are situated in Accra with 71.4% representation, followed by 22.1% in Kumasi, 5.2% in Ho, and 1.3% in Takoradi. It must be noted however that percentages from Ho and Takoradi are considered as strayed responses as they were not sampled for the survey. The total percentage of these two cities is negligible and does not negatively affect the outcome of the survey. Again GSS (2016) and JICA (2020), confirmed Accra and Kumasi as being the two major hubs of garment producers in Ghana. The firm location was viewed as an important element (Kimelberg and Williams, 2013, Minai, 2014) in the local fashion system as this influences the selection and production techniques and, the required volumes per a firm's target population. Accra and Kumasi currently host major business and higher educational institutions with a myriad of activities that command the production of certain fashion products per market demand. Sustainability issues therefore cannot be overlooked. A firm's structure and processes, to its location and business objective, will greatly impact the adoption and implementation of sustainable strategies. With the steady rise in retail outlets in these locations, there persist the culture of bespoke/made-to-measure model of production, which concurrently run with products for retail shops, a situation that is currently being studied in Ghana by the authors, to examine firms' current models and implications on sustainability and strategies adoption.

Years of Firm's Operation

The number of years of operation is likely to indicate practices that are unsustainable to a firm in the authors' opinion and hence was a consideration in the survey. The results revealed that 40.3% of respondents started operating between 1-5years, 39.0% between 6-10 years, 15.6% between 11- 15 years, 1.3% between 16-20 years, and 3.9% operating 20 years and above. It is clear that the fashion industry in Ghana has seen growth in its establishment in recent years, and evolving. Issues on sustainability gained prominence in the last decade globally. Interestingly, the majority of fashion businesses in Ghana were established in the last decade as per the result of the study. It is imperative therefore to align business practices with sustainability and sustainable strategies (Thorisdottir and Johannsdottir, 2019) as the local fashion industry evolves so fashion firms will make efforts to attune and imbibe the associated principles.

Firm Size

The size of a firm plays a major role in the implementation of Circular strategies. The results indicated that 64.9% of respondents are micro-sized firms, 27.3% representing small scale, 5.2% medium scale, and 2.6% large scale firms. The findings attest to recent reports on the fashion sector in Ghana (GSS, 2016 & JICA, 2020) on the domination of micro and small-scale fashion firms in Ghana. Although there is no quantifiable evidence of the waste generation of these firms, Williamson et al. (2006) are of the view that with many small activities, their cumulative impact could be significant. However, with the increase in micro and small firms, owners of these businesses who are also designers and producers can easily identify unsustainable practices and systemic issues, favorable or unfavorable, and the rectifications necessary to effect the adoption and implementation of sustainable strategies. Moreover, firm sizes and production capacities of local producers determine skill levels required for specific tasks. The adoption of specific strategies will have to correlate with the size of the firm and skill availability. Relevant skills peculiar to specific strategies need to be examined for their availability and other requirements for operationalisation. It must be noted however that, the skill gap has been identified as one of the challenges of the Ghana fashion industry (Senayah, 2018), which has greatly impacted the qualities of items produced. As the adoption of SS requires skill, technology, and technical know-how, local firms will have to examine their current model to aid adoption. As sustainability in fashion appears to be an unexplored research area in Ghana, the authors are currently conducting further research aimed at bringing to the fore the various facets of the subject with accompanying social- cultural impacts.

Business Sector Operation

The sector of operation is also a key factor in an industry structure and aids the implementation of policies and strategies (Thorisdottir, and Johannsdottir, 2019, Minai, 2014). As an industry in its developmental stage, 39.00% of respondents are operating under the formal sector while 61.00% are under the informal sector. An industry with high numbers of micro-firms that are also informal creates managerial challenges due to unstructured and procedural lapses. Sinha (2002) mentioned that the ‘fashion designer must be a market researcher of visual and qualitative data, an analyst of the collected data, an interpreter of meanings and a negotiator in an expansive decision-making process’ Stecker's opinion on the designer’s experience and the company type becomes relevant. However, these are activities that undoubtedly could be missing in predominately composed micro to small firms with regards to sustainable practices, and requires further investigation into local firms’ business models to identify the lapses. Even though the business owners may have the mandate according to Claxton and Kent (2017) to align processes and practices, they may lack the experience and work organization in dealing with the complex nature of sustainability.

Production

The issue of implementation of sustainable strategies largely boils down to production processes. This section presents results on fabrics and sources, production location and module, energy type, and delivery channel. The connection between these elements brings to the fore

the underlying pattern and how they impact the adoption of sustainable strategies. In table 3, fabrics mostly used for garment production according to the survey is 70.10 % for cotton and polyester blends. This was followed by 29.90% cotton, 0.00% for polyesters, and 0.00% indicating none of the fabrics are used. Regarding fabric source, 16.90% of fabrics are sourced locally, 24.70% are imported fabrics bought from the open market, while 57.10% are both imported and locally made fabrics, while 1.3% constitute missing responses. Garment producers compliment local fabrics with imported ones for material input. While local textile producers concentrate mainly on cotton production, a 70.10% use of both cotton and polyesters pointing to a blend, corresponds with 57.10% use of imported fabrics. It, therefore, could be argued that the majority of fabrics used for garment production in Ghana are blends of imported fabrics. This falls in line with the global trends of the use of polyesters and blends in garment production (Allwood *et al.*, 2006, WRAP, 2017).

Quite apart from imported fabrics, there are indigenous local textiles like the famous Asante Kente, tie/die, and batik among others. However, material components for the production of these fabrics are largely imported, production processes are cumbersome, as their processing requires to a large extent, manual techniques and hence increase the cost of production and selling prices. Unavailability of these indigenous fabrics in volumes impedes their usage for the production of retail pieces in volumes, however ideal for limited quantities. In a less trend-driven environment like Ghana, the socio-cultural implications are that attention to developing the capacity of indigenous fabrics and dyeing processes will lead to job creation and economic empowerment. There is also the possibility of the development of specialized skilled areas in fabric production, bearing in mind the unique and rich cultural contents of these indigenous fabrics. This will lead to the availability of a variety of fabrics albeit in limited designs to facilitate exclusivity of fashion brands' products. These will lead to reduced pressure on world textile markets.

As already mentioned, designers have the capacity of influencing sustainability at the early stages of design (Koszewska, 2018). As established beforehand, the local fashion producer has the mandate to influence the selection of materials which can go a long way in reducing a fashion brand's environmental footprint of businesses across sectors according to Lehmann *et al.* (2018) However, limitation to appropriate fabric selection is the factor of availability. In the face of fewer options, local producers can innovate through the adoption of strategies.

The production module per the survey also points that 71.4% of respondents are into custom-made, 19.5% represent ready-to-wear, 7.8% are into mass production, and 1.3% are missing responses. Garments are predominantly produced onshore with an 80.5% score, 6.55% offshore, 9.1% producing both onshore and offshore, and 3.9% missing responses. The energy source for local production is generated by electricity accounting for 96.10% and 3.90% for solar energy. Hydro generation of power is sometimes challenged by the drop of water levels, however, considered to be cleaner than crude. Once the garments are produced, they are delivered primarily direct-to- customer with a score of 71.40%, 3.90% selling through own retail outlet, 23.40% employing both direct-to-customer and own retail outlet, 1.30% missing. The analysis is an indication of the heavy emphasis on local production and corresponding consumption. It is worth noting that, the majority of respondents opted for custom-made modules of production, while value is delivered directly to the customer instead of a retail

format as in the case of most developed fashion jurisdictions. In most cases in Ghana, customers will go to their preferred dressmaker to request a garment, usually with their fabrics and personal body measurements accompanied by the customer's choice of style. The sewn garment is then delivered personally to the client who picks it up from the producer's workshop. In the light of this, a well harnessed direct relationship with the customer (Thorisdottir and Johannsdottir, 2019) can be a catalyst for ensuing conversations around sustainable strategies, to identify and adopt the most appropriate, that aligns with the firm and its clients for mutual benefits. The high preference for a custom-made product, coupled with value delivered direct to the customer, and the fact that garments are predominantly produced locally is significant in the implementation of strategies in Ghana. These are enablers that bring the customer to the center for consideration and decisions on implementation, should a firm adopt a strategy. Customer direct engagement is an entrenched production culture that may likely affect the retail model and requires investigation to unearth the dynamics and implications on the adoption of SS.

ITEM	FREQUENCY	PERCENTAGE
FABRIC MOSTLY USED		
Cotton	23	29.90
Polyesters	0	0.00
Both	54	70.10
None	0	0.00
FABRIC SOURCE		
Locally made fabrics	13	16.90
Imported fabrics on open market	19	24.70
Both	44	57.10
Missing	1	1.3
PRODUCTION MODULE		
Custom-made	55	71.4
Ready-to-Wear	15	19.5
Mass Production	6	7.8
Missing	1	1.3
PRODUCTION LOCATION		
Onshore	62	80.5
Offshore	5	6.5
Both	7	9.1
Missing	3	3.9
SOURCE OF ENERGY		
Electricity	74	96.10
Solar	3	3.90
DELIVERY CHANNEL		
Direct-to-Customer	55	71.40
Own Retail Outlet	3	3.90

Both	18	23.40
Missing	1	1.30

Table 3: Factors Impacting on Garment production. Source: Authors

Awareness, Importance, and Practice of Sustainable Fashion

The last section of the survey was to gauge respondents' awareness and sustainable strategies highly applicable to their firms. Hur and Cassidy, (2019) stressed the fact that if a company's vision does not embrace sustainability in its design practice, it becomes difficult to practice it. Awareness of sustainability issues to a fashion producer is critical to the implementation of strategies as it guides the selection of the most appropriate strategy that aligns with a firm's vision. In fig 2, out of the 84 respondents, 7 representing 9.10% indicated they had no idea of sustainable fashion, 6 (7.10%) low on awareness, 31 (40.30%) averagely aware, 23 (29.90%) good, 7 (9.10%) high, and 3 (3.90%) indicated very high. This implies that the majority of garment producers in Ghana know of sustainable fashion. The awareness of the phenomenon is an important step in its implementation.

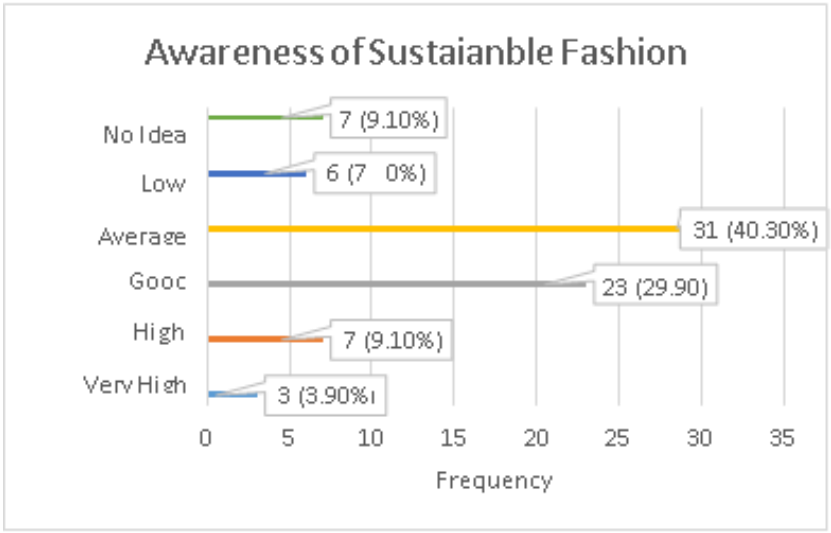

Figure 2. Awareness of Sustainable Fashion among respondents. Source: Authors

Again, based on Hur and Cassidy, (2019) assertion, it can be argued that how relevant one views issues on sustainable fashion crave the willingness to adopt and implement a strategy. In fig 2, out of the 84 respondents, 26 (33.80%) strongly agreed to the importance of issues on sustainable fashion, followed by 27 (35.10%) indicated they agree, 16 (20.80%) were neutral, while 5 (6.40%) disagree, and 3 (3.90%) strongly disagree. The result points to the majority of respondents affirming the importance of sustainable fashion. The majority are aware of sustainable fashion and regard its related issues as important.

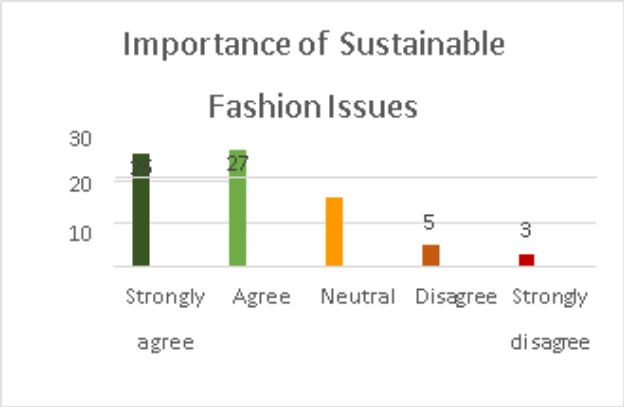

Figure 3. Importance of issues on Sustainable Fashion among respondents. Source: Authors

Although in fig 1 and 2, the majority of the respondents indicated awareness and importance of sustainable fashion and associated issues, when asked to select the highest strategy applicable to their firms in order of priority fig. 4 showcased customization as the most plausible with 26 (33.8%) respondents, followed by 24 (31.2%) in favor of timeless design. Transformable design and Design for longevity both had 5 respondents, representing 6.5% respectively, multifunctional had 3 (3.9%), and design for repair 2 (2.6%). The rest; zero-waste design, slow fashion, redesign/upcycling, emotional durability, design for reuse, design for recycling, all attracted 1 response, representing 1.3% each. However, 6 (7.8) responses were missing.

While there are different classifications of sustainable fashion (Cooper et al., 2013, Gwilt and Rissanen, 2011, Niinimäki, 2013 and 2015, Bocken et al., 2014) some are considered more transformative e.g. Circular Economy (MacArthur, 2010, WRAP 2015), with strategies like; reduce, reuse, recycle. From the analysis, three strategies were prioritized; customization, timeless design, and transformable design. The highest choice for customization as the most applicable strategy, confirms earlier results on production module and delivery channels adopted by these firms in table 3. This practice can be explained by less dominated large-scale firms that produce huge volumes for distribution. Again timeless, longevity and transformable designs as second and third options respectively in the authors' opinion are due to the relatively less trend-driven and season-less production of style. Customers could wear their clothes for a long period, however dependent on garment quality. Based on the strategies prioritized in table 4, Circular strategies appeared less attractive and require a further inquiry to unearth the underlying reasoning for their unattractiveness.

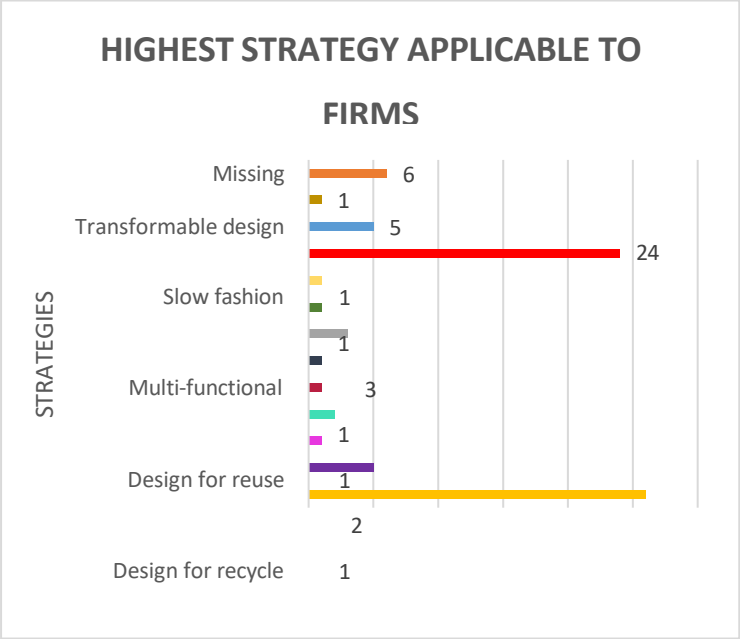

Figure 4. Highest Strategy Applicable to Firms. Source: Authors

Conclusion

The fashion industry globally is on a mission to transition into a sustainable industry. This movement has been embraced by both large, medium, and small-scale businesses. The implantation and scale however vary from company type. Company structure plays a vital role in the implementation of sustainable strategies. Although there is a call for the adoption and implementation of sustainable strategies, there has been the drive towards a circular approach. The structure of the Ghana fashion industry is characterized by micro to small-scale firms predominantly in the informal sector. Studies have shown that implementation approaches adopted by large-scale firms are not applicable in small businesses. Although fashion business owners double as creative heads and producers and therefore will have the mandate to take major decisions regarding their businesses towards sustainability, environmental conditions such as material availability and awareness of material components is an immediate challenge. These perceived challenges may hinder the adoption and implementation of strategies, especially with regards to circular strategies that appeared to be less favored according to the survey. A study into the knowledge of circular strategies and businesses' willingness to adopt these strategies is required. This will unearth the reasons for the disinterest as portrayed by this study and the necessary steps that have to be taken to warm fashion businesses in Ghana into circularity. Koszewska (2018), opines that transition to a circular model will depend on the knowledge, awareness, and engagement of all actors. Ideally, a focus on formal businesses with the necessary operating protocols will be a good starting point in initiating sustainable strategies that could yield a rippling effect on later attempts by informal firms. Although there is a significant drive towards strategies like customization, timeless design, and design for longevity, it is important that further research is conducted to find how these strategies are carried out and possibility align them towards a sustainable manner for greater impact.

However, the direct customer engagement with fashion businesses in Ghana is positive for the identification of customer preferred sustainable strategies and how businesses can align themselves for effective implementation of selected strategies for sustainability.

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HOW DOES PROTEST WEAR CONTRIBUTE TO WOMEN'S ACTIVISIM

Author

M Deniz Aslan,
Istanbul Moda Academy, Istanbul, Turkey

Corresponding Author: deniz.aslan@istanbulmodaacademy.com

Abstract

The following extended essay is a collection of findings on how protest wear contributes to women's activism. To come to a clear conclusion on this topic, qualitative research methods, which are auto-ethnography and focus groups, have been utilised for their ability to produce results that are more personal and intimate because of the natfure of the essay question.

Academic reading is also included to support these previously mentioned primary research methods. After the research was concluded, when answering how protest wear contributes to women's activism, the findings were pointing in the direction of further unification among the protesters, enabling a stand against capitalism and patriarchy, and reinforcing the rebellion in the fight against inequality.

Introduction

> "It can be easy to write clothing off as something frivolous or materialistically indulgent. But what about when clothes exist to make a political statement? The clothes worn by protesters are, in many ways, just as significant as the chants and signs that are vital components to political demonstrations. From women's rights marches, to Black Lives Matter protests, to Occupy Wall Street and anti-Trump takeover rallies, clothes play a pivotal role in sending a message of change."
>
> Elizabeth King (2016)

With the last minute cancellation of my shift, I hurried down the tube to make my way over to the Women's March. Although in my work attire, I was still looking forward to joining this act of orderly rebellion on the streets of London, mimicking the ones taking place all around the world simultaneously. Once I arrived at the gathering point I was greeted with endless amounts of colour, primarily pink, in every shade one can think of on signs and hats that participants have made themselves. Which then led me to think: A crowd of people stand gathered, riled up with their cause in mind, they look around. Heaps and heaps of others around them, just like them, believing in the same rights and the same wrongs. So what brings them together to make them into a community and therefore more palpable? Was it this vast sea of pink hats? Often times in history the tactile side of these movements has manifested in the form of a piece of clothing; a piece of physical proof that indicates what that individual believes in and what group they are a part of. From the slogan sashes of the suffragettes to Pussy Riot's ski masks, this extended essay sets out to investigate the ways clothing and fashion contributes to women's activism.

Methodology

KVALE (1983, p.174) defines the qualitative research interview as "an interview, whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena" - Raymond Opdenakker (2006)

Qualitative and quantitative data collections are two of the most frequently utilised techniques of information gathering. In the case of this extended essay, the former has been preferred due to its tendency to give out a wider selection of subjective points of view. Under the umbrella that is qualitative research, the main methodology employed was in the form of a focus group. The reasoning behind this method being used was because activism and protests are highly emotionally charged and people based practices therefore interviewing individuals who took part in these events is beneficial to be able to bring across the mind-set of the people involved as opposed to reducing them to data charts and numbers. Furthermore, to convey the sense of community and togetherness, the interviews were conducted in the form of a focus group.

Interviewing and focus groups are advantageous when it comes to interacting with subjects from a more personal point of view and being able to record their opinions. "The data in the focus group are solicited though open ended questions. The focus group presents a more natural environment than that of an individual interview because participants are influencing and

influenced by others –just as they are in life." Richard A. Krueger (2014) However there are some negatives to this subjective method such as interviewer bias which can alter the outcomes of the session depending on the person recording the participants' answers.

While conducting the session, it's crucial for the interviewer to stay as objective as possible while being well informed on the subject they are investigating so they can ask appropriate questions. According to William Foddy (2002); "Interviewers need to know more than simply how to conduct the interview itself. They should have background of the study and why the study is important." Another necessity when it comes to getting optimal results from focus groups is that the interviewer asks the rights questions and creates an open and judgement- free environment for all the participants. If this is not achieved amongst the group, it may lead to what David L. Morgan mentions in his piece about focus groups: "One unique ethical issue in focus groups is the fact that what participants tell the researcher is inherently shared with other group participants as well. This raises serious invasion of privacy concerns and effectively limits the kinds of topics that the researcher can pursue." In this case this issue has been handled by making sure all the participants shared similar ideas and beliefs when it came to the topic at hand and were comfortable talking about it within each other's presence.

Another type of qualitative methodology used in this extended essay is 'auto-ethnography'. "Auto-ethnography is an intriguing and promising qualitative method. Emerging from postmodern philosophy, in which the dominance of traditional science and research is questioned and many ways of knowing and inquiring are legitimated, auto-ethnography offers a way of giving voice to personal experience to advance sociological understanding" explains Sarah Wall in her 2008 article about her experience in writing an auto-ethnography. Due to the personal and emotional nature of activism and design, this way of researching was suitable in order to convey the density of the subject at hand. With that being said, this method is not without its disadvantages.

When mentioning the advantageous aspects of auto-ethnography, Mariza Mendez (2013) elaborates, "One of the main advantages of personal narratives is that they give us access into learners' private worlds and provide rich data (Pavlenko, 2002, 2007). Another advantage is the ease of access to data since the researcher calls on his or her own experiences as the source from which to investigate a particular phenomenon. It is this advantage that also entails a limitation as, by subscribing analysis to a personal narrative, the research is also limited in its conclusions." However, Bochner and Ellis (1996) consider that this limitation on the self is not valid, since, "If culture circulates through all of us, how can auto-ethnography be free of connection to a world beyond the self?" (p. 24)."

Similar to the focus group disadvantages, writing an auto-ethnography brings with it the question of bias and objectivity. "The most recurrent criticism of auto-ethnography is of its strong emphasis on self, which is at the core of the resistance to accepting auto-ethnography as a valuable research method. Thus, auto-ethnographies have been criticised for being self-indulgent, narcissistic, introspective and individualised. (Atkinson, 1997; Coffey, 1999)" (Mendez, 2013). To avoid this, it is of utmost importance that the auto-ethnographer refrains from digressing to topics irrelevant to the initial question or delving too deeply into their

personal life which would fall under an auto-biography rather than an effective example for auto-ethnography.

Theoretical framework

History of women's protest clothing

"Fashion is about illusion and escapism sometimes but it's also a platform for the possibility to invite change." claims Kim Jenkins, an assistant fashion professor at Pratt during an interview with Natalie Gontcharova for the Refinery29 website. She mentions this while talking about Gernreich's monokini, a swimsuit that covers mostly the bottom half of the body, explaining how it was revolutionary at the time for women to embrace their sexuality and become self-aware.

She then goes on to suggest that "It was arguably an early predecessor of Instagram's #freethenipple movement – and the changing attitudes (and laws) around toplessness in the latter half of the century."

Because women's rights issues are often tied in with sexuality and having ownership over ones' own body, clothing inevitably plays a role during rebellious acts done towards this cause. However there are cases where wearable slogans have been included in causes to do with women's right to vote and get equal pay; such as the Suffragette "Votes for Women" sashes and wearable sandwich board slogans worn by women fighting for equal pay.

Figure 1. Gernreich's Monokini

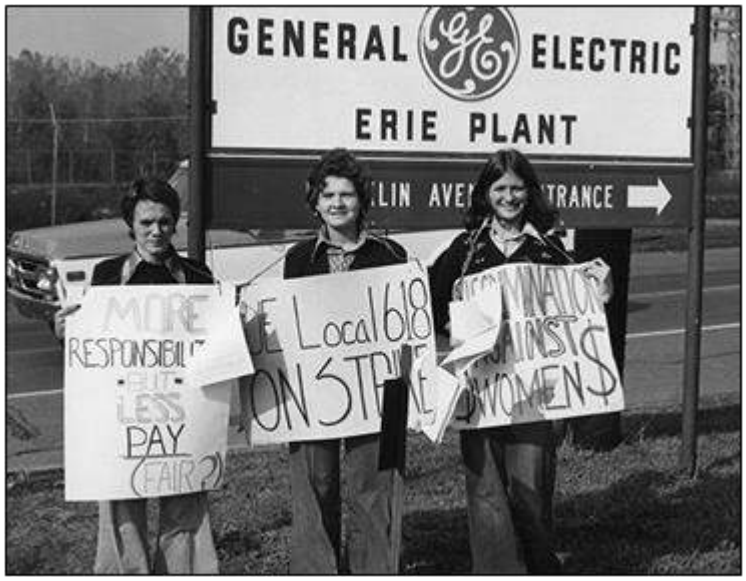

Figure 2. Sandwich boards during equal pay protest

Wearable sandwich boards first started sprouting during 1930's, an early example is when British labour activists decided to wear sandwich board slogans depicting their outrage towards working conditions of the time (Miller, 1979). During the early phases of wearable activism, sandwich boards prevailed for their accessible and do-it-yourself nature. 1975 Timekeepers Strike is an example where women made use of wearable boards to write slogans relevant to their cause which was equal pay in their workplace.

One of the major women's rights movements who benefited from clothing in their actions were the Suffragettes. "Although suffragettes in England and the United States often committed crimes like arson and vandalism in their fight to gain the right to vote, their appearance was of a woman who would never even think of doing such things — and that's no accident.

"They sought to effect change not by challenging contemporary fashion and ideals of femininity, but by conforming to them," the Guardian reported of suffragette fashion."(Lubitz, 2016) This wasn't the only way Suffragettes maneuvered garments for their cause; they also had iconic Sashes with the words Votes for Women written on them which were used to symbolise their allegiance to the cause.

In the 1960s, the item of rebellious clothing was a mini-skirt. After an era of obedient house-wife type women being enforced, the young women of the day turned to breaking the rules with the help of clothing that was viewed as indecent by the generation before them. "In just one garment, one could feel the cultural zing of women's rights, feminism and liberation alongside the fight for female birth control. Mostly worn by young women who were taking part in those debates themselves, the skirt encapsulated the movement." (Lubitz, 2016)

Figure 3. Protest by wearing miniskirts in the 60s

Symbolic importance of Colour

"It is the indirect expression of an individual through his garments, that tell us, for instance, that the person whom we 'see' approaching is one whom we know; and it's the movement imparted to his clothes by the limbs within, and not the motion of the limbs themselves, that enables us to judge at first glance whether this acquaintance of ours is friendly, angry, frightened, curious, hurried, or at ease, In the case of an individual whom we have not previously met, the clothes he is wearing tell us at once something of his sec, occupation, nationality, and social standing, and thus enable us to make a preliminary adjustment of our behaviour towards him, long before the more delicate analysis of feature and of speech can be attempted." - The Psychology of Clothes J.C. Flugel 1930 pg 15

Using clothing as a form of self-expression is a common practise which has been in use since early civilizations in history. Whether it was to cover up oneself or choose to subtract articles of coverage, clothing more often than not exists to carry across a message from the person wearing the item to the person viewing it. A crucial element in this equation is the utilisation of colour. Similar to how animals have evolved to display their stance towards the world through their colour schemes, for example how a rainforest frog warns its attackers of its toxicity via its bold and bright colours (Beddard, Animal Coloration, An Account of the Principal Facts and Theories Relating to the Colours and Markings of Animals, 1892), humans

have also come to subconsciously reflect their feelings and inner workings through colours; in this case, through protest wear. Some examples of this phenomenon can be seen in the all black garments of the 80s Black Bloc movement, 1989 Tiananmen Square protests where protesters wore all white and, Ukraine's orange revolution where wearing orange meant that person was anti-government and people who wore all blue were pro-government (King, 2016). Because of colour's ability to mean certain things and make a statement, it's been widely utilised as a means of disobedience and rebellion in a reoccurring manner.

Craftivism

The act of crafting through history has usually been linked to women and femininity. "Masculine culture would neither understand nor, more importantly, value, the symbolic and aesthetic role that images such as 'the crinoline lady' played within women's culture. (…) However well made such artefacts may have been, they could never have entered the masculine canon of 'good design' objects." As Penny Sparke mentions in As Long As It's Pink (1995 pg152). Because of this perceived inferiority, crafting became an element that reoccurred often in women's rights activism, showing that feminine can be powerful and make a difference. "Robins said she was inspired by how craft is seen as a benign, passive activity. She asked herself, 'How would it be if it were actually a dangerous activity, if it was something we actually weren't allowed to do, if it was banned?'" asks Kerry Willis in The Close Knit Circle (pg 61). This point of view stems from the societal norms and how they favour masculine as something to be taken more seriously and therefore fuels the fight against patriarchy by allowing women to use craft and show that feminine is just as powerful.

"Some argue that public knitters are engaging in subversion. 'I think you could say that knitting is a radical practise in a culture that is so compulsive about buying things,' Cat Mazza, creator of microRevolt, in an interview with reporter Beth Rosenberg." Debates Willis, showing another aspect of how craft contributes to activism. Especially with fast fashion being at an all-time high, creating things for oneself and minimising one's expenses can be seen as a 'radical practise' because of its defiant nature against capitalism which is a system dependent on the fact that people involved spend as much money as possible. In Disobedient Objects (by Catherine Flood & Gavin Grindon), a book which showcases different items used in activist protests in history, it's proposed that "Disobedience can involve DIY hacking and alteration, and also the design of whole new ways of disobeying. The re-use of easily accessible objects, like the shipping barrels composing nineteenth- century barricades, implicate these objects in unfinished dialectics of social struggle and make them one means of the global circulation of struggles (pg 15)." Which further expands on the scale of how ubiquitous craft and DIY has been not only in women's battle for equality but also in a more universal sense of activism and rebellion.

Case Study:

Women's March and the Pussy Hats Introduction

Introduction

Figure 4. Women's March

Recently the world of politics has welcomed a new face, Donald Trump. With his strongly worded opinions and claims he has gotten negative attention from many groups who find his statements to be 'offensive and demeaning'. This collective feeling among individuals has led to a protest march campaigned by women for gender equality. While it predominantly took place in United States, the march was also spread across the globe. One of the elements that stood out during the Women's March was the pink knit beanies called Pussy Hats. Social media and media feminist theory.

History

"Change means growth, and growth can be painful. But we sharpen self-definition by exposing the self in the work and struggle together with those whom we define as different from ourselves, although sharing the same goals. For Black and white, old and young, lesbian and heterosexual women alike, this can mean new paths to our survival." – Sister Outsider – Age, Race, Class and Sex, Audre Lorde, pg 123

Whilst at the march, my observations were clear; this event was a part of history that dated back to first wave feminism. Similar to and enabled by the protests of the Suffragette movement, the event flourished into a link between the past and the present, aiming to break the barriers that stood in the way of gender equality. People from every skin tone, gender, sexuality and income levels were all in harmony in one big group of insubordination, singing the same tunes of liberation. “Oh yeah for sure, the march had an overwhelming positive energy and it gave more of an atmosphere of hope. I felt like this march really brought everyone together from all walks of life and all over London. There was a mix of women and men and even lots of small children” chimes in Akshy Marayen, a participant in the focus group. This march wasn’t just a way to support one group of people but instead lift up all those who know oppression by being as inclusive as possible. There were sightings of celebrities in the United States marches as well as the London one. Some inspiring examples are from Angela Davis who spoke at the rally saying, "We recognize that we are collective agents of history and that history cannot be deleted like web pages." Maryum Ali also spoke up, saying, "Don't get frustrated, get involved. Don't complain, organize." Another quote which stood out was by Alicia Keys who announced, "We are mothers. We are caregivers.

We are artists. We are activists. We are entrepreneurs, doctors, leaders of industry and technology. Our potential is unlimited. We rise." (McKenzie, 2017)

The protest was initially planned in Washington D.C. by Teresa Shook, following Donald Trump’s inauguration day. “It was organized as a grassroots movement to ‘send a bold message to our new administration on their first day in office, and to the world that women's rights are human rights’”(Tatum, 2017). After the Women’s March on Washington gained momentum when it rallied around 500,000 people and spread to a total of 673 marches worldwide, London, as a major capital of the world, also joined this sisterhood of rebellion. Akshy Marayen from the focus group conducted explains, “I didn’t expect the turn out to be as massive as it was, we started the march at the US embassy and it took a long time to walk to Trafalgar square as there was so many people and even as we marched more people were joining from different points!” Experiencing such a powerful togetherness by joining the march that took place in London was in a way portraying to me how strong women can be when facing injustice which in itself is an empowering feeling while you exist within the accepting embrace of women who are fighting in unison. A primary contributor to the feeling of unity, especially in Washington, was the pink hats. Although there weren’t that many in the London march, they still stood out in their pink glory, referencing their American counterparts. Similar to the miniskirt of the 60’s and Gernreich’s monokini, this object symbolised uniformity and defiance against the patriarchal systems and oppression.

Symbolism

“To disobey is order to take action is the byword of all creative spirits. The history of human progress amounts to a series of Promethean acts. But autonomy is also attained in the daily workings of individual lives by means of many small Promethean disobediences, at once clever, well thought out, and patiently pursued, so subtle at times as to avoid punishment

entirely… I would say that there is good reason to study the dynamics of disobedience, the spark behind all knowledge" – Gaston Bachelard, 'Prometheus', Fragments of a Poetics of Fire, 1961 – Disobedient Objects pg. 7

Once the history of protest and disobedience is investigated, it becomes evident that there's often an item or symbol associated with the protest it signifies, most commonly seen in the recent history in the form of t-shirts (i.e. Black Lives Matter, Occupy Wall Street). In this case it was the pink hand-crafted hats with cat ears on them called "Pussy Hats". The name comes in the form of a play on both the words 'pussycat' and the term used to describe female genitalia. "We love the clever wordplay of 'pussyhat' and 'pussycat,' but yes; pussy is also a derogatory term for female genitalia. We chose this loaded word for our project because we want to reclaim the term as a means of empowerment" explains Jayna Zweiman. This trend among the activists was initiated by Krista Suh, an architect, and Zweiman, a screenwriter, when they got together to brew an idea that would represent the spirit of the march while empowering its participants. Umut Turkucu, from the focus group, as a male at the march has commented "I can say that because of how people expect you to behave when you're male or female it felt like I was breaking some stereotypes by wearing a bright pink hat and that was like weirdly liberating. Like I was making a stand within a march that's for making a stand?" His explanation on how the hats affected his overall experience goes to show that colour and specific items of clothing can have a strong symbolic importance. Especially in this case where pink is a colour that's associated with femininity as well as inferiority when looked at it from a patriarchal point of view. The fact that these hats are pink symbolises here how the creators of the hat intend to reclaim pink as a colour of insubordination by using it in an activist context. Another participant in the focus group session, Sally Somerville-Woodiwis expands on how the crafting side of the hats influenced her, "I've got to say; making the hats was kind of like gearing up before a paintball match in the way that preparing something beforehand made it feel more… powerful in a way. It was like 'Yeah we're a part of this too now!'"

Figure 5. Krista Suh and Jayna Zweiman

Craftivism

"Recent debate within feminist history and theory has highlighted the dependent relationship between patriarchy and capitalism and the ability of both to reshape and reformulate society in order to overcome potentially transforming processes" (Buckley, 1986 pg. 4)

Some aspects to consider when analysing why this item, the pink knit hat, was chosen is accessibility, distribution, and influence. When selecting an item that's aimed at the public to use in large groups of people, it's important to look at whether the intended group will be able to own it for its intended purpose. This aspect can be likened to the posters at the Victoria & Albert Museum as mentioned in Disobedient Objects "The V&A, for example, has mostly collected commodity-objects of elite production and consumption – also primarily objects of private consumption. An exception is collections of prints and posters. The multiple, cheap and distributed nature of the poster means that even in its most finely designed form it has been integrated into everyday public life." Based on this definition of posters, it could be said that the hats created for the sake of the Women's March would also fall under the category of objects one can integrate into daily life and get a hold of with ease. The way this was established was through the use of media and crafts, two mediums which have been commonly present in activism.

Instead of selling these hats through their website, Suh and Zweiman came up with a way that utilised the influence of craft within activism; by uploading the patterns for making these hats online so that everyone who had interest in their cause had the chance make their own and contribute to the protest by creating. This way they also enabled people who couldn't attend the rally and therefore making them feel like they are a part of the movement by possessing a symbolic item representative of the march. Sally Somerville-Woodiwis points out that the hats were also "pretty straightforward to make" Which she then says was something that she found to be "a positive because it literally takes like such little time to make them" and therefore contributing to their accessibility. The act of creation here is not only effective in its attainability but also in how craft is a form of activism in itself through its defiance of capitalism and commodity culture. According to an article by Leanna Garfield and Melia Robinson on Business Insider, "Since it launched in late November, the project has garnered thousands of social media followers, and Zweiman estimates nearly 100,000 people have downloaded the hat's pattern. Amy Schumer, Patti Smith, Rosanne Cash, and Krysten Ritter have posted photos of themselves wearing the hats, too." The fact that this project has reached so many people from a variety of backgrounds, means that the forerunners of the Pussy Hats have succeeded in creating an object that is accessible and influential, and took advantage of how media can help spread awareness.

Conclusion

When it was over, I stood looking around at the diffusing crowd. People were saying goodbye to their friends, old and new, exchanging numbers and Instagram accounts, telling each other to say hello to someone or other. Prior to my arrival, I had the assumption that this event would be an exhausting one due to large crowds and lengthy marching. I was pleasantly surprised

when I found, at the end of this rally, that instead of being tired I instead felt refreshed by all the positivity and high levels of energy that stayed potent through the whole of the day. This group of people who were there for each other, people they've only just met or have never even seen. Thrilled by this I started making my way back home, clutching a piece of someone's bandanna I had ended up in the possession of somehow, so I could have something to remember this day by and therefore have this feeling of pride and unity linger. People who had made the pink hats of defiance didn't have the problem of having to find a memento to grab from amongst the heaps of people because they already had an item in their possession which held within their hard work, knowledge of sharing this item with many others in unison and the pride of knowing that this item symbolised their fight against the patriarchy alongside their sisters who had also put in the time and effort to create something that showed that crafting is strength. So in the end, my journey in researching how these hats– and other items of disobedience in history- have contributed to the Women's March 2017, and women's protests in the past, I find that the physicality of it adds to the empowerment and rebellion; the act of creation fuels a stand against capitalism and patriarchy while knowing you're donned in the same garb as another who shares your values gives you a sense of community spirit. The fact that it's also a souvenir helps the momentum gained by the protest last longer as it becomes more integrated in everyday life. Therefore, as Faythe Levine has said in the spirit of craftivism, "I can remember how important it felt to wear a shirt from a thrift store to school with a feminist slogan stencilled on in it in spray paint. Being able to use my clothing as a way to engage people about fashion ideals, politics, and sexism was incredibly exciting." (F. Levine, Craftivism, pg. 56)

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THE FUTURE OF FASHION EDUCTAION: addressing, pedagogy, policy and professionalisation

Author

Anthony Bednall
Associate Professor,
Kingston School of Art, Knights Park

Corresponding Author: a.bednall@kingston.ac.uk

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Abstract

This paper examines the future educational environment of fashion education, specifically in the UK but with an acknowledgment of its broader global implications.

Fashion education at university level encompasses an intertwining of theoretical, technical, and practical elements that make up a range of artistic and business-focused manifestations of a phenomenon close to the centre of the modern world (Svendsen 2006). The macro environment, between the ongoing volatility within the Higher Education sector, driven by government policy and University marketisation and the seismic disruption across the contemporary fashion industry, through the digitalization of consumption and a global pandemic with its consequential effects on fashion retail, the fashion supply chain and public perceptions surrounding the industry, forms the basis of the research. The implications of these drivers on current, possibly outdated, pedagogic practices, rooted in singularly defined specialisms within an appropriate meso environment, is explored, to inform a multi-faceted learning landscape and delivery model, at a micro level. The paper proposes an Owner- Learner Model (OLM) which sits within an 'Erus' (owner) pedagogic domain, which accounts for and acknowledges acceptance of external impacting factors, puts individual ownership and co-creation at the centre of the learning experience, challenges existing models whilst supporting a broad, future facing, sustainable, fashion eco-system. The paper is informed by appropriate literature and personal experience of curriculum development and delivery. Its structure follows that of the implementation staircase (Reynolds and Saunders.1985), whereby the vertical location levels within an organization, respond to and interpret information requiring action, from Macro and Meso environments. In this case, consideration of national and institutional contexts down to a localized Micro level which influences the delivery domain. It also argues that the future of fashion education requires alternative propositions of pedagogic and curricula models, which are flexible enough to respond to the external and internal contexts whilst fulfilling the expectations of students, the institution and professional industry practices.

Introduction: The Learning landscape

Fashion education in the UK and across many developed countries is a highly attractive proposition. The vocationalisation and subsequent marketisation of fashion related subjects within Higher Education Institutions (HEI's) ensures that the HEI's continue to position themselves as the academic gatekeepers for the industry (Lightfoot 2015), who alone can prepare and professionally articulate individuals into their specialist future careers. For the academic year 2021/22 there are 94 Universities in the UK, offering 478 undergraduate degree programmes in fashion related courses (What Uni 2021). The majority of these programmes sit within large University and Faculty environments and are therefore bound by institutional top-down directives rooted in governmental policy and external macro level targets as validators of success. Arguably these political narratives have shifted the higher education landscape to inherently align with the goals of business, government, and educational practices (Hill et al 2016). For the UK, government sponsored design education can be traced back, to the first Select Committee of Arts and Manufactures of 1835, a Board of Trade initiative whereby the training of designers for industry was seen to be important, not for the cultural life of the country but as an economic necessity (Shepperd 1995). Even at its first inception the broader macro environment dominated by government and industry was instrumental as an influential driver and controlling factor over the expectations of educational institutions.

Arguably contemporary fashion education continues to have its roots in 19th Century arts and crafts, apprenticeships, and governmental requirements to support economic growth or its modern manifestations of 'value for money' and Graduate Outcomes. It adheres to present notions of curriculum, specifically, curriculum of practice for design-based courses and knowledge transmission for business focused courses, codes of practice, systems, qualifications and quality assurance which produce 'professionals' in a vast array of fashion related subjects still related to, and stimulated by, the vocational and the industrial. As Welters and Lillethun (2007) note Fashion is not a classical academic subject, it is a pluralistic mishmash of convergent and overlapping subjects and practices. Whilst Svendsen (2006) adds further definition to fashion education at University level, as encompassing an intertwining of theoretical, technical, and practical elements, that make up a range of artistic and business-focused manifestations phenomenally close to the centre of the modern world. In a possibly over saturated market, there has already been academic speculation regarding the need for existing academic practices, in fashion education to be rethought due to significant shifts in professional practice and society's relationship with design in general as a responsive tool for the sustainable, the responsible, the ethical the diverse and the inclusive.

This is clearly evidenced in the Central St Martins and Institute Francais de la Mode MA shows for 2022. Both of which illustrate that student design works are a bellwether of the future, pushing the limits of materials and metier.

Leaders in both business and education have been calling for a radically changed fashion industry (Thornquist 2018) which questions the way fashion goods are produced in a global industrial structure (product) and how fashion goods are consumed as social practices (concept).

Adding further narrative to this dialogue for change has been the Covid-19 global pandemic with the instigation of lockdown scenarios from early 2020 to a continued volatility within an endemic situation which remains complicated and unresolved in terms of an ongoing impact of educational pedagogic responses. The development of asynchronistic, synchronistic and blended delivery methods within HEI's, not only for fashion related activities, but for all institutional teaching activities has further initiated debates that could challenge the 'idea' of the university, as it positions itself within a 21st century eco-socio-political post-pandemic landscape. Certainly, the notion of the university as a located and fixed spacial environment , which requires timetabled physical attendance has been further challenged as the sector has attempted to negotiate new learning imperatives and responsive pedagogic dialogues which maintain both student satisfaction and professional preparation for graduate outcomes within the labour market. Ultimately the external factors which impact on academic practices, including the current macro/meso influences of external policy and legislation, contemporary fashion industry practices, Universities strategic aims and eco-socio-political contexts require micro level consideration within the delivery domains for fashion related specialist programmes.

Irrespective of defined specialist disciplines within Fashion education the subject has the potential to intersect the theoretical and the practical, connect intellectual enquiry with industry applications and business needs, and initiate dialogues that have the impact potential to reconsider existing paradigms in both a commercial and educational context.

Contemporary fashion education is undoubtedly positioned within a complex myriad landscape that is bound by an array of external factors which paradoxically have their own individual tensions and conflicts. For the future of fashion education to be sustainable a re- imagining of curricula and the questioning of existing pedagogic practices, to ensure successful navigation of these macro and meso environments is overdue and required.

External, Internal and Pedagogic Contexts

Although complex these external and internal influences can be defined In simplified overarching themes, in relation to key stakeholders. The Government and Policy, in terms of Graduate Outcomes(Teaching Excellence Framework TEF) the National Student Survey (NSS) and Value for Money (Fees, loans and repayments. The fashion Industry in terms of Industry ready graduate with an appropriate skill base, business articulate graduates and creative, responsible, problem solvers. The University in terms of student satisfaction, reiterated in responsive to Covid-19 restrictions (NSS/TEF), graduate outcomes (TEF) and attractive disciplines (recruitment and progression) and the student also in terms of value for money as well as route to employment and positive experience. What is apparent is that these themes are not unique to individual groups but reinforce the messages, perceptions and responses surrounding the massification and marketisation of HE. As part of this marketisation there has also been an expediential growth in disciplines and their fragmentation into sub-disciplines (Burton Clark 1996). In the case of Fashion, the evolving fashion arena and its

manifestations in mainstream culture have led to an academic development model of 'Fashion + X' for example BA Fashion Styling or BA Fashion Management (Gale 2011). This is further illustrated by the range of courses delivered by large Fashion provider institutions such as the London College of Fashion (LCF) who for the academic year 21/22 advertises 70 undergraduate and postgraduate degrees, and 165 short courses across every fashion subject

These types of degrees and a multitude of other variations fall into the sub-discipline category under the umbrella of fashion but as Gale (2011) also rightly points out this fragmentation moves towards an idea of curriculum fixity and validation by the imprimatur of quality assurance bodies. To reconcile the external factors, consideration needs to be undertaken to fashion related activities which employ differing pedagogic and delivery practices and follow established theoretical education models. Before , the re-imagining of these practices and an opening up of a debate around the possibilities of a future fashion education landscape can be projected and considered.

The Fashion Design or 'studio' based' practices courses, historically sit, within the design education sector, which has been described as having an extremely narrow philosophical anthropology with an outdated, implicit epistemology of design practice inherited from the nineteenth century and formalised through the Bauhaus model (Findelli 2001). Certainly, there have been further attempts post the Bauhaus to theorise and quantify a contemporary design process, from Archers initial (Archer 1963) model, 'the Systematic method for Designers through to the double Helix model advocated by the UK Design council (2007) the principles retain similarity, positioning the design of the product at its core. Pugh's (1990), somewhat complex Design activity model, "Total design' is also employed by design educators and is theoretically close to the aforementioned models by again positioning product development and manufacturing processes centrally. Here the core of activities, consists of market (user need), product design specification, conceptual and detailing of design and manufacture and sales, as imperatives for any form of product design, irrespective of Domain (Pugh, 1990). Pugh's view that all design starts, or should start, with a need that, when satisfied, will fit into an existing market, or create a market of its own is generally recognized by many design educators as a key process for designing products. Other frameworks specifically in relation to the design process of fashion garments have also been explored including Watkins (1988) proposed model of accept, analyse, define, ideate, select, implement, and evaluate, Lamb and Kallal's (1992) more general Functional-Expressive- Aesthetic (FEA) model, and contemporary versions such as Au and Yu's (2018) Design Process model for the creation of conceptual fashion. Au and Yu's model argues for the integration of professional knowledge from differing design domains within an interdisciplinary practice to enable conceptual fashion creation but continues to reinforce the notion of fashion product as core artefact. An analysis of design process models across a range of disciplines concluded that a consensus model is insufficient, with the existing matrices of tools, technique, methods, and approaches acting merely as guidelines, to support design creation and suggesting a process driven by simplified easily accessible activities that require limited intellectual interpretation or critical enquiry (Gericke and Blessing 2012).

Something that is often seen as problematic from an Academy point of view in relation to non-traditional subjects.

Academics have however recognised that a number of these existing processes have systematically failed to acknowledge contemporary discourses around the subjects of Fashion including ethnography, future narratives, user-centered and participatory processes, and eco-sociology as essential influencers on the design of products (garments). Sanders (2002) advocated a more participatory approach to design moving away from a user-centered model whilst Krippendorf argues that design creation should use 'human-centred methods', requiring debate and dialogue across a range of stakeholders to be successful. His 'Science for Design' model (Krippendorf 2006) places the artefact, in this case the garment/products, meaning or context at the core of the design process. He stated that 'No artifact can be realized within a culture without being meaningful to those who can move it through its various definitions'.

Defining five practical and creative methods for designing guided by narrative.

- Designing the character of artifacts
- Designing informative or expressive artifacts
- Designing design strategies
- Designing original artifacts guided by narrative and metaphors
- Dialogical ways to design.

Krippendorf clarifies his argument for a less prescriptive and formulaic approach to the design process by observing that "through a systematic collection of successful design practices and methods, however abstract, codified or theorized, continuous re-articulation and evaluation amounts to a self-reflective reproduction of the design delivery model". Thus, illustrating how design education methods are perpetuated through a design process model that inevitably resists alternative modes of thinking. There has been a debate for these existing design methods to be reconsidered from a variety of sources, Faerm (2012) posed questions around the long-standing philosophies in art and design education, stating that the pedagogies fashion design education employ needs to evolve due to shifts in professional practice. Significantly and pre-pandemic Abbadi (2017) reflects on fashion design education as being long overdue an update due to digital interconnectivity, the interdisciplinary nature of current practices and the changing demands of the consumers whilst bringing into question the mythology surrounding creative directors and individual designer names as the driver and ambition for existing practice, Illustrating one of the major issues emanating from fashion design courses globally. That being, most fashion courses follow a conceptually driven process, with the aim of producing an individually themed fashion collection of 4-6 outfits in the final year which has its aspirations rooted within these historic aspirational mythologies. This is further reinforced by the core texts written by fashion academics, within the reading lists of most fashion design courses, Dieffenbachers (2013) Fashion Thinking: creative approaches to the design process, Mark Atkinsons (2012) How to Create your Final Collection: a fashion student's handbook, Renfrew & Lynn (2021) Developing a collection and Hopkins (2012) Fashion Design: the complete guide, to name a few. The custom and practice of garments creation and realisation under the pandemic has brought significant debate into the pedagogic arena for this type of activities. With many institutions unable to accommodate students within practical studio and workshop spaces, which have historically allowed students the mandatory and necessary equipment to

fulfil the requisite outputs, alternative assessment strategies were initiated to meet a range of learning outcomes. This reconsideration of learning activities and the assessment of learning as opposed to the traditional construction skills encompassing the creation of 3-dimensional product has further opened up the broader narratives surrounding student and professional expectations within design based academic environments. Ultimately Fashion graduates will emerge into a contemporary professional environment which is highly competitive and demands high level capabilities above and beyond the traditional skills acknowledged and required by the discipline (Bridgstock et al 2012) thus further implying for some time that pedagogical alternatives need to be taken into consideration and realigned accordingly.

In parallel to the design, studio-based courses, where there has been a considerable amount of theorising and academic analysis, the exponential growth of Fashion business rooted programmes appear to have had limited investigation and contextualisation. Programmes such as Fashion Buying and Merchandising and Fashion Marketing although vocationally rooted, have often been focused around the theoretical and analytical positioning of product, customer and customer experience employing a pedagogic model which allows for substantial cohorts of students per year groups. Historically this is through the lecture and seminar based traditional learning model, which includes report and exam-based assessment. This model is often favoured by HEI's, particularly in the context of Business School communities, as it is seen as a cost-effective approach to learning and teaching and appropriate for managing large student numbers. This model does, however, for these specific "specialist' fashion courses appear to remain at odds with modern expectations of learning, from both a theoretical and student perspective, as well as counter responsive to the expected skill requirements for graduates in the aforementioned prevailing professionalised environment. There have been some developments within a more practical and experiential approach to the subject of business focused fashion courses in response to industry changes and contemporary scholars and educationalist identifying that the lecture seminar model is not particularly effective as a tool for learning to exist. (Freeman et al 2014). The conventional one/two-hour lecture often represents a passive, rigidly teacher-centred conception of teaching and learning (Ramsden 2005), whilst other activities such as experiential learning, situated learning theory, community of practice and behaviourist theories have been identified (UNESCO. 2014) to support learning more successfully as well as improving student engagement and motivations.

For this model to be effective Ramsden accurately states that the seminar and tutorials, which support the lectures, should be engaging and encourage confrontation between students with ideas and feedback on a student's progress towards grasping those ideas something not always evident or explicit within many Fashion Business related programmes. Further research into specific modules/units as part of the larger body of work which informs this paper showed that many of the business-based courses appear to be devoid of constructive alignment (Biggs 2003), whereby the constructive element is something the learners create for themselves, and the alignment element is the teaching system which supports learning activities that are appropriate to successfully achieving the desired outcomes. Learning often appears to take place on a 'surface' level with little or no 'scaffolding' to support individual investigation.

There also seems to be minimal identification of authoritative discourse through even the two-step model of dialogic (presenting ideas) and discourse (making meaning) (Leach and Scott 2000).

In between the spaces of these two contrasting pedagogic models sits some of the newly focused courses such as Fashion Promotion and Fashion Communication rooted courses. These are beginning to adopt a more hybrid model, part creative and part business, part lecture and part studio, or embracing the notion of studio practice as a theoretical positioning for the creation of outputs as opposed to a physical experience. This hybrid model clearly allows for the inclusion of business orientation and understanding; however, it is questionable whether these static non-experiential aspects of the model, identified earlier as not being particularly conducive to learning can satisfy contemporary industry needs and student expectations. Radclyffe-Thomas et al (2018) accurately identify Fashion education as predominantly nurturing creativity in design and promotion while its sole purpose for business has been to identify and implement efficiencies across varying market operations, the challenge for fashion educators therefore is to interrogate these practices and propose alternatives that address and triangulate the model into a working pedagogy, that is possibly more radical in its approach, but is responsive to the broader macro/meso influences, previously noted, whilst underpinned by robust learning approaches and methodologies that enable student participation, ownership and engagement.

The Owner Learner Model (OLM) within the Erus Domain

For the vocational rooted, non-traditional academic subjects such as fashion the afore mentioned centralised approach to institutional structures, curriculum models, quality procedures and programme timelines seems counter intuitive to contemporary expectations of a consumerist culture now embedded within the 'norms' of present and future generations of prospective students. As Gale (2011) accurately remarks there is an expectation to see the global orientation of the industry from garment manufacture, garment, consumption, and garment disposal reflected in curriculum development and which in turn drives the student experience. Change within the education sector is certainly beginning to take shape and is beginning to be reimagined at an accelerated pace as a response to the global Covid-19 pandemic, with renowned institutions globally beginning to acknowledge the breadth and variety of skills and technical expertise that will be required for future fashion graduates.

Joanne Arbuckle an academic from the Fashion Institute of Technology (FIT) in New York defines fashion as no longer a siloed vocation but requires educators to create interdisciplinary environments and experiences that allow students to become active participants in their own learning, discovering, and constructing knowledge for themselves or as part of a team (Arbuckle 2018). Farah Ahmed from the London College of fashion suggests that the next generation of creative leaders will need to respond to eco-social and political issues responsibly, which will require fashion education to adopt sustainability as a default mindset. Jason Kass from the School of Fashion at Parsons School of Design, New York observes that the skills required for fashion design students of the future should have focus on the thinking and use of design, harnessing technology, such as virtual garment simulation and 3D printing to rethink

the global supply chain in a responsible manner, whilst fashion business students require adaptive skills to respond quickly to social, cultural political economic and environmental developments as they occur (Van Elven 2019).

Acknowledgment and implementation, however, is more challenging and complicated to align and enable especially in supporting an inclusive learning environment which empowers s all students in engaging with a collaborative, possibly multi-disciplinary learning landscape as opposed to the notion of individual discipline. Trowler (2014) adopts a position that the categorisation of 'discipline' does not have a set of essential characteristics or individual core characteristics either and, in line with this paper, identifies that the twenty first century needs of disciplines goes beyond their original epistemological structures requiring the incorporation of technologies, ideologies, marketisation, globalisation and the rise of the evaluative state, as influential to academic's behaviour. (Trowler 2014). There is clearly a consensus for change within a model that clearly positions the student, the student experience, and the student's expectations at its core. It is the student that ultimately informs the teaching excellence Framework (TEF) which in turn responds to University KPI's and the student data which supports the Academy in terms of funding, reputation and, as a consequence, league table status for the majority of UK HEI's. The proposition therefore is to employ a learning and teaching regime within a Higher Education Fashion School/Institute setting which identifies student ownership as its key emergent practice. Students as already noted, entertain a consumerist ethos, which aligns with the external dynamics of policy and performance.

There is no one 'student experience' rather each individual student has his or her own experience (Kandiko and Mawer 2013) reinforcing the need to shape educational practices and the student journey through these realities or the 'perceived realities' experienced by the student. This learning and teaching regime with its focus on learning and ownership, identifies with Trowlers (2008) description of the composition of a Teaching and Learning regimes (TLR) constructed from a constellation of 'eight moments'.

- Recurrent Practices
- Tacit assumptions
- Implicit Theories of teaching and learning
- Discursive repertoires
- Conventions of Appropriateness
- Power Relations
- Subjectivities in Interaction
- Codes of Signification

In which Trowler recognises that each moment internalises all the others and that this discourse of beliefs, values, desires, institution, material practice and social relationships are simultaneously powerful formative modes and discourse in their own rights. What seems less explicit within this model is the role of the student as 'actor' or 'engager' within these

‘moments’. The development of alternative TLR’s usually relates to the operation and flow of power and its distribution between academics (teachers) and students with Academics normally in the prominent position of power in their everyday practices and in relation to their students (Trowler and Cooper 2002). In recognising this shift in power from the academic to the student and putting greater emphasis on learning it would seem appropriate to marginally modify the semantic emphasis of TLR to a Learning Teaching Regime (LTR) and a curriculum framework proposition that could be identified and labelled as the Owner-Learner Model (OLM). This proposed OLM model places ownership as its fundamental driver identifying both student as owner and teacher as owner, sometimes equally and sometimes individually, but always with shared discourse. Student involvement in faculty development practices has been virtually invisible (Cox and Sorenson 2000) although the student voice has become a powerful tool in the universities and individual programmes standing, through the NSS. Bovill et al (2010) suggest that academics should embrace and encourage students to participate in the analysing and designing of pedagogical practices (Bovill et al 2010) whilst identifying the following characteristics which may enable this joint participation to change to occur; These are:

- Inviting students to be partners (active and authorative collaborators) in pedagogical planning, thus challenging traditional hierarchies and roles.
- Supporting dialogue across differences (position and perspective) yielding fresh insights and deeper engagement in teaching and learning
- Fostering collaboration with staff and students taking responsibility for teaching and learning
- Serving as intermediaries , facilitating new relationships between students and academic staff.

The proposition of an Owner-Learner model (OLM) as being a consideration for future fashion education certainly draws influence from these characteristics and supports the notion of building student agency in the development of educational practices whilst in turn contributing to student engagement through ownership, a community of shared responsibility and authentic co-enquiry informed practices.

In terms of an applied practical context OLM locates itself within several practice models such as co-creation, the connected curriculum, problem/project-based learning, and studio practice, a signature pedagogy, of art and design disciplines. Bovill et al (2016) identify four distinct roles that the student undertakes in the co-creation of learning and teaching these are Representation, Consultant, Co-researcher and Pedagogical co -designer. In a later publication Bovill and Woolmer (2018) analyse four curriculum frameworks in relation to co-creation. Constructive alignment (Biggs 1996), Academic Staff Definitions of Curriculum (Fraser & Bosanquet 2006),Knowing , Acting and Being (Barnett and Coate, 2005) and What Counts as Valid Knowledge and ‘Framing’ (Bernstein 1975, 2000). They identify accurately that although Biggs model is influential in emphasising student learning and activities within the curriculum, it does not address issues of power and privilege in the production of knowledge, assuming the academic is responsible for teaching, evaluation, assessment and learning outcomes. OLM recognises that this framework although student centred limits flexibility,

student ownership and the broader co-creation of learning. Bovill and Woolmer (2018) also acknowledge that Barnet and (2005) ideas of knowing, acting and being should allow the student to influence practices through developing a position in relation to knowledge, existing experiences, and their place in the world (Bovill and Woolmer 2018). However, Barnett and Coate (2005) themselves argue that the focus on content and skills development within curriculum, and by extension pedagogic practices, are insufficient for the complexities of contemporary education. Concluding that although being suitably located to be influential, students rarely have the opportunity to impact institutional practices. OLM would aim to ensure students play a pivotal role in the enactment of curriculum and pedagogy through empowerment and dialogue.

In relation to the connected curriculum Fung's (2017) visual framework comprises of a core principle that students should learn through critical enquiry and research and six connective dimensions of practice which is designed to encourage critical and constructive dialogue around how undergraduate and post graduate degree programmes are designed and the relationship of this design with how students learn. (Carnell and Fung 2017).

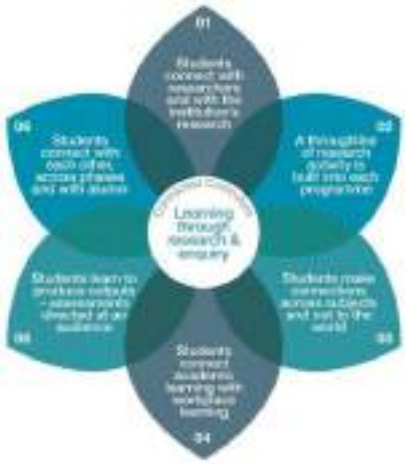

Figure 1

This model (Fig 1) reiterates the student as learner within a research and project-based model and there is some evidence to show that these type of active enquiry-based activities and approach's lead to highly effective learning (Wieman and Gilbert 2015). For OLM and its context for Fashion, characteristics 03 and 05 are significant in addressing the external factors identified within this paper. For 03 a powerful and significant relationship with external partners and socio-eco-political environments is certainly key to obtaining individual ownership and graduate career directions. Whilst characteristic 05 empowers the students to create appropriate and individual outcomes, across the broader notion of 'Fashion' relevant to identifiable audiences , specifically global fashion business. In contrast the audience in many existing practices within non industry rooted courses is invariably the academic. In terms of pedagogic delivery, the basis for OLM and Fashion, due to its vocational nature could, within existing paradigms, be primarily situated within the art and design model which historically requires a studio setting to support the development of outputs/artefacts or within a hybrid

model whereby the studio setting is a philosophical space for creating ideas, concepts, and services.

An OLM hybridity becomes less reliant upon the physical space to 'make' practice but a requires a setting for shared engagement which supports the learning of theoretical and thematic explorations which underpins both vocationalism and professional practice. There have been significant investigations into art and design pedagogy or studio practice and Orr et al (2014) suggest from their analysis and interviews with students, that the student's conceptions of this type of pedagogy is understood as one that places the student as active co-producers of their learning a form of 'reverse transmission'(Orr et al 2014). They also significantly noted that students omitted from their experiences of a studio-based learning environment any reference to any explicit theoretical underpinning. Art and design staff would prefer to believe that this element of a student's learning is embedded within all activities, but the emphasis is effectively on the currency of the creation of artefact, OLM would also envisage critical debate and theoretical underpinning as an essential element within a learning domain . In most situations within an OLM pedagogy, students could engage with a project centred or a problem-based learning curriculum. Project centred learning from an art and design perspective undoubtedly creates a complex environment between tutor and student which shifts in subtle ways between positions of power and powerlessness throughout the duration of an individual student study journey(Orr and Shreeve 2017).

The project is normally informed by a brief which presents the learning tasks and how learning is structured, OLM would encourage most briefs to be negotiated co-creations, in triangulation with the student (the performer), the academic (the institutional representative) and wherever possible an external contributor (the professional). Project centred learning as defined by Orr and Shreeve (2017) "asks what is to be learnt, not what has been learnt, a contested space when the university requirement is for tutors to specify learning outcomes in advance". They also identify the challenges and responses required to successfully navigate and negotiate these practices, as a curriculum, that is 'sticky' translated as dynamic and emergent, having the potential to be experienced in positive and negative ways enroute to fashioning a creative practitioner identity (Orr and Shreeve 2017). OLM recognises the notion of 'stickiness' but prefers to replace and extend this principle in a project and problem based, negotiated, individually positioned domain identified as 'Erus' (Latin for owner).

This Erus domain would fully engage with project based and problem-based learning as research evidence in this area shows that it helps students become intrinsically motivated, as the work they undertake on meaningful tasks are essentially motivated by their own interests, challenges, or sense of satisfaction, adding value to what they are learning (Himelo-Silver2004). Creating an appropriate environment however for a successful implementation of these activities would no doubt be problematic in the current HEI environment , as space and resource designation requires flex and a learning landscape not prevailing across the majority of UK Universities, who continue to build signature buildings filled with traditional teaching spaces.

the Erus domain for an Owner-Learner model to exist within and Erus domian and to be enabled would require significant disruption across university paradigms. These would include,

delivery methods where currently activities are related to individual programmes within historically rooted landscapes of classroom, studio, or lecture theatre. OLM could support a multi-disciplinary student experience allowing an individual students 'Fashion' journey scaffolded by a much broader theoretical and practical knowledge, an interface with technologies and a unique student experience which supports a career path trajectory that is negotiated and facilitated with academics and relevant industry contributors. There seems no reason to differentiate between classified sub-disciplines such as, Fashion Design, Fashion Marketing, Fashion Buying and Merchandising or Fashion Promotion when these current definitions are already becoming blurred and, in the future, possibly obsolete. Abbadi (2017) describes the potential for a new fashion education as an evolving 'fashion sculpture' which is participatory, interconnected, engaged with cultural and material production through critical eyes and by many hands and minds seeking common solutions whilst retaining individuality. The OLM would certainly aspire to these criteria but encourage this to be taken further questioning institutional programme frameworks, assessment regulations and academic calendars.

Weideling (2019) forecasts a future HEI environment whereby students demand a 'playlist' approach to HE selecting content and development opportunities from more than one provider, which may or may not equate to a 3 or 4 year period of study. He describes an 'Infinite' classroom using Augmented Reality (AR) and Virtual Reality (VR) to create 5G powered spaces for 'lifelike' activities to be enacted. The fashion industry undoubtedly has become globalised, virtualised, and diversified moving from analogue to digital environments, characterised by speed of transaction, innovation, and continual change (Bridgstock et al 2012). The future fashion student ultimately needs a more diverse skill set and an individual outlook which understands a technological relationship with fashion, such as data, behavioural analytics, material sciences construction methodologies and ecological impacts (Hoang 2016).

Final Thoughts

The premise of this paper was to gain insights from a broader piece of study into the vast array of complex factors which impact on academic practices . This includes the current macro/meso influences of external governmental policy and legislation, the accelerated contemporary fashion industry, Universities strategic aims, the broader narratives around the eco-socio and political environments and the role of the students as consumer. The aim at the micro level, was to consider existing pedagogic practices and delivery domains for fashion related programmes, with a view to proposing an alternative model as a response to these factors with a view to provoke and inspire further discussion and debate.

Positioning the learner (student) and learning at the core of pedagogy and curriculum through an Owner-Learner Model (OLM) proposition and an Erus (owner) domain has arguably the possibility to directly respond to the key influences of NSS, TEF, Value for Money, Industry requirements and student expectations, formulated through the empowerment of students in the co-creation of pedagogy and curricula. This approach requires collaboration and negotiation

with both academics and industry professionals, with consideration of the broader eco-socio-political landscape the in the creation of a sustainable educational template.

Christopher (2018) suggests Universities will maintain competitive positions by reducing asset bases and administration in favour of digital channels and third party-relationships. As already noted, this requires a cultural change from academics and a considerable move away from purely imparting knowledge to creating a transitional experience that enables learning and the uniqueness of the individual to flourish. Fundamentally existing practices have been recognised within the sector (Faerm 2012, Thornquist 2014, Gale 2012 , Williams 2018) as requiring modernisation in line with shifting environments in global industry practices, the digitalisation and massification of communication and consumption, and particularly with reference to the UK , the politicisation of the HE sector, in terms of funding and measures of success.

This proposition of an alternative approach, model and domain presently stops short of application although it is currently being mapped for a newly validated programme. Future investigation would require a practical delivery model and an empirical evaluation of an enacted Owner Learner Model to identify whether this would indeed create a sustainable template for the Future of Fashion education in the future which is agile enough to respond sufficiently and successfully to a variety of stakeholders and remain robust and responsive in extraordinary situations such as witnessed recently as institutions and students alike navigated their way through a global pandemic.

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DISRUPTING PLACE-BASED FASHION FUTURES

Author

Martin Bonney,
Lasalle College of the Arts, Singapore

Corresponding Author: martin.bonney@lasalle.edu.sg

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Disruptive, Place-based, Pedagogy, Fashion futures

Abstract

The fashion system is still very much dictated today by western hierarchies, traditions and ways of doing fashion that is hard to escape from in our modern hyper-connected world. This suddenly seems dramatically amplified as we leap forward with technology in response to recent global health crises that have transformed the different ways of living, working and communicating across all sectors today. This increases a globalised 'single world society' that dominates the communication, production and practice of fashion. In turn, it reduces the local and regional practices and perspectives from other parts of the world. As the vast majority of us experience fashion today through digital screens, social media, we need to acknowledge that we are encountering endless ambiguous information from foreign perspectives. In order to allow for authentic fashion dialogues to not be lost in translation, we should ask if this current fashion system introduces significant contributions from regional locations and if education in these places are equipped to teach this? This paper explores the necessary introduction of disruptive pedagogical methods within higher education aimed to refocus non-Eurocentric fashion teaching for a more global and significant contribution to fashion futures. These aims offer new perspectives to ignite changes within the current system while equipping new designers with the necessary skill sets to navigate, communicate and refocus their lens locally. This is being explored through primary data collected over the course of five years from 2017 across the level 2 Ba Hons Fashion Design Course in Singapore, where five different briefs refocused the student fashion lens through a disruptive place-based perspective. Students learnt to understand the relevance of their own place, resources and habitat, which will then allow for greater depth to explore fashion for a global community. Thus generating a new range of fashion outcomes through films, business and products. The discussion and conclusion synthesise significant insights and best practices that can be adopted globally and applied for future fashion thinking. A disruptive methodology used to reflect upon the transformation of how we see fashion today but also how we practice fashion design for a better tomorrow.

Introduction

As fashion makers, curators, communicators, educators and researchers, we find ourselves at a point in time where the current fashion system feels locked into twentieth-century ways of doing and being. Following fixed hierarchies of Eurocentric mainstreams and industrial capitalist ideals of growth and profit that needs to be reinvented. This suddenly seems dramatically amplified, as we leap forward with technology in response to recent global health crises. That has transformed the different ways of living, working and communicating across all sectors today. This shift in our being has led to a change in our thinking. We have become more open to the discussion and consideration of greater equality, more mindfulness of our actions, well-being, and conversations surrounding mental health through to the larger, socio-technical eco-systems in which we exist. (Manzini, E., 2016)

As we embark on this change, we cannot ignore the evidence regarding the planet's limited resources and the effect we have on them. We have reached a moment in time where reflection is no longer encouraged but compulsory. These recent events have shone a spotlight on our faults and placed all of us in the state of reimagining and dreaming up new possibilities for better futures. Thus, it is only natural that we demand more from our fashion system, as we move forward. This is a dreamy and utopian direction at heart, however, fashion and design are perfectly equipped to tackle this issue, as problem-solving is the very nature of any great designer. It is, in this context, I want to share and discuss five projects from LASALLE College of the Arts, Singapore from 2017 to 2021, where five different design briefs embedded Place-based learning (PBL) to enhance the local culture within the existing fashion systems. The design briefs were conducted at the level two Ba (Hons) Fashion Design and Textiles and the Ba (Hons) Fashion Media and Industries courses respectively, where the projects were delivered in parallel. These reflections and observations highlight how we have disrupted the students' learning journey, offering insights into new PBL methods while proposing alternative future fashion practices. These new practices go beyond a global reductive culture by reintroducing local solutions with culturally significant circumstances based on relevant cultural transactions.

Design Cultural Shift

“Trouble is an interesting word. It derives from a thirteenth-century French verb meaning “to stir up,” “to make cloudy,” “to disturb.” We-all of us on Terra-live in disturbing times, mixed-up times, troubling and turbid times, The task is to become capable, with each other in all of our bumptious kinds, of response. Mixed-up times are overflowing with both pain and joy - with vastly unjust patterns of pain and joy, with the unnecessary killing of ongoingness but also with necessary resurgence. The task is to make kin in lines of inventive connection as a practice of learning to live and die well with each other in a thick present” (Haraway, D, 2016, p. 1) Borrowing these poetic words of Donna Haraway helps bring about the understanding of our state of living today, with direction towards a renewed sense of joy. Despite the devastating pain in the wake of Covid-19, we need to reflect on and discover new design approaches, products and practices for better ways of living.

All designed products inclusive but not limited to fashion, have always emerged from our geographical place and culture, socially connecting us through a cultural ecosystem. Bound by: "physical, social, psychological, economic, religious and so on. and any combination of these." (Dillon, P, J. 2015; 2017) Designed objects are a representation of the relationship between the designer, the biological environment and the socio-cultural processes embedded and the end-user. This cultural ecology is attributed to anthropologist Julian Sterward (1955) who documented the 'transactional relationship' of 'exchanged' values as an active situation. (Steward, J., 1955). It is the combination of these attributes that the 'transaction' refers to the 'act' of doing something and shifting the situation 'beyond' its existing condition. This act of exchange is an active interaction that demonstrates how we as humans help shape our own futures, environments and human existence. (Dillon 2015; 2017). Through the characteristics of our place, "its people, individually or collectively, and every aspect of their environment" is connected. The makeup 'culturally significant' richness is built upon generations of practices. (Walker, S. et al. 2018) It is, through our desires and ingenuity as a human race that we traded these objects in exchange for different and new experiences. With each culture comes new techniques and different levels of innovation.

Design culture has always been in the business of exchange through crafted or designed products, documented through the vast silk road in the past to the web of digital connectivity seen today. Unsurprisingly, the design took deep roots in early twentieth-century Europe following the patterns of the industrial revolution and technological scientific invention. This foundation generates a global society that has grown complacent to the westernised free markets of trade, intercultural mass connectivity, capitalist growth-based systems that have squashed local practices of doing fashion significantly in the past. (Walker, S. et al. 2018).

It is this context that brings about the challenges of our global fashion problems. The current fashion system does not fully address the many different cultures, users and systems at play. We need to acknowledge that we are encountering an endless stream of ambiguous information from foreign perspectives. This is the way the vast majority of us experience fashion today through digital screens, social media, that dominates the communication, production and practises of fashion. Its the lack of depth of information and reduced local wealth that is lost in translation. These different cultural forms of fashion are diluted into a homogenising standard for globalised audiences.

Fashion has always been "a cultural system that tells individuals groups how to behave, moulding people into static identities." (Simmel., G. 1957) It is this Fordist, industrial age that gave birth to the need for the designers to mass-produce globally. The power houses' of thought like the Bauhaus or leading schools around the world today were set at creating the designer in this direction. Etched in these principles, the design specialists with similar aptitude are produced from these training. They are programmed to embrace problems, creating new products for the mass market. Fashion Designers are no different from our industry readiness, entrepreneur-thinking that is built-in most curricula today, following the same capitalist ideas. Focused on designed objects, products, services and systems that address a single global culture, the results are homogeneous cultural transactions. This industrial direction of production

‘moulds’ a globalised society and unfortunately this dominates the communication, production and practice of fashion today.

Overloaded Futures

The culture of fashion today is more complicated than ever before, its relevance is intimately connected to our daily lives and activities, even more so, as we adopt a hyper-digital state of living today. Fashion objects, products, services and systems continue to push the boundaries of digitality. We are no longer bound by physical properties as fashion makers, we blur the digital socio-cultural worlds of imaginable fantasy. Fashion embraces this global culture of value exchanges and it simultaneously offers both tangible and intangible connections to multiple socio cultures settings across various digital platforms. We shift into a world of interpretation and unknown meaning from different perspectives, where we can invent new materials and challenge the foundational design principles. We have the power to ignore the limitations of gravity and movement in this blurring of worlds. Apps like Dressx and specialist 3D design software have become a growing field of liberation and innovations. They allow consumers to filter and superimpose virtual fashion over themselves to share and communicate through social media, transforming themselves into social-political movements, urban trends or alien-like avatars. Fashion is redefining its very purpose in these ‘mixed up times,’ which reflects our global context and the shift into new design practice and our way of thinking and doing.

As we shift into this new way of creating and designing fashion, we are encountering endless ambiguous information from foreign perspectives. Hence, we need to acknowledge that this generates a blurred reality that reduces local and regional practices and perspectives of fashion. As we stir up our practices of designing and teaching fashion, it currently feels locked in painful eurocentric patterns of the past, succumbing to global culture and ignoring the local knowledge. Jeyon Jung and Stuart Walker unpack the relevance of place and culture in a chapter within Designed Roots greater unpacking, Patrick Dillon term ‘cultural transactions’ They discuss the importance of exploring this relationship of local exchanges and raising the contribution of cultural significance in the design process, fusing the designer's ability to embed meaning and cultural value in products. This continues a cultural tradition, becoming more future-focused from a ‘place-based practice’. It is in this “interplay between established ways of doing things and new possibilities that innovations can emerge.” (Walker, S. et al. p. 4 2018) Cultural significance is a future-forward principle, benefiting from

> “multifarious set of interrelated factors related to tradition, place, community, sense of identity, spiritual well-being, aesthetics, local conditions, materials, technologies, skills and exchange of goods and services.”
>
> (Walker, S. et al. p. 4 2018)

Designed Direction

Transparency and interconnectivity have reached a point of forced reflection in fashion and our 'mixed up' history. The global pandemic has brought about important existential questions about who we are? Questioning our identity within fashion and challenging how and why we are living or practising fashion in this manner? It is through the global connectivity today that both complicates, contradicts and possibly liberates designs' future. Not only do industry specialists bear witness to the devastation created by fashion but felt through the social screens that connect us all. Our end products fully represent the hands that picked the cotton and stitched the seams. We have given a voice and an identity to the most vulnerable and this change is happening across all sectors today. This new meaning of transparency has ruptured the very pipeline of fashion production and with it, we are demanding change. The pandemic has been a mirror of our inactions and wrongdoing of designing and producing.

Ezio Manzini discusses the practice of designing in his paper 'Design Culture and Dialogic Design.' (2016) He states that with more awareness and understanding of our ecoculture, we can embrace new methods and approaches for new ways of thinking and doing. "a means to tackle widely differing issues, adopting a human-centred approach … It shifts from traditional, product-oriented design processes (that we have acknowledged above) to a process for designing solutions to complex and often intractable social, environmental, and even political problems." (Manzini, E., 2016 p. 53) Our role as designers and educators is then to redefine these tools, methods and apply critical analysis and reflection to extend the knowledge, and to produce new visions of fashion solutions.

Methodology

This reflective paper investigates and responds to the changes made to the Ba (Hon's) Fashion Design and Ba (Hon's) Fashion Media and Industries programmes at LASALLE College of the Arts, Singapore. Over the course of 2017-2021, a focus of Place-based learning (PBL) was written into five project briefs across the Ba (Hons) Level two to enrich the local knowledge through an active system of cultural exchange. Supported through key literature that reflects the shifting design culture and design thinking. Its strategies and techniques are generally used and discussed in response to 'deep learning' that goes beyond the classroom. (Dewey, J., 1938) PBL that

> "takes advantage of geography to create authentic, meaningful and engaging personalised learning for students. More specifically, Place-Based Education is defined by the Center for Place-Based Learning and Community Engagement as an immersive learning experience that places students in local heritage, cultures, landscapes, opportunities and experiences, and uses these as a foundation for the study of language arts, mathematics, social studies, science and other subjects across the curriculum."
>
> (Placed Based Education, 2016 website.)

These strategising PBL for depth of learning challenged both the teaching practitioners and the learner for focused local solutions and engagement. The students' "learning is conceptualised as a spiral, rather than a cycle, as the learner's development deepens with each successive experience and resulting reflection, thought, and action." (Goodlad, K. Leonard, A. 2018 website.) This understanding of spirals happens when we collide and layer the experiences with meaningful and relevant knowledge, enhancing student engagement to ensure depth of learning through a local context.

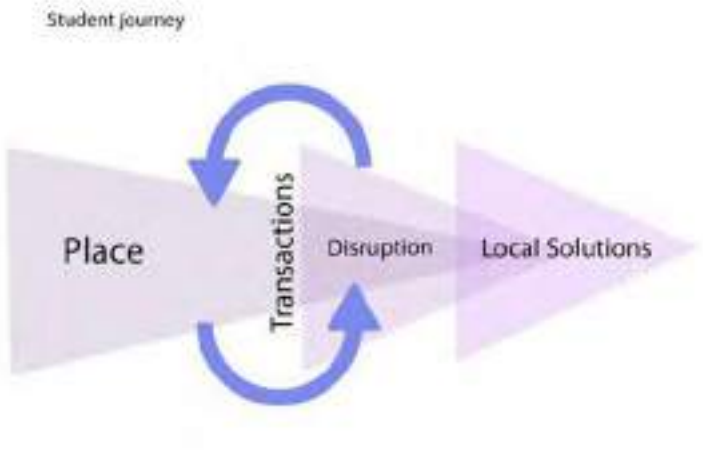

Figure 1. Disruptive Transaction Bonney, M. 2021

The five different designed briefs discussed below are structured thematically titled: Cross-Pollination, Indigenous Routes and Digital Interchange. Each project relied on the interplay of transactional PBL concepts that maximised disruptions whether naturally occurring or designed to generate local solutions. The disruption layers social geographical place values in a state of reflection and strengthen the relationship of exchanged experiences. This spiral of transactions develops as a "conceptual/relational … ways of engaging with the work, or ways of being in the world, [as they] do not happen in isolation of each other." (Walker, S. et al. p. 53 2018).

Each project resulted in a series of exhibitions that will be used to support and probe the relevance of PBL with disruption. Findings include the influence of the project, its outcomes and perceived levels of student engagement, especially when compared to more traditional project-based briefs that allow for any direction. The author's reflections are based on his observations being documented and captured through the end of semester exhibitions and the author's insights as project lead.

ASEAN Spirals of Practice

PBL is reflected in five design briefs that focus student learning to 'explore and expand these notions from an ASEAN perspective; allowing regional geographies, periods, habitats, cultures, behaviours, rituals, and beliefs to unfold.' With this in mind, the fashion students at Lasalle worked in their respective courses and followed a shared design brief. Despite each brief being different year on year, they all had commonalities that ran throughout. For the focus of this discussion, the emphasis of our location and cultural heritage towards PBL is used. Students started with a fixed ASEAN lens, having to "explore and expand these notions from an ASEAN perspective; allowing regional geographies, periods, habitats, cultures, behaviours, rituals, and beliefs to unfold." (Lasalle Assessment Brief AY21/22, 2021) As a team, we felt this was an important step in accepting PBL approaches within the student education journey. To break the belief that this homogeneous fashion is superior. By formalising PBL in our assessment briefs we directed students and the wider team with this strategy. We used these words to prompt student directions in the broadest spectrum to trigger cultural exploration addressing the much larger design ecology from our region. We found that the majority of the students joining us were fixated on the culture and influences of western fashion and nature when they have very little or no connection culturally to the west but at the same time knowing very little of their own heritage. Despite the broad direction of the fixed ASEAN context, they found it limiting and still preferred to design western fashion ideas and concepts.

In the past, this resulted in major shortcomings and multiple lapses in design education, where students are designing from foreign lenses, heavily reliant on secondary data that becomes weak or lost in translation. They did not fully understand the foreign ecosystems and cultures that rotated the project. For example; designing for western climates does not come naturally to someone who lives in an eternal summer-like Singapore. The biggest misconception when it comes to seasons and the complications and intricacies within the design challenge that climate alone creates. The understanding of winter materials, layers of clothing and acts of wearing fashion are vastly different. The details of windproof or thermal insulation are rather logical for anyone designing a winter jacket in Europe. The colour of the jacket, maybe darker tones or deep hues is common to complement the change in natural light. The limited hours of sunlight, which has emotional and psychological effects on our mood and relationships with other colours and details. With respect to this, we in Singapore have two very different conditions. On average 32 degrees every day being located on the equator, no change to sunlight all year round with one constant season. Living in Singapore is always humid and hot or you are bound in an air-conditioned environment. It might rain more one day from the next but how we live and wear fashion is different.

Accepting that fashion is existing in multiple ecosystems and is completely different around the world is the first step in realising that we need multiple solutions. Our location is a huge factor in this process of designing for different social-cultural ecologies and it can not easily be taught and learned outside of them. Especially when we consider the already heavy curriculum and technical information our students have to learn.

Cross-pollination

Figure 2. Forces of Nature Singapore, School of Fashion Exhibition. Huang, A. 2017

Cross-pollination is a teaching strategy where knowledge is exchanged between one discipline, culture or person to another to help fertilise new understandings. It is an active cultural transaction of processes explored within education and used within two of the briefs discussed: Force of Nature and Minimalism Maximalism. Forces of Nature was the first of the two collaborations with The Museum at FIT's curatorial team, LASALLE College of the Art's students and students from Hongik University, South Korea Fashion. All responded to the exhibition titled Forces of Nature at the Museum that launched in 2017 "with its core ideas of this collaboration centred around interconnectedness and imagination." (Bonney, M. Melendedz, T. E 2017) This body of work was exhibited at LASALLE College of Arts, Praxis Space and Project Space on the McNally Campus.

Forces of Nature, aimed to explore the complex relationship between fashion and the natural world from our regions while addressing a global fashion community. Through understanding the western lens we could then refocus and examine our own natural environment. The exhibition in New York was available for students to view online through the interactive website

> "Force of Nature revealed how nature has historically influenced fashion, and how fashion can serve as an indicator of society's relationship with the natural world. In eighteenth-century Europe, for example, nature became an object of renewed

fascination as a result of overseas exploration. This fascination found expression in garments that featured depictions of exotic plants and animals."

(Forces of Nature, 2017 Online.)

With a wide variety of both historical and contemporary fashion on display. This exhibition was also presented to students during a studio lecture where curator Tanya Melendedz Escalante gave significant insight into the selected works.

Our students From Singapore used this as a starting point and precursor of what came before in the world of fashion. Like most projects, it followed a simple structure of research and inspiration, ideation and development, prototyping through to realising and final products. This fourteen-week project had two points of engagement with the curatorial team in New York for cultural exchange via conference calls. Where students shared moodboards in week three of the semester and gave a Pecha Kucha presentation in week seven. (Formative week) Each time along with the tutoring team, feedback and support was given directing the research to explore their own cultural system.

Figure 3. Tailored Shirt, Forces of Nature Singapore, School of Fashion Exhibition, Ng, Y. 2017

Figure 4. Untitled, Forces of Nature Singapore, School of Fashion Exhibition, Hongik University, South Korea 2017

The Student exhibition showcased research and works that included animations, fashion designs, textiles and accessories. Allowing students from LASALLE School of Fashion and Students from Hongik University to generate a wide social, environmental and artisanal response towards their natural environment.

Figure three, Work By Ng Jia Yi, was a tailored shirt with multiple pockets dipped in concrete that represented the brutalist nature of the Singapore landscape today. The garment symbolised modern aesthetics and responded to the pervasive westernised ideals in Singapore and its shifting social and cultural landscape. Figure four being created by students from South Korea held more historical notions of national dress and identity. Projecting a sense of locality and transition. I distinctly remember during the physical show how everyone in Singapore wanted to touch its woollen yarns and felted fabric. These fibres are rarely explored by our students in Singapore. Both Figure three and four represent different interactions of our ecosystem holding an embodiment of cultural values of exchange. Through the shared exhibition, we were able to unfold these differences and respect them while producing contemporary global fashion.

Figure 5. Minimalism Maximalism, Huang, A. New York, 2019

Minimalism Maximalism was the second cross-pollination with LASALLE College of the Arts fashion courses in response to The Museum at FIT exhibition Minimalism Maximalism showcased in 2018. However, within this year The Fashion School at The Fashion Institute of Technology FIT, New York took part. Both followed the same concept responding to The Museum exhibition being the precursor to which students in both cities responded. The fertilisation of cultural exchange happened not only with the richness of the exhibition and insights into the curatorial practice, but we disrupted the researcher flow of investigation and tutor-led mentality. Have students share moodboards Week three and video presentations in week seven from each other's cultural perspectives. This fourteen-week project introduced them to peer-to-peer across institutions. Learning cultural exchange through their own locally-based projects. Enhancing different PBL experiences and local understandings.

Figure 6. Minimalism Maximalism, Huang, A. New York, 2019

The students from both schools exhibited work in Singapore and New York side by side. Displaying a range of fashion outcomes from, videos, media packs, fashion and textiles garments and creative process journals. Seeing the work side by side as shown in figure six instantly communicates the differences in colour, material and technical methods. From drape screen-printed silks to circular rib knits, each school enables and embeds local relevances. Communicating their own design ecosystem while still responding to minimal or maximal styles outlined from the exhibition and design brief. Through disrupting the students' own research patterns into their own cultural place and actively engaging in a cultural transaction with students from FIT, we found they were able to understand how the same concept takes on different conceptualisations based on geographical, socio-cultural values through cross-pollination. This strengthens their sensitivity to cultural ecosystems and global differences.

Indigenous Routes

Indigo 2.0 conducted in 2019 was an initiative that we hope to continue post-pandemic, its indigenous values of exchange is unquestionable. Following the same fourteen-week structure, this project was a collaboration of craft artisans and practitioners from Bali Indonesia and

LASALLE College of the arts, Singapore where we all came together in Ubud Bali during week eight for workshops, talks and activities. This cultural excursion took place in the project week as an optional time to develop and explore indigenous cultures. The fashion students were tasked with this brief to investigate Indigo for this project from the region and its cultural significance. The brief was still fixed within its ASEAN lens and started with an introduction to Indigo from the Author of Indigo, Professor Jenny Balfour Paul. She was physical with us presenting her research on indigo, filling the room with her energy and insights. Following her talk students could then select elective Indigo workshops where she explored natural indigo vat recipes from local fruit sugars in our studio.

Shifting our students practice from a studio in Singapore to a small village in Ubud in the north of Bali, students were shocked by the rural way of living, working and practising crafts. This one week was packed with specialist talks, from local chiefs, Dyer tribal women who spoke of deforestation and performed local dances to simple dinners and gatherings with indigenous craft artisans. Students were able to learn from local master hands batik and ikat methods of doing. Shifting their perspective of modern life and conveniences blue dye in a bottle, Having to pick indigo leaves to learn how to ferment and the importance of pickling lime and aeration.

Figure 7. Master Weaver workshop Pacagusti, Bonney, M. Indonesia, 2018

This week for all staff and students who joined and those back in Singapore who shared in the experiences gained from the different crafted cultural transactions. Having lived amongst them and eaten with them, connecting throughout the day it was the shift in our physical location that both disrupted the learning and enriched it. Despite being a short period of time, we were immersed in a region that seems worldly different from our home comforts of Singapore. With students commenting on how they have never seen stars so bright being permanently based in a city or how they are now questioning the value of human labour and its importance in fast fashion systems. Shifting the classroom to a rural space and collaborating with a community of indigenous people has transformed our understanding of the cultural significance and the effects we have on the world around us.

Digital Interchange

Phantasmagoria was a design brief delivered in 2020 that started with the disruptions of having to navigate and function through the global pandemic. Understandably this project faced difficulties throughout for staff and students. Yet, seemingly one of our most promising offerings to date. Following the other briefs mentioned above, this was a fourteen-week project that placed the ASEAN lens as its cultural focus. However, we had no excursions and no special guests. It relied on the teams to deliver all core knowledge and guide the students in the studio consultations placing the emphasis on place, practices and ways of doing. It was through the brief Phantasmagoria that reflected the pandemic in its fascination with horror and imagination that allowed students to critically analyse the role and relevance of the current fashion system within a global pandemic.

Figure 8. Ripe, Zulfa, I. 2020

Not being able to showcase the work physically due to the pandemic, the team and students co-created a digital exhibition titled Phantasm, on the LASALLE's School of Fashion research website, www.1mcnallyfashion.com and School Instagram. This co-curated selection of fashion products and communications are the students' response to the sense of covid isolation, uncertainty and loss of locality in the fashion industry that the pandemic brought about. Through this disruption of the pandemic, we had implicitly challenged how we designed social and cultural practice. It naturally placed us all in a state of rethinking and wanting to design better. Promoting global social behaviour that questioned our consumption and other fashion

practitces through the alignment of the given topic. This wouldn't have been possible without the PBL being inserted into the assessment briefs and investigation into Phantasmagoria.

Figure 9. Luxury 2.0, Drape Structure and Digitality. Fashion Design and Textiles showcase, 2021

Luxury 2.0, Drape Structure and Digitality, is the latest brief that directed the students in focusing their practice of fashion design into their place and the greater region. This body of work aims to engage and extend the conversation of rethinking luxury through drape or structure within our digital age. The garments and products were created following individual student research through the fourteen-week structure as above. No additional excursions or speakers were engaged and the students were relatively studio based this semester. Despite only having the brief and core lecturing team to direct them, they seem to have been able to follow the same patterns of understanding unlocking local codes, meaning and values associated with fashion from the region. Some are stronger than others but all projects stepped into a space of cultural transactional exchange.

The students have been fully engaged and delivering all aspects of the brief and this work was published online within the LASALLE's School of Fashion research website. We held a physical exhibition alongside the digital where the garments were projected onto the wall of the gallery seen in figure nine above. By only representing visual evidence of the work the lecturing team maximised the digital conversation to underpin the current state of digitality reflecting our local fashion context.

Students were able to demonstrate this through fashion outcomes connecting the present moment and demonstrating a practice of material and immaterial making based on a sensitivity to their culture and time. The garment on the far right is fully biodegradable and dyed using a process of fermented beans from the region. It created a silver fabric made from recycled linen that one absorbs within. The aim of this student was to shift away from the industry's use of

colour and bring about local natural processes that offer more depth and cultural value. From Biodegradable designs to rethinking the body and including embroidered LEDs that visually communicate approachability and openness. Naturally, not all students performed at this level across the batch but figure eight and nine give evidence that the students are shifting into more social design practice. That is pushing the boundaries of how and what fashion is from a local perspective.

Their garments and projects shifted into a speculative research pathway that did place the more technical based team members into an uncomfortable space, not sure how the notion of fit or human body operates in this speculative world. However, as we continue to transition into these new methods of teaching and learning it opens the questions, especially with the latest projects having a strong ability to cross both digital and physical worlds. Can we remain to communicate our cultures fluently across both? Would authenticity and our voice remain if we reintroduce the indigenous knowledge into these spaces? All crafts need to innovate. As students question their heritage and future traditions these outcomes can be somewhat uncomfortable. However, it is important to remember the present time in which we live and the extreme social-cultural stress we are under. Acceptance is not always needed, as it's through the disruption to our current state that helps project us shift into a space of designing for the future. I borrow Rabunow's terms to project hope in this direction, we "make visible what is emerging by both slowing down the present and speeding up that present's future." (2008)

Conclusion

Throughout the different projects shared above, the relevance of our place within our teaching is without question. This wouldn't have been fully accepted by all staff and students if it wasn't formalised in the assessment brief and written into the course. It allowed students to become more engaged in a wider range of research methods as they encountered different acts of cultural transactions globally. Students adopted greater primary approaches with a design anthropologist direction built-in sensitively understanding their own ecology being natural or second nature. This ability to cultivate criticality within their own place becomes a transferable skill that they can take to other regions. Having the skill set to respond to a problem or situation produces key designed products and thinking to evolve from any local place.

This brought the programmes new levels of contemporary material and immaterial worlds to collide from a local discourse. Offering students the possibility to trigger multiple transactions of cultural significance, through different rituals, understanding of aesthetics and practises of fashion outcome, going beyond PBL and focusing on the transactions. The Indigenous excursions allowed for deeper levels of stimuli and heritage discussion that gave a deep appreciation of their own cultural traditions. It was disrupting the students' learning environment or similar to the disruption due to Covid-19 that forced students and staff into reflection. Challenging our traditional frameworks of designing and teaching "past century big-ego Design" (Manzini, E., 2016 p. 55) questioning the ideas of practises and methods for future research.

Through the documentation and reflection of this paper, It is clear that we at LASALLE are moving towards a more relevant future, generating new design cultures and possibilities. Shifting from 'product for production' approaches to 'concepts enriched by our local exchange of values'. Moving away from the technical know-how of the past and offering as Manzini coins "solution-ism and participation-ism." A designed solution that "encompasses the knowledge, values, visions, and quality criteria that emerge from the tangle of conversations occurring during design activities." (Manzini, E., 2016 p. 54) These transactions of knowledge allow the designer to immerse themselves into this new way of conscious thinking with inbuilt cultural significance when working in a natural ecosystem. With this evolving design theory, we need to best understand how to navigate these complex sociocultural systems to avoid mainstream twentieth-century thinking and doing. Ensure that the exchange and transaction of cultural significance within our designs remain a natural process, not being translated from foreign perspectives but deeply rooted.

List of Illustrations

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FASHION'S AWKWARD RELATIONSHIP WITH COOL – AND WHY IT MATTERS NOW

Author

Vanessa Brown,
Nottingham Trent School of Art and Design, Nottingham Trent University, England.

Corresponding Author: vanessa.brown@ntu.ac.uk

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Abstract

Fashion studies is burgeoning, and a timely explosion of critique and revision promises to take apart the glossy thresholds which have enabled clothes and their circulation to obscure the social relations between people. The politics of production vs consumption, the violence of taste, and the microaggressions of fashion gossip, all are being scrutinised with renewed energy and conviction, fuelled by the clarity of purpose climate crisis brings. A growing mental health crisis also underlines the seriousness of fashion's crimes. In this context, wanting to be or look 'cool' seems like a tragic joke. Here, I will question the extent to which coolness remains relevant to understanding and 'reimagining' fashion. What do we lose, if we ignore the pull of cool?

In fact, fashion has long had an awkward relationship with cool, partly because cool is itself an unresolved concept with several contradictory elements. Cool can simply mean fashionability – but it can also mean something that must transcend fashionability. Though humanities scholars have been fascinated by it, and many papers are published about how to find and market it, this paper will argue that fashion studies has tended to skirt around coolness, using synonyms and euphemisms to avoid having to confront what is arguably core to the fashion endeavour in modernising societies.

Furthermore, the theory available to explore coolness with has been developed largely in the era of the descendants of dandyism – and the incorporation of dissent into global branding (Frank, 1997) which took place in the latter decades of the 20th century. Some scholars conclude that what we mean by coolness is changing (e.g., Dar Nimrod et al, 2012). Of course, specifically what cool looks like and to whom is perpetually renegotiated, but more importantly, the social context for performances of cool has changed significantly since most of the theory still in use (e.g., Pountain and Robins, Belk et al, 2010) was established. This paper in development will begin to connect cool theory with newer theorisations of fashion (e.g., Busch, 2020; Payne, 2021) specifically in the context of contemporary forms of modernity and the networked, quantified self.

Introduction

The goal of 'trying to be cool' may often be derided, and ideal forms of selfhood may also be shifting, but the multiple and elusive motivations for fashion consumption, in which coolness is surely implicated, hold great power - even over those with stated commitment to progressive social and environmental sustainability goals. Some years ago, Alan Liu stated that 'there is no more beauty, tragedy, good or evil – only cool or not cool' (2004:3). Is this (still) true? And if it is, what does it mean for endeavours to reimagine, rethink and repurpose fashion in the service of the greater good?

Some have explored the possibilities of promoting sustainable fashion products and behaviours through cool, just as numerous articles continue to present research exploring ways to attach the magic of cool to wasteful products, ideas and services. But is cool, as a value, as a goal for self-hood, inherently incompatible with sustainability goals? Maybe it is, maybe it isn't. It all depends on what we mean by cool – and this is our first stumbling block, because so far, there is a contradictory lack of consensus about what cool even is (Brown 2021). I do not have space here to fully explore this variety of perspectives on cool - this is the focus of another essay (Brown, 2021). However, it is useful to hold in mind five loose and overlapping themes. First, cool has been understood as a survival strategy and a crucible of cultural innovation in vexed experiences of modernity – for example among Black American jazz musicians (Macadams, 2002); second, it has been seen as a mode of capitalism which nullifies dissent by incorporating logics of rebellion and individualism (Frank, 1997).

Thirdly, it has been viewed as a form of distinction – or even a new class system - among consumers, especially the young (Belk et al, 2010). Fourth, some see it as a necessary response to the culture of technical rationality (Mentges, 2000; Liu, 2004); and finally, it has also been viewed as a contemporary form of dissent, which may not necessarily be commodified, expressed through performances of affectlessness (Berlant, 2015).

Evidently, fashion practices of myriad kinds may feature in each of these, yet the paper must begin by addressing the awkward relationship between coolness and fashion. This will demonstrate that simply to understand current fashion systems and behaviours, grappling with cool in a more conscious, concerted way is necessary. This is followed by a short, illustrative examination of whether and how cool figures in selected works of what could be called new fashion 'acti-criticism' (Busch, 2020 and Payne 2019, 2021) both in terms of how they understand the current dominant state of affairs in fashion, and how they imagine solutions, or futures.

This will enable me to evaluate the relevance of cool theory to fashion studies today and to indicate the potential shortcomings of both cool theory and fashion theory, in terms of being able to move forward productively. The goal is not to resolve conceptual problems, but to illustrate the need for renewed research energy around coolness generally, and in order to understand and challenge existing fashion practices effectively in our current and moving cultural, technological and economic landscape.

Fashion and Cool – Awkward!

Despite cool being used in scholarship – and everyday speech - as a synonym for 'fashionable', the study of fashion (including fashionable subcultures), has barely engaged with the concept directly. Given the sheer volume of cool manifest and discussed in fashion magazine editorial, fashion images, and branding - not to mention the clear valorisation of nonchalance, the blasé, and disdain in fashion imagery- it is truly remarkable that this relationship has all but escaped explicit and rigorous scrutiny. Cool is fashion's elephant in the room (well, one of them).

In 2000, Fashion Theory published a very useful article by Gabriele Mentges which does connect coolness with fashion in productive ways. Focused on the clothing and behaviours of German fighter pilots in WW1, Mentges neatly extrapolates relevance to aspects of fashion stretching forward and outward. The leather jacket is discussed as a cool signifier, yes,but she also explores aspects of the archetypal 'fashion' body (composed and smooth of movement), and face (expressionless disdain). Yet this was not developed into a substantial theory of how fashion and cool interrelate. In 2002, established fashion scholar Rebecca Arnold wrote about Louise Dahl-Wolfe, a fashion photographer known for her strikingly blasé, self-possessed, nonchalant imagery in the 1930s and beyond. But coolness is not explored in the imagery, nor deployed theoretically; instead, the focus is on 'American- ness' and 'democracy' as constructed against the fashion backdrop of Parisian/European dominance. In 2007, Caroline Evans, renowned scholar of modernity and fashion, in her review of fin de siècle haute fashion Fashion at the Edge, also avoided directly engaging with cool - Alexander McQueen's aesthetic is described as one of 'hard grace'. In this period, numerous core texts on cool were published, such as Stearns (1994), Frank (1997) Pountain and Robins (2000). Why did Arnold and Evans sidestep the 'c' word?

Another aim of this paper is to begin to bring fashion theory and cool theory into conversation, because although the literature of cool accepts aesthetic self-fashioning as integral to performances of cool, it has never directly concerned itself with the fashion system either, even when documenting subcultural innovations 'against the mainstream'. (I ask - is it cool to be fashionable?). Thornton's 'subcultural capital' is a take on Bourdieu's cultural capital, for which she uses 'cool' as a colloquial shorthand; and Nancarrow et al coined a Maffesolian 'tribal capital' expressly to delineate cool (Nancarrow, Nancarrow and Page, 2002) yet these have not been related rigorously to being in/out or antagonistic to fashion. To consumption, but not to the specific goals and practices of fashion. The outcome of Nancarrow et al's lack of explicit engagement with fashion is an elision between the 'innovators' and the 'early adopters' of Rogers' original 'diffusion of innovations' (Rogers, 1962), who are more or less the same; brave and competent consumers of the new. Yet the perceived difference between 'setting' and 'following' a fashion trend – no matter how quickly or confidently - is routinely used to demarcate the all-too-important boundaries between cool and not cool.

This reminds us of the contradictory elements of cool (Haselstein et al say cool contains a 'structural ambivalence', 2013) some of which are most evident when viewed in the context of fashion. Michael's study of young urban creatives' 'hipness' (hip may not be an exact synonym for cool, but the terms are often used interchangeably) highlights this contradiction; her respondents 'both upheld and derided the goal of trendiness' (Michael, 2015).

The problem is this: cool can simply mean popularity, fashionability – but it can also mean something that must somehow transcend fashionability. This connects to how cool may be used pejoratively (as a scholar of this subject I attract numerous boundary-marking responses where the really cool (?) people tell me they are 'not interested in cool, or what the cool people do'). In this context, cool means 'whatever everyone else thinks they require in order to fit in – or stand out'. But cool also means 'someone who evidently does not care about the rules of fashion' – OR someone who is so in tune with fashion's ebbs and flows, that they are visibly 'ahead of the curve'. (This contradiction is recently evident in Arielli's discussion of cool in relation to aesthetic agency and self-construction (2020) but it also features, albeit unacknowledged, in numerous fashion studies, including the more recent assessments of fashion geared towards more sustainable fashion futures, as we shall see).

How can the same word mean all those things? And what about the aesthetic and material forms of cool, which absolutely must change for cool to fulfil its role as a form of social distinction, and yet which the evidence suggests also have several qualities (minimalism, androgyny, black) which have remained confoundingly constant since high modernism? We might conclude right now, and perhaps as some fashion scholars have already, that cool is just too vague and polysemic a word, and therefore, an academic red herring.

However, studies which combine multiple perspectives on cool such as Haselstein et al (2013), Brown (2015), reveal that despite contradictions, themes in the wider literature of cool overlap and rhyme enough to suggest substantial common threads, further scrutiny of which might hold the key to a more usable theory of cool.

Furthermore, this matters because the goal of cool is problematic for society. It is implicated in idealized 'toxic' masculinity associated with difficulty accessing education and violence against women (hooks, 2004); to the everyday narcissism of consumers who, enchanted by their own reflections, cannot see or refuse to see, the social, political and environmental consequences of their actions, from low-income fast-fashion consumers, to high-earning postfeminist neo-liberals in high-end fashion, failing to assist other women (Gill, 2016).

Cool in the New School of Fashion 'Acti-criticism'

Indeed, this anti-sociality is especially evident in Otto Von Busch's recent work The Psychopolitics of Fashion, which uses being 'in or out, cool or not cool' (2020:13) as the basis for his breath-taking inventory of ways in which fashion (under its 'current state') draws people into conflict with one another and themselves, in states of shame, anxiety, false freedom and oppression. For Busch, coolness is the achievement of fashionability, always at somebody else's expense, someone necessarily deemed 'uncool'. Here is a clear overlap between the goal of coolness and the scale of damage - psychological, social and environmental - done in the name of fashion. But do we understand cool well enough to use it productively in our attempts to 'reimagine' fashion for a more sustainable and equitable future? And what about the forms of cool not focused on fashionability? In a post growth/post- apocalyptic future, where survival is once more the primary goal, might coolness, in all its forms, be an irrelevance?

Next, I will explore how cool features in a small sample of works from fashion acti- criticism. Along with Otto Von Busch, I draw on Alice Payne's Designing Fashion's Futures (2021) and 'Fashion Futuring in the Anthropocene: Sustainable Fashion as "Taming" and "Rewilding"' (Payne, 2019) .The works of Busch and Payne are characterized by their comprehensive use of cultural (and in Busch's case, psychological) theory, as it pertains to fashion, including the cultural implications of neo-liberalism and the rhetoric of cruel optimism (though Busch references Han (2018) rather than Berlant (2011)) which have also been used in recent considerations of coolness. Both Busch and Payne represent an activism which is informed by empirical research, and a radical pedagogy.

First, I will explore the potential connections with a variety of cool perspectives in Busch's poles of 'conflict' and 'courage' (2020) and in Payne's 'taming' and 'rewilding' (Payne, 2019). It is worth noting that 'conflict and courage' and 'taming and rewilding' do not denote the same things and do not operate as binaries in the same way. For Busch, 'conflict' and the resulting 'violence' is the major problem under the current state of fashion, whereas 'courage' is the quality we might strive towards which could potentially lead fashion practices away from their unbridled negative consequences. For Payne, both taming and rewilding are potential solutions to the crisis of the anthropocene, or the capitalocene, and although they could be viewed in opposition, they are not necessarily mutually exclusive.

Neither author explicitly engages with cool theory, though the term is used sporadically, more so in Busch. My analysis draws on usage of the term but also discussion of ideas incorporated in cool summarised at the start of this paper.

Both authors provide rigorous accounts of fashion as it currently dominates (Busch's 'current state of fashion' and Payne's 'dominant fashion system'). In both accounts, fashionability and cool are used interchangeably, and cool therefore figures explicitly as a system of distinction based on a competitive and changing dynamic. This aligns with a variety of consumer perspectives on cool; for example, Belk et al (2010) studied the usage of the word 'cool' among a young international cohort, and, informed by cool's history and several previous theorisations, concluded that cool is a new mode of class distinction based on consumption. The idea of rebellion was on the wane, but waxing was what they call 'high key' cool – similar to 'glam cool' (Brown, 2015). This form of cool is strongly associated with celebrity culture and achieved – most likely against the odds – through the acquisition and confident display of wealth and significance. Fashion's bespoke and luxury offerings, as well as their trickled-down entry-level tokens and user-created fast-fashion clothing hauls are obvious tools and drivers toward this.

Both authors also recognize the role of sartorial rebellions in keeping fashion's pendulum swinging. Cool has long been associated with working class subcultures of the pre- and post-WW2 decades, and indeed with the cultural avant-gardes of bohemia, as well as marginalised and oppressed groups. This revolutionary energy, expressed as antagonism towards or ironically, as passion for the rule of fashion is indeed required by the system to innovate and propel the latest novelties, simultaneously excluding all those who are now out of step. Both authors know all too well that dissent expressed towards fashion at a symbolic level feeds it, and this is both a conundrum that creates what Busch calls the 'farce' of ethical fashion and

the reason for Payne's warning against 'making sustainable fashion cool' through aesthetic trend narratives (Payne, 2021:133). All that is cool, will inevitably become uncool. As mentioned in the introduction, this process of commodification of cool culture, dissent and its containment, noted from about the 1960s, has been widely seen not only as the death of the possibility of authentic cool (Frank, 1997) but also the far-reaching transformation of capitalism along neo-liberal lines (McGuigan, 2013). Cool is now capitalism's 'principle legitimating narrative' (McGuigan, 2014:229). According to McGuigan 'Cool is no longer cool' and certainly no longer 'some marginal dissident trend' (2013:265).

Conflict

Coolness is also key to Busch's discussion of fashion 'as conflict'. Citing Quartz and Asp (2016), he states: 'At the heart of fashion there is a conflict that we most often encounter in the colloquial terms of "in vs "out", or in the many forms expressing what is "cool" or "uncool"' (Busch, 2020). The competitive dynamics of trend setting and abandoning are fleshed out in terms very similar to those explored by Simmel and others (despite their historical context of a more visibly rigid and openly acknowledged class system than might be recognised today). Having the right, harder-to-access clothing, makes you 'better' – and the others worse.Needing to have it at precisely the right moment - so core to the fashion mindset that it is routinely parodied - increases the difficulty and intensifies the stakes. As Busch notes, fashion is devalued when it is shared (Busch, 2020). This resonates with cool takes on cultural capital but also with 'hip'; being wise to specialist, exclusive knowledge. If the knowledge is shared, no power or status can be drawn from it. (Hence hip's original value as a counter-hegemonic 'survival tactic' among Black mid-century jazz musicians).

In Busch's framing of fashion as conflict, fashionability is also assumed to be synonymous with coolness. In assessing the violence done by fashion, and between those who play the fashion game, Busch also touches on the illusory nature of individuality, and the expressive freedom or aesthetic autonomy so often promised by fashion. (Aesthetics of autonomy are in fact central to Arielli's (2020) and Warren and Campbells' (2014) conceptions of cool). This illusion is not, Busch says, because there is no real choice (though that may sometimes be the case) but, as Groys (2008), Bauman, (2000) and Han (2015) suggest, because we are 'forced to appear' and compelled to choose (Busch, 2020). This is the 'self- as-project' demanded by neo-liberal capitalism, to which sociological work on cool frequently refers (McGuigan 2014).

In this context, Busch's unpacking of the notion of the 'fashion police' reveals it as far from a frivolous exaggeration. Rather, all of us involved uphold the law of fashion by enacting 'microaggressions', a term currently used to explain the constituency of oppressive disapproval faced by someone –a member of a marginalised group, or an individual being bullied – who routinely receives small, perhaps almost insignificant negative gestures: glances, sighs, or emphatic silences (2020:85). These are the ways we curtail each other's expressive freedoms. Furthermore this form of bullying – by the cool, popular, fashionable people - is typical of behaviour used to define 'in' and 'out' groups in school settings (as numerous high-school dramas illustrate).

These behaviours are also well documented in accounts of individuals renowned for their cool demeanour: proto-cool regency dandies asserted their inner and outer superiority over genuine aristocrats with them ('that calm and wandering gaze, that neither fixes nor will be fixed' (Lister in Walden, 2002:111); Andy Warhol orchestrated the social dynamics of the Factory with them ' your whole house of cards might fall if he didn't whisper his usual "oh,hi" as he passed by' (Koch, 1991:7). These have also been 'under the radar' forms of resistance to power, for example when Charlie Parker refused to remove his sunglasses in a white-owned nightclub, he turned his invisibility as Black American into an assertion of self-possession) Macadams, 2002).

This self-possession, and its related phenomena are important. Busch's work on conflict highlights the scale of what is at stake and at risk in fashion (see also Busch and Hwang, 2018). It simultaneously provides a strong justification for cool's appeal, not just in terms ofthe distinctions of fashionability, but also in the more affective sense of unshakeability. As Arielli puts it (2020) '…naturalness, absence of constraints, nonchalance and imperturbability (confidence, aplomb, and self-assurance: that is, the inner state of someone who is at ease).

In Cool Shades (Brown 2015) I argued that the increasing perils associated with getting your appearance wrong, in the context of fragmenting and expanding contexts and options, had long been one (significant) piece in the jigsaw of the appeal of the cool demeanour.

The allure of an image of someone in control, and on top of the moment, potentially signified by an unshakeable facial and bodily composure (Goffman, 1967) as well as clothing which demonstrates knowledge of what is now and next, speaks not just within the fashion system but in the context of the whole of the modern1 experience of the self – precarious, contingent and aware of your own lack of significance, like never before.

This view is supported by Arielli (2020) who states that

> … practices of coolness based on aesthetic self-construction concern not only the domain of fashion and consumption, but also, could be considered exercises of autonomy and freedom in their own right

Busch interprets the cool, affectless face of fashion as vanity, narcissism and disdain for others, but the book fleshes out and writes large for our time, what some of the early sociologists of fashion and modern, urban life had foreseen, for example Simmel's blasé and neurasthenic personalities (Simmel and Wolff 1964); a hierarchy based not on class, but on the appearance of competence with the challenges of modernity.

Multiple, omni, meta

To the dynamics of social groupings, and the dimension of temporality core to the dominant fashion system, Busch adds the expansion of cultural possibility associated. He uses the metaphor of an inflating balloon to describe how trends are 'moving away from one another, multiplying, more and more styles become accessible at higher speeds, and only a click away' (Busch 2020:17). Who are you? What will you be? Janna Michael's study (2015) found that

her young urban creatives prized cultural omnivorousness and voraciousness – competence and connoisseurship of everything, while retaining a sense of individuality and continuity that affirms your authenticity – oh, and effortlessness. These freedoms are hard work. Cool is mastery.

Cool interventions in the dominant fashion system?

Though consumption-based cool may be associated with a postmodern culture, Bauman's 'liquid modernity' emphasises the intensification of conditions which straddle the periods in which cool has become a widely shared aspiration.

From both accounts, it is abundantly clear that cool is closely tied to the current, dominant system of fashion. But is cool – in any of its shades – present in the disruptive interventions worked for by these acti-critics? In one project, Busch asks participants to make monuments to unworn garments, respecting them as 'smothered selves', hoping to prize participants' relationships with clothes apart from allegiance to other people's rules (2020:134). Having the strength to wear these clothes without fear could imply the kind of self-possession and autonomy central to some conceptions of cool.

A sense of liberated Edenic playfulness also runs through Busch's work - the promise of fashion in a space 'outside' or 'post' (as problematic as everyone knows that is). This image of freedom to experiment, express and play with self-identity through clothing is distinctly modern, and cool– and can be hard to distinguish from the romantic individualism underpinning cool forms of consumption (Michael, 2015). Many cool types

– subcultures, avant-gardes – have customized, cut, sewn and messed about with the detritus of the fashion system to achieve this. Whether or not this is a plausible exit from the dominance of the current state is not for me to discern. What matters is that Busch's 'courage' also seems to sit quite closely to cool in terms of composure, self-possession and autonomy.

Rewilding and taming with cool

Payne's 're-wilding' comprises numerous tactics for disrupting the 'nested networks' of fashion production, promotion, use and destruction (2021:8). In these, market dependence is attacked by facilitating networks for sharing and promoting making and mending skills. For example, Twigger Holroyd's recent installation 'A Temporary Outpost of the Blue Fashion Commons' pilots a parallel world (from the mother project Fashion Fictions) where a law has been passed banning production and sale of all blue garments, creating rarity value. Visitors 'try out' this world by swapping, mending and adapting existing blue garments, according to the rules of the commons. Of course, creativity and expression counter to the formal mechanisms of capitalist production and consumption are a central feature of subcultural theory, and therefore of Thornton's cool/subcultural capital. Unlike classic subcultural capital, however, is that 'membership' is not (necessarily) governed nor denoted by a shared aesthetic. Neither is the dissent purely symbolic, since participation can result in a tangible act of resistance – a mended

garment. Nor is membership tied to lifestage, or age. Indeed, lead participants in these projects may themselves be seen as pretty cool –rebelling against the status quo, resisting commodification of their knowledge (though willing to share it), and, crucially, exemplifying cool composure in the face of immense risk: maintaining hope and purpose while staring down species disaster.

Payne is not naïve about the difficulty of prizing fashion (and therefore, cool) apart from capitalism's growth imperative', yet, she believes that 'other modes of engagement' already exist and that a 'post-growth' fashion system is a possibility, alongside a 'post- growth economics' (2019:8). This constitutes a kind of renewed hope for subcultural rebellion.

Her concept of 'taming' fashion (Payne 2019, 2021) refers to a less radical 'improvement' of the current system - cleaner processes, more recycled material. This involves those cools related to competence with the latest technologies. Furthermore, multiple audience- and time-specific aesthetics of cool would be required to promote 'tamed' initiatives. Cool remains important because less wasteful forms of the symbolic distinctions associated with cool consumption could allow the current fashion system to evolve with lower impact.

Deeper and wider exploration of the literature and initiatives may tell us more, but in all these examples, cool remains relevant to how fashion scholars confront both the past and the future.

Moving Forward with Cool

With this in mind, it is worth noting several new directions in cool theory, as well as challenges to existing theory presented by a significantly altered context for cool behaviours (Brown, 2021).

As discussed, one of cool's paradoxes is that although cool figures are widely admired, the health, morality and social impact of coolness, are frequently considered problematic: narcissistic, politically weak, easily incorporated into capitalist logics; a celebration of toxic masculinity. However, recent studies note the range ofmeanings associated with cool shifting to include more pro-social traits, from 'nice-ness' to 'goodness' and commitment to activism (Dar-Nimrod, et al. 2012).

Though the authenticity of this may be questioned, similarly to debates around 'clictivism' and 'slacktivism' (Lane and Dal Cin, 2018), it requires us to rethink cool in two ways – is cool necessarily an anti-social goal, or has theory over-focused on these aspects of it? Also, web 2.0, social media and surveillance capitalism have changed the possible performance and parameters of cool significantly, but the theory has not caught up. This matters because the stylized doom of the 'beat', the dandy-esque 'futile sovereigns of a futile world' may no longer seem so admirable. Why mope about like James Dean when you could be doing something? A new paradox has emerged – we know believe that we can, as individuals, make an impact, but only as part of a network. Can anyone pull off the performance of effortlessness - so central to cool - in a world demanding we quantify and evidence our social lives, lay bare the (uncool) neediness of chasing 'likes'? As Bauman said, 'there are no leaders, only followers…. and would-be leaders must seduce their followers' (2012:67). And if algorithms can predict trends

– who needs ‘cool people’ to forecast them? That mystical, embodied quality that Payne describes as cool – will it be – has it been - demystified?

Ethnographies of those in ‘hipster’ occupations like urban bartending and barbering have also revealed they are motivated by desire for less alienating, and ‘more meaningful’ work, despite having been educated for (increasingly systematized) professions (Ocejo, 2017). Luvaas’ ethnography of the Indonesian DIY fashion scene (2012) argued that an international ‘moral imperative’ to contribute creatively was also emerging. These developments also point towards cool as craft, dignity and socially-connected work.

Uncomfortable questions about how cultural and emotional survival strategies innovated under pressure of slavery and racism, came to permeate white, western, middle class youth culture, and beyond have occupied a critical strand of cool discourse which is no less important in the context of decolonisation debates. Recent scholarship has confirmed cool as an increasingly global phenomenon with local variations, and of course this intersects with the shifting geo-politics of the fashion industry. Something similar could be said of how working-class culture has been mined for cool (Rizzo, 2015). Finally, cool has been acknowledged as significant to radicalization to the far-right (Nagle, 2017), where the deployment of cool tactics seems to resurrect some of the forms of cool thought dead by young liberal subjects in recent studies, and fashion of course, is a tool.

Additionally, the wider pressures of what Bauman called liquid life - complex, contingent and precarious - affect everyone and create an environment in which cool composure is increasingly necessary but difficult to achieve. Fashion plays a critical part in this as both problem and solution. Stylised cool detachment of various kinds is a useful retreat from an overwhelming sense of risk (Macadams, 2002; Brown, 2015; Dinerstein, 2018). Our current era, which adds the ultimate crisis to this list - the crisis of global heating and outstripping the Earth’s resources, surely redoubles the likely value of cool responses.

Conclusion

There are other points to make – and other ways to explore the potential for cool theory to help us understand and move forward with fashion as history and in our futures. This exercise has been just a starting point, yet it has demonstrated three main things:

The first, is that cool is present as a spectre in the house of our understanding of the current state of fashion, and as a guiding spirit in our hopes for fashion’s futures. I hope I have managed to demonstrate this enough to show that cool theory is needed, and it needs to be adapted and rethought. The second – and I think this is potentially a critical, perhaps even liberating point - is that fashionability is not synonymous with cool. Cool is not – as it comes across in many fashion-related studies – merely a product of the dominant fashion system. Fashion provides a variety of ways that people can express the desired state of cool (whether they are,or feel, cool or not), and we may approve or disapprove of those ways. The third point - and it is related to the second - is that fashion, in its current state, along with all the other dimensions of change, contingency, risk and precarity in late modernity, constitutes a series of attacks on people’s

composure that helps to make people who manage to retain it, seem worthy of admiration, ergo, cool.

Sociologists of the absurd, Lyman and Scott, warned, in their 1970 essay 'Coolness in Everyday Life', not that cool had been commodified, but that 'risk had been democratised'. In their words, 'keeping cool is now a problem for everyone' (1989:155). They focused less on consumer aesthetics of symbolic dissent and more on embodied urban life discussed by Simmel, Goffman and others. These conditions are now reforming under conditions of connectivity and surveillance and in the context of climate crisis.

Finally, perhaps fashion could also hold a key to new considerations of cool theory. In demonstrating that cool may be perceived by being fashionable (following trends competently) being avant garde (showing aesthetic autonomy by setting trends) and by working to disrupt the smooth operation of fashion's dominant systems (the acti-critics themselves) it is possible that the idea of cool as composure (in the face of all those modernizing forces, which threaten to uproot us), can be more clearly seen. The fact that some of the popular personifications of cool are profoundly anti-social, and that some attempts to achieve it result in troubling or destructive behaviours, should not distract us from the underlying appetite for self-possession, composure and dignity in the face of the great challenges of selfhood today.

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DECODING SOFT: gen z soft masculine menswear trends through semantic network analysis

Authors

Tin Chun Cheung and Sun Young Choi,
The Hong Kong Polytechnic University

Corresponding Author: sun-young.choi@polyu.edu.hk

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Gen Z, Menswear, Semantic Network Analysis, Soft Masculinity, TikTok

Abstract

With the sprouting of social media in recent years, new menswear tribes have emerged – *e-bois*, *sad boys* & *softboys* among Generation Z. This study examines menswear trends over 10 years through semantic network analysis on Orange3 machine learning. We aim to debunk *soft* masculinity in high-end fashion popularised by Gen Z cultures which differ from dated concepts such as *androgyny* and *metrosexual*. Through semantic network analysis, we quantified i) dominant design trends, ii) examined the connective power of trends under the degree of centrality and iii) studied the correlation between concepts. Our results revealed dominant trends in menswear with their corresponding design. The methods of this study overcome human-based forecasting's predispositions by analysing 3,047 menswear collection reports from Vogue US via machine learning combining technological efficiency with human ingenuity. Our research points to contextualising menswear trends into semantic structures reinforced by quantitative and qualitative analysis. Our study demonstrates the feasibility of using machine learning for organising design trend concepts, recognising patterns, fashion forecasting, academic research, and potentials as an ideation tool for the creative industry.

Introduction

In recent decades, gender has become increasingly blurred (Clarion-Ledger, 2014, Andersen, 2004)), especially among Generation Z (Gen Z) who liberate themselves from binary systems (Stylus, n.d.). Social media (SM) has further incentivised these shifts (Vivienne, 2017). Gen Z has also become the main demographic consumer group with 97% of Gen Z relying on SM for fashion purchase inspiration (Kastenholz, 2021). TikTok, a video-led SM, has gained immense traction among Gen Z youth due to its abundant video content that entices greater engagement than Facebook, Instagram, & Twitter (Doyle, 2021).

Gen Z is predisposed have greater sociocultural awareness than previous generations (Thomas, 2021). Recent SM discussions have raised concerns about dated male hegemony and its detrimental effects as toxic masculinity (TMAS) (Parent et al., 2019). In response, Gen Z men on TikTok dress with the same fluid freedom women have in order to break up these stereotypes. Fashion brands have correspondingly introduced *soft* elements into mainstream menswear in order to meet the needs of Gen Z (Cohn, 2020). Jung coined soft Masculinity (SMAS) to illustrate *softer* masculinity that embraces male/female qualities but still identifies as binary male (Jung, 2009). Gender fluidity points to an individual with a fluxion gender. WGSN trend forecast (WGSN, 2015a) initially reported manifestations of Gen Z SMAS in 2015. Gen Z have skilfully embraced other youth subcultures i.e., emo, skater, gaming and Pan-Asian SMAS, consequently forming new *soft* tribes - *E-bois, softboys* & *sadbois*. TikTok has helped brought unprecedented attention to these communities (Luna and Barros, 2019, Fraser, 2020, Commetric, 2019).

However, men embarking on femininity is not new-fangled and has been extensively studied in fashion as *androgyny* (Reilly, 2020), *metrosexual* (Simpson, 2002), and *cross-sexual* (Lee et al., 2020a), which points to complex expressions of internal/external identity, sexuality and differs from pop-culture focused SMAS. Studies on SMAS have been conducted under the guise of Asian pop-culture i.e., K-pop (music) yet little has been done to study how contemporary fashion interprets SMAS and how its design components work alongside traditional MAS trends.

In this study, our aims are to i) examine how contemporary high-end menswear designers are interpreting the *soft* styles of Gen Z, ii) identify which trend keywords are dominant in menswear and iii) how they correlate through the degree of centraility (DC). The methods of this study overcome the biases of human-based forecasting by analysing 3,047 MW collection reports from Vogue on a machine learning platform (Orange3), combining technological efficiency with human ingenuity. Our findings delineate SMAS menswear trends in Western society. We have also demonstrated the feasibility of this methodology for organising trend concepts and patterns for fashion forecasting.

Literature Review

Traditional masculine identity through dress

Traditional beliefs have cemented men playing dominant roles relating to the primacy of work and leadership (Benokraitis, 1996), which has influenced our dressing practices.

Masculine (MAS) features typically demonstrate male hegemony (Table 1) (Davis, 2013, Miller-Spillman and Reilly, 2019). These qualities are expressed through colour, fabric, garment detailing and pattern (Barnes and Eicher, 1992).

Author/code	*Garment*	*Silhouette*	*Textures*	*Patterns*	*Colour*	*Theme*
Buckley & Fawcett (2001)	T-shirts Oxford shirts Crew sweaters Polos & rugby jerseys		Twills Drills Worsted wool Traditional suiting fabrics	Argyle Plaid	Blues Sombre dark colours Monochrome	Casual Workwear
Davis (2013)	Black leather jackets Military jackets Severe tailoring Classic male trousers & shorts	Padded & exaggerated shoulders	Heavy tweeds Flannels Corduroy Workwear denim	Houndstooth Pinstripe Seersucker Camouflage	Military & workwear colours Dull & earthy tones	Industrial Formal Sartorial Business-like attire Sport & action
Miller-Spillman & Reilly (2009)	Jumpsuits Slacks Cargo pants Sports jackets	Slim fitting Oversizing		Army patches & badges Slogans		Functional Practical Active

Table 1. Menswear dress features

New cultural landscapes in menswear

Menswear at-large has held a restrained aesthetic (Davis, 2013) contrary to female gender norms subverted through sportswear (Lee-Potter, 1984), power dressing (Entwistle, 2020) and androgynous styles (Miller-Spillman and Reilly, 2019), e.g., Saint Laurent's Le Smoking & Chanel's garçonne style (Davis, 2013). However, men of the past have also transcended prevailing gender expectations through fashionable dress; Brummell, Dandyism, hippie psychedelia, pop icons such as Boy George & Leigh Bowery inspiring 80s Ravers, Mah-Jong tights & tunics (Eldvik, 1988) and slim-fitted jumpsuits & man-skirts (H&M 2002, Yves Saint Laurent, Jean-Paul Gaultier & Marc Jacobs 2009) to Dior Homme by Slimane (Arnold, 2001). Though, such dressing practices have not been adopted by male consumers at-large in Western countries due to stigmas attached to feminine men (Hollander, 2016).

Fashion designers are fuelling these discourses by questioning if clothes are gendered (Zahm, 2017, Trebay, 2015, Commetric, 2019, Razak, 2019, Wightman-Stone, 2016, Cohn, 2020).

Influenced by Far-eastern pop culture, designers have used the runway to disseminate Gen Z TikTok *soft* trends into Western mainstream consciousness in response to TMAS (Friend, 2018, Singh, 2020). TMAS has been used to refer to outdated ideals psychologically harmful to men

and the greater society (Legg, 2020). Fluid dress encourages men to break up stereotypes by communicating sensitivity similar to their female counterparts. Jung first coined soft masculinity (SMAS) to illustrate a hybridisation of male/female identities who embellished themselves with an elaborate dress (Jung, 2009) and distinguished themselves from cross-sexual (Lee et al., 2020a) & metrosexual (Simpson, 2002). In recent years, SMAS has been re-established by the media as a style that originated from runway collections where men are granted the same measure of freedom to express identity previously exclusive to women (Singh, 2020, Laux, 2021, Napoli, 2020). In MW, "Feminine" designs, colours, floral patterns and see-thru tops are increasingly seen on the runway. Moreover, makeup & beauty products aimed at male consumers have become commonplace, which was not long before a taboo (Singh, 2020). Gen Z youth tribes such as *soft boys* are proponents of such ideas and are responsible for re-defining future MAS (Yotka, 2018).

SMAS is not limited to dressing practices only and differs from other MAS conceptions by presenting friendliness, kindness, and non-intimidating behaviours (Louie, 2012). It is a hybrid product of pop cultures - Korean flower boy, Japan's bishonen and global metrosexual MAS. This female-friendly man is perceived as more fitting for our globalised society conceptualised through K-pop music, TV dramas, SM, and fashion styling (Ainslie, 2017).

Though feminine in nature, SMAS differentiates itself from androgynous individuals (Reilly, 2020) & nonconforming genders: gender-fluid, agender, bi-gender & genderqueer (Zambon, 2020, Butler, 2004). These terminologies describe the combination of inward/outward expressions of identity and how one perceives themselves, thus not pertinent to studying fashion tribes (Table 2).

Terminology	Definition
Metrosexual (Simpson, 2002)	Heterosexual men with disposable income that are conscious of their outward appearances, who may resort to excessive grooming & feminine fashion designs. To express trend-consciousness rather than sexuality or gender
Crosssexual (Lee et al., 2020a)	Heterosexual men that wear garments with traditional feminine-related design details
Androgyny (Reilly, 2020)	Ambiguous gender expression, individuals may identify as a unification of male & female
Nonconforming gender terms (Butler, 2004)	Such gender terms place less emphasis on one's outward expression and more about how someone identifies oneself

Table 2. Menswear culture terminology & definitions

SMAS fashion tribes

Style tribes are traditionally bound to youth cultures that rebel against the governance of fashion elites (Polhemus, 2010). Globalisation and technology have eased the process for new tribes to form (Jennings, n.d.). The accumulative consumption of East Asian pop-cultures originating from Japanese manga has resulted in SMAS tribes (Jung, 2009). This cultural hybridisation has assisted K-pop to accumulate mass regional followings expanding their fanbase (Jung, 2009).

Global SM communities like TikTok is rife with SMAS due to its inclusiveness of diverse youth subcultures and has thus eased itself into mainstream consciousness. TikTok's popularity among Gen Z SMAS is attributed to factors including their digital nativism and preference to consume rich video formatted content, which tends to draw higher engagement compared with Facebook, Twitter or Instagram (Doyle, 2021). On TikTok, Gen Z develops individual identities, rejects pre-existing stereotypes, and opens up a global community's fluidity (Muliadi, 2020). More importantly, TikTok provides users with instant gratification by offering an intuitive platform to perform short lip-sync videos to their favourite pop idols or participate in dance competitions forming online communities (Thomas, 2021). Hollander (2016) has also observed men to have somewhat embraced mutable female dressing habits. Though, she argues distinctive feminine features remain taboo in association with men's dress. SMAS prompted by Gen Z, however, diverges from Hollander's theory calling for re- evaluation.

TikTok interactive features have incentivised SMAS portrayals among Gen Z youth claiming 800 million monthly users (Marci, 2020). SMAS initially emerged in fashion reports (WGSN, 2015a, WGSN, 2015b, WGSN, 2016, Stylus, 2016) and publication Dazed (Wang, 2016), but not entirely conceived as Softboys and other incarnations till 2018 (Figure 1).

Distinct cultural stimuli influence these tribes. The *Sad boy* concept is a melting pot of SMAS styles but does not attempt to disrupt gender expectations (Wang, 2016). *Softboys* are artistic, sensitive men with subtle hints of femininity, an older cousin of *E-bois* (Yotka, 2018, David, 2019). *E-bois* are driven by digital pursuits, including SM, gaming-related subcultures (anime, cosplay), Twitch (interactive steaming service) and champions gender fluidity (Marci, 2020, Bassil, 2019).

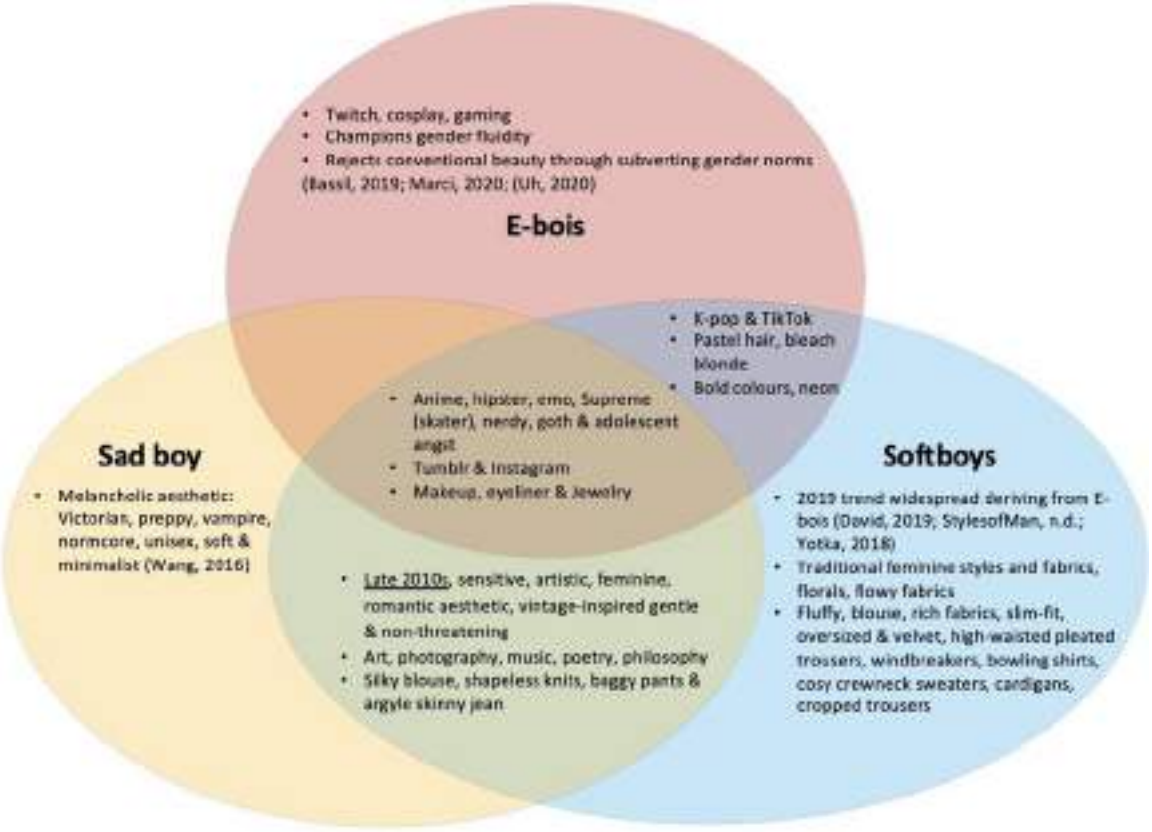

Figure 1. SMAS tribes & classifications manifested on SM

Current SMAS studies remain fixated on Asian pop idols' gender subversion (Ota, 2015, Lee et al., 2020b) and fan sentiment (Ayuningtyas, 2017). Our research purposes are to i) examine how contemporary menswear is interpreting *soft* style of Gen Z, ii) what design features are dominant, how they relate to other trends and iii) which *soft* trends are dominant. The contributions of this study include the use of machine learning methodologies to analyse fashion trends instead of manual analysis that is often skewed to the author(s) opinions. Our study will objectively identify the latest developments in MW under the influence of Gen Z culture and examine how MAS identity is interpreted through fashion trends on runway shows.

Big data in trend forecast

Trend forecasting predicts style developments and anticipates consumers' desires (Rousso and Ostroff, 2018). Designers consider trends to maximise appeal to their target audience through colourways, patterns, fabrics, design details and silhouettes (Jackson, 2007, Rousso and Ostroff, 2018). However, human-based forecasting, i.e. WGSN (WGSN, 2021), is often limited to idiosyncratic observations and does not objectively reflect market trends (An and Park, 2020). In recent years, retailers have incorporated big data analytics for forecasting (Chaudhuri, 2018), i.e., EDITED (EDITED, 2021). The authority to validate trends have thus loosened from

producers to consumers (An & Park, 2020). Big data has been swiftly used by retailers to identify consumer behaviours and potential markets (Grammenos, 2015, Gaimster, 2012), likewise in academia (An and Park, 2020, DuBreuil and Lu, 2020). However, limitations remain: i) biased user data, ii) does not answer trend "whys" or "how", iii) outlier can affect results, iv) security issues, and v) small data remains more effective for practical, real-world learnings (Yamaguchi, 2015). Moreover, big data's complexity limits its efficiency (Kubick, 2012). It requires other processes, structuring, and analysis into context to be useful (Yamaguchi, 2015). Human-based methods consider complex factors in design (creativity & societal attitudes) which is inimitable by technology (Barnes and Lea- Greenwood, 2010). Therefore, big data will not replace traditional methods any time soon (DuBreuil and Lu, 2020). Finding an equilibrium between technological use with human ingenuity remains a promising area of study.

Contextualising fashion keywords

Past studies have suggested natural language processing for fashion forecasts (An and Park, 2020, Beheshti-Kashi et al., 2015). The semantic analysis examines the context surrounding text to accurately disambiguate the proper meaning of keywords (Sowa, 1987). Via such methods, one can draw from multiple channels to identify interacting ideas in a network (Drieger, 2013). SNA machine learning toolkits like Orange3 data mining provides an efficient platform with algorithms that can analyse human speech through predicate logic (Indurkhya and Damerau, 2010) and does not require complex coding skills. A key advantage includes the ability to extract valuable information from unstructured data and achieve human-level precision while remaining unbiased – unattainable by human-based/big data methods alone. Through SNA, we can quantify design trends by identifying the frequency of occurrence (FO), measure the DC value which stresses the most central feature of our network and outline the correlations between design features in a network (Golbeck, 2013).

FO allows researchers to pinpoint the number of times a word appears in a dataset revealing social patterns (Al-Hashemi, 2010, Callon et al., 1983). This novel study examines MW trends by collating catwalk reports transcribed with various perspectives alongside machine learning technology. The significance of this research lies in the quantification of semantics through our workflows which contextualises independent keywords to examine SMAS development.

Methodology

Data collection

This study used Orange3 data mining version 3.28 to analyse MW trend development. We conducted content analysis via collections of articles from Vogue US (Vogue, 2021), a key fashion resource provider and studied how MW evolved on the catwalk through trend and language describing the formation of SMAS. These online resources are readily accessible, provide real-time feedback akin to SM, and are appropriate to analyse from in our increasingly digitalised environments.

We collected 3,047 MW reports from fall 2012 to spring 2022 (20 seasons) from the "Big 4" fashion weeks New York, London, Milan, and Paris. Spring 17 had the highest number of participating designers, with spring 21 least (Figure 2). During this period, there was only 1 capsule collection (pre-fall). Due to the limited collections (10) shown, its irregularity is inconsistent with the rest of our data and thus was not incorporated in our final dataset. Pre-collections were traditionally capsule collections that linked the principal bi-annual shows to satisfy consumers with international lifestyles, which was often not seen as a commercial necessity in menswear (Dhillon, 2018). Moreover, collections that showed menswear and womenswear concurrently were also omitted from our dataset because we were solely interested in analysing MW only.

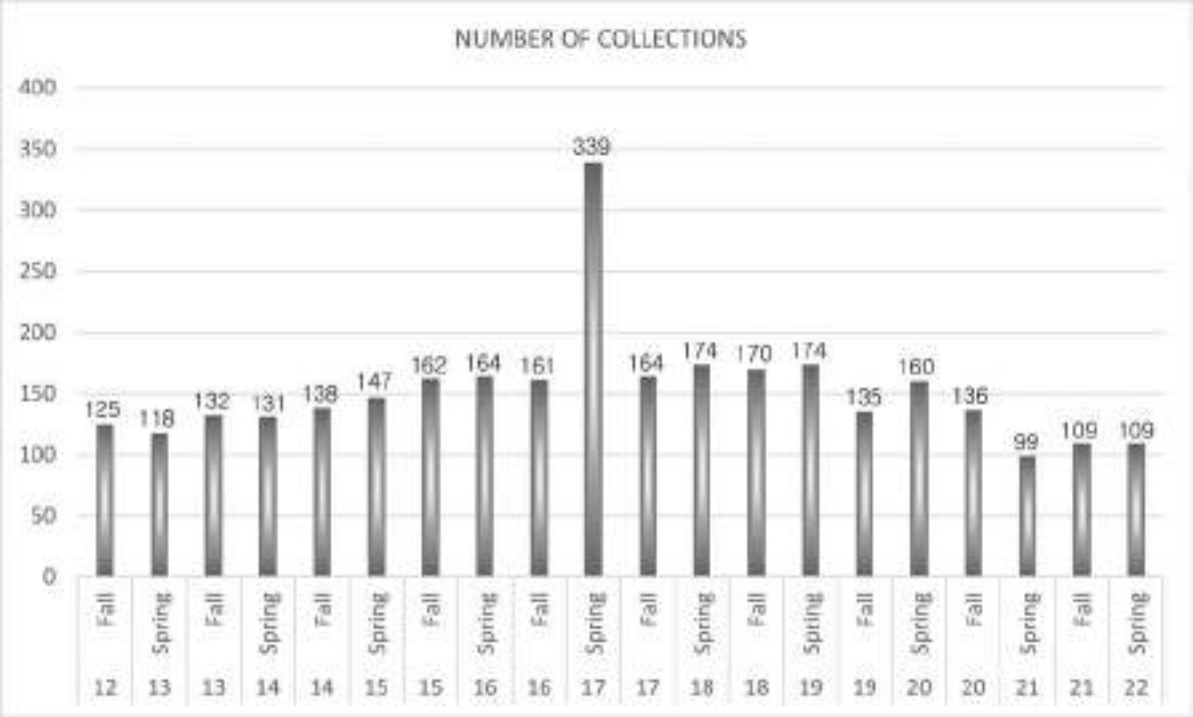

Figure 2: Number of participating collections per season during fall 2012 to spring 2022

Coding rules

Through reviewing established fashion literature and articles (Davis, 2013, Rousso and Ostroff, 2018, Miller-Spillman and Reilly, 2019, FIT, 2020, Ellinwood, 2021, An and Park, 2020, DuBreuil and Lu, 2020), we have devised an efficient design feature categorisation which better represents the complexities of design features and arrangements (Table 3). Precedent studies sometimes have ambiguous classing of features that do not encompass all possible variables in fashion design.

Design element	Criteria	Examples
Garment	Labels a garment item that is used to clothe the body (Ellinwood, 2021)	*Outerwear, tailoring, cargo, dress, corset, etc.*
Silhouette	The outline of a whole garment and the most obvious visual element of a garment. Silhouettes evolve to accentuate or exaggerate different parts of the body (Burke, 2011)	*Bodycon, slim, oversize, boxy, etc.*
Textiles	Describes tactile and visual surface qualities, appearance and feel of a material or fabric (Ellinwood, 2021) Also, indicating fabric weight and drape	*Sheer, satin, felt, twills, etc.*
Patterns	Repeated or one-off surface designs that can be directly woven into a fabric or printed on top (Ellinwood, 2021)	*Florals, houndstooth, checked, colour-blocking, etc.*
Colour	One of the most prominent features that contribute to the overall appearance of a garment (Burke, 2011)	*Whites, pastels, earthy, violet, etc.*
Theme	The importance of narrative is crucial in appreciating clothing. In fashion, storytelling or the overall narrative is an essential segment of a multifaceted experience that engages consumers and assists them to recognise what they stand for (BoF, 2016). It also provides essential cues for distinguishing identity.	*Decorative, romantic, streetwear, sartorial, etc.*

Table 3. Coding rules

Data refinement through machine learning on Orange3

Figure 3. illustrates how designated articles were uploaded and processed on Orange3. We pre-processed our articles before they were ready for further analysis. 3,047 articles were uploaded onto Orange3 via the import documents widget, and through the corpus viewer widget, these articles could be accessed. The pre-process text widget is used to refine our unstructured text data. It assists in filtering meaningless and irrelevant words through a stop word file. Furthermore, it allows us to refine the text further by removing punctuations & numbers, unifying plural forms & abbreviations of words (e.g., pink & pinks), and removing verbs due to their insignificant role in expressing content meaning.

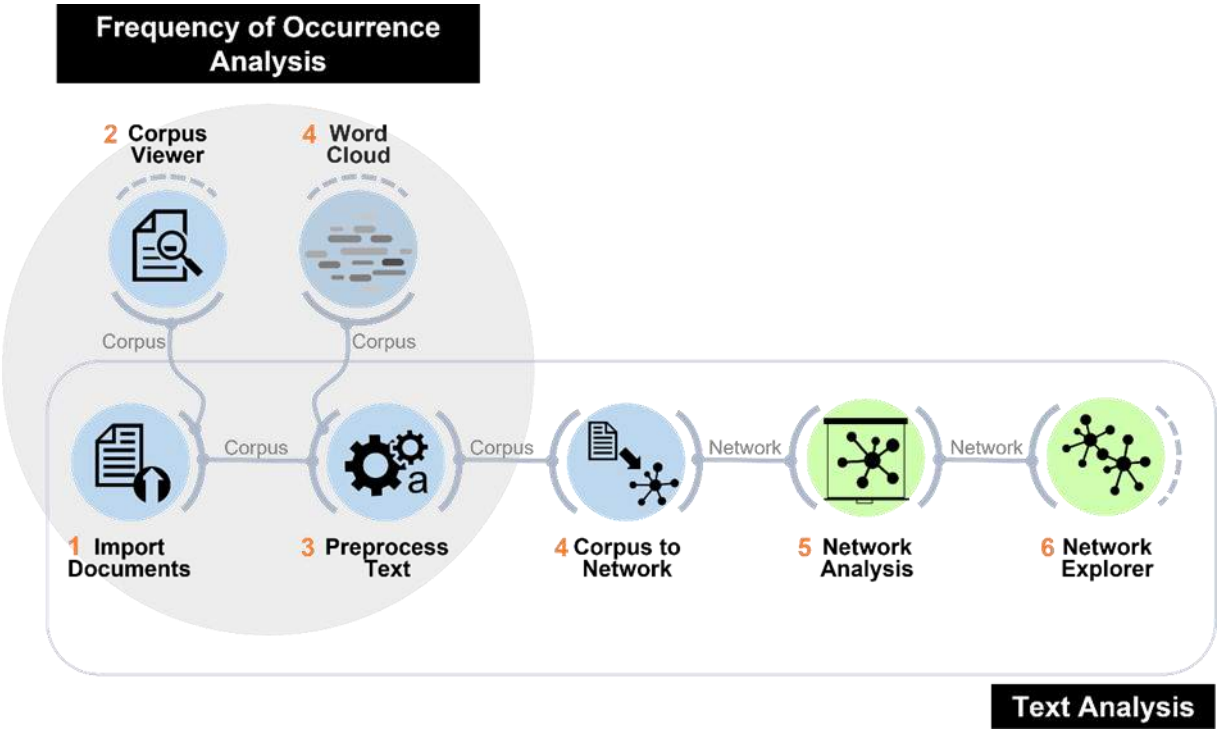

Figure 3: Text analysis widgets on Orange3 data mining (modified the original image of Orange 3, 2021)

Identifying frequency of occurrence of fashion codes

The big circle in Figure 3 demonstrates how the FO of the different fashion codes can be visualised. Documents are imported onto Orange3, pre-processed, and visualised through the word cloud. This widget's primary purpose is to display tokens in the corpus and denote the FO of a particular word in the corpus. Words are listed according to their FO (weight) in the widget.

Identifying the correlation between fashion codes

To identify the relationship between various codes, we must take further steps in processing our text data (squround in fig. 3). We separate our articles into single sentences through corpus to the network and then segment sentences into single words. After which, we transform these words into nodes (Ngrams). Our study set the frequency threshold to a minimum of 100 co-occurrences to control and leave out words unconnected to fashion.

Many unrelated words may still surface at this stage, and we can further control this by updating the stop word file. To quantify the relationship between design codes, our words are processed through Network analysis. This widget analyses key design features by measuring words with the highest DC to reveal the importance of that code compared to others through co-occurrence.

Findings

Frequency of occurrence of menswear design features

MW trends from fall 2012 to spring 2022 with the highest FO are shown in Table. 4. As anticipated, design elements associated with traditional MAS play dominant roles in MW. However, our results also show womenswear-related features to have emerged frequently with high FO suggesting fashion designers' attempts at subverting MAS. SMAS trends have seemingly eased themselves into mainstream MW collections materialising as keywords such as *soft, floral, and pink*, all with high FO.

Rank	Garment	*f*	Silhouette	*f*	Textiles	*f*	Patterns	*f*	Colour	*f*	Theme	*f*
1	Jacket	3,056	Tailored	453	Leather	1,202	Print	1,060	Black	1,319	Tailoring	826
2	Shirt	1,912	Oversize	306	Denim	745	Check	451	White	937	Classic	456
3	Pant	1,618	Loose	244	Felt	665	Stripe	407	Blue	680	Sportswear	376
4	Suit	1,571	Cropped	185	Wool	589	Graphic	373	Green	543	Soft	374
5	Coat	1,438	Volume	176	Cotton	588	Logo	337	Gray	477	Military	354
6	Knit	861	Relaxed	175	Silk	588	Jacquard	328	Red	456	Vintage	316
7	Top	712	Slim	152	Nylon	426	Motif	327	Pink	271	Technical	273
8	Sweater	694	Skinny	149	Cashmere	394	Embroidered	258	Gold	225	Uniform	272
9	Jean	574	Tight	120	Velvet	302	Plaid	219	Yellow	223	Evening	244
10	Outerwear	468	Elongated	119	Fur	255	Star	209	Orange	204	Casual	238
11	Bomber	448	Fitted	111	Shearling	248	Floral	195	Brown	192	Masculine	235
12	Parka	423	Boxy	104	Linen	247	Heart	168	Purple	132	Streetwear	219
13	Sportswear	376			Suede	235	Camouflage	137	Khaki	129	Couture	206
14	Sweatshirt	262			Jersey	229	Animal	132	Camel	117	Workwear	204
15	Tee	243			Corduroy	184	Patchwork	129	Metallic	114	90s	202
	m	977	m	191	m	460	m	315	m	401	m	320

f = frequency/weight of word; m = mean value rounded to nearest digit

Table 4: Menswear design features

Correlation between fashion codes

SNA gender networks were generated for identifying correlations between design keywords (Table 5). DC values range from 0 (no centrality & importance) to 1 (central & of greatest importance). Low DC value features unconnected to the central network are listed at the bottom of the tables. Though unconnected to the main configuration, they are nevertheless important cyclical trends in MW. Codes with high DC values are dominant trends in MW.

Degree of Centrality (DC) values of design features (rounded to nearest digit)											
Garment	**DC**	**Silhouette**	**DC**	**Textiles**	**DC**	**Patterns**	**DC**	**Colour**	**DC**	**Theme**	**DC**
Jacket	0.80	Tailored	0.12	Leather	0.40	Print	0.30	Black	0.40	Tailoring	0.21
Shirt	0.60	Oversize/ Loose	0.10	Wool	0.30	Check	0.16	White	0.24	Soft	0.12
Pant	0.53			Silk	0.24	Stripe	0.12	Blue	0.22	Classic/ Military/ Casual/ Technical	0.10
Coat/Suit	0.50			Denim	0.23	Jacquard /Graphic /Plaid/Layered/ Logo/Motif	0.10	Green	0.17		
Knit	0.30			Cotton	0.21			Gray	0.16		
Sweater	0.22			Nylon/Cashmere	0.14			Red	0.12		
Top	0.18			Fine/Velvet/Felt/ Woven/Shearling/ Linen/Suede/ Tweed/Jersey/ Quilted	0.10			Yellow/ Pink	0.10		
Bomber	0.15										
Jean/Parka	0.14										
Outerwear	0.12										
Vest/Sweatshirt/Tee/Overcoat/Trench	0.10										
Features < 0.10: logo, trench, motif, orange, floral, cardigan, skinny, corduroy, brown, dyed, embroidered, pleated, workwear, pajama, mesh, sportswear, washed, polo, fur, scarf, uniform, army, panel, tuxedo, silver, evening, hybrid, vintage, formal, flannel, satin, painted, cropped, gold, khaki, relaxed, camel, mohair, boxy, elongated, bonded, slim, lace, patchwork, baseball, volume, couture, blouson, masculine, biker, hoodies, sartorial, faded, purple, padded, sweat, photo, tight, 80s, puffer, fitted, cape, jumpsuit, tank, camouflage, cargo, heavy, robe, overall, anorak, western, hood, 90s, contrast, animal, metallic, 70s, feminine, star, hat, square, digital, thick, retro, utility & streetwear											
Outside network < 0.01: separates, earth, plastic, party, heart, heritage, tracksuit, urban, luxe, beach, comfort, elegant, punk, girly, performance, luxurious, pretty & romantic											

Table 5: Degree of centrality of design features

Analysis

Table 4 indicates garments to have the highest FO (*m* = 977) followed by textiles (*m* = 460), colour (*m* = 401), theme (*m* = 320), patterns (*m* = 315) and silhouette (*m* = 191). Keywords with the highest FO in each group include garment *jacket* (*f* = 3056), in silhouette *tailored* (*f*= 453), in textiles *leather* (*f* = 1,202), in patterns *print* (*f* = 1,060), in colour *black* (*f* = 1,319) and in theme *tailoring* (*f* = 826). Top ranking SMAS keywords include *tight* (*f* = 120), *floral* (*f* = 195), *heart* (*f* = 168), *animal* (*f* = 132), *pink* (*f* = 271), *yellow* (*f* = 223), *orange* (*f* = 204), *soft* (*f* = 374) and *couture* (*f* = 206). Though SMAS keywords scored high frequencies, traditional MAS features (Table 1) still dominate. All SMAS keywords have below mean values in each category apart from *soft* (*f* = 374) in theme group (*m* = 320) insinuating *soft* to play a fundamental role in MW collection themes.

Garments, textiles, and colours have also scored the highest centrality (table 5). The highest DC among garments, *jacket* scored *DC* = 0.80, in silhouettes *tailored DC* = 0.12, in textures *leather DC* = 0.40, in patterns *print DC* = 0.30, in colour *black DC* = 0.40 and in theme *tailoring DC* = 0.21. SMAS related features *soft*, *yellow*, and *pink* are also seen with DC values at 0.12, 0.10 and 0.10, respectively. In addition, other SMAS trend keywords include *lace*, *floral*,

orange, *satin*, animal, feminine, *tight* and *couture* at values < 0.10 and keywords *girly*, *pretty, romantic,* and *heart* at values < 0.01. Alike FO, our results show *soft*'s significance with the second highest DC among themes behind *tailoring* with *DC* = 0.21.bHowever, other SMAS keywords are not dominat trends in any way with the majority scoring *DC* = < 0.10.

Discussion

This study processed 3,047 fashion collection reports over 10 years to examine MW trends through SNA. The quantification of trend keywords through machine learning have assisted us in recognising MW trend patterns and examining how contemporary MW is interpreting *soft* style of Gen Z. Our results suggest garment, textile, and colour keywords to have the highest FO and DC values overall (table 6 & 7). Existing literature often discuss garments and colour as the most identifiable visual component that we can immediately recognise from a distance (Ellinwood, 2021). In table 4, various SMAS keywords appear with high FO in MW during fall 12 to spring 22. However, these trends do not subjugate traditional MAS dress styles that demonstrate male hegemony i.e., jacket (*f* = 3,056)/tailoring (*f* = 826). And in table 5, SMAS keywords again appear with DC values of over 0.10, with many between 0.01 and 0.10. Overall, though SMAS is a relatively new trend, we do see its weight in MW through FO & DC values. There is the implication that SMAS trends do play a vital role in the development of MW fashions; however, there is no indication suggesting a widespread shift to SMAS in MW.

Conclusion & limitation

This study demonstrates the feasibility of using machine learning in fashion forecasting, academic research, and companies' design directorial tools. We objectively identified developments in MW and examined how contemporary fashion interprets SMAS on the runway. Through probing the digital, we examine the complexities of fashion and MAS identity; how it is viewed and consumed in a broader scale. This study recognises the blurring of existing frontiers in fashion between the digital & tangible by sourcing data from online resources befitting our fast-paced digital era.

In academia, our paper delivers a systemical study of MW trends through semantic network analysis to identify and examine the correlation of fashion trends; in our case, SMAS trends were found. Our study illustrates how virtually formed Gen Z tribes have subverted MAS dress and disseminated into the physical by designers through the increasing normalization of SMAS trends in MW collections. We anticipate this study to instigate a new range of theories on dress & gender in fashion and prompts us to re-evaluate, re-interpret and update our preconvieved notions of MAS representation in fashion. With SMs' popularity and emphasis on individualism, future studies may wish to analyse how Gen Z use various virtual platforms/realities to perform their social identities and how it is translated into the tangible.

Abbreviations

CO = co-occurrences

DC = degree of centrality

FO = frequency of occurrence Gen Z = generation Z

MAS = masculinity/masculine MW = menswear

SM = social media SMAS = soft masculinity

SNA = semantic network analysis TMAS = toxic masculinity

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REVOLUTION RETOLD: classroom to real world

Authors

Lauren Copeland and Kendra Lapolla,
Kent State University, Kent, USA

Corresponding Author: lcopela6@kent.edu

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Abstract

Revolution RETOLD is a project that aimed to create real-world learning opportunities for students to solve sustainability and collaboration challenges in the fashion industry using a School of Fashion's retail store located in the USA. The project's purpose was to revitalize the School of Fashion's retail store by addressing a need for sustainable practices, experiential marketing and create a conversation around a new era of retail and manufacturing through collaboration from design and merchandising students, outside majors, and the local community. The School of Fashion Store Learning Lab course was developed, and 15 students decided upon a theme Revolution, to coincide with an important event within the local community and university. The students developed a concept and trend board to enable hosting an open buy day calling for theme-related submissions including apparel items, garments, illustrations, retail experiences, visual displays, technology, and advertising campaigns. Key items bought for the store focused on more sustainable manufacturing processes such as upcycling, zero-waste patternmaking, and local labor. Research producing tangible, shareable outcomes was conducted throughout the semester. This included weekly working reports, peer evaluations, self- reflections, and concept ideation/prototyping descriptions. Field work with students (i.e. sales reports, store traffic etc.) and future plans for the store (i.e. virtual reality, experiential retailing, workshops, etc.) on a daily basis was expected to determine outcomes that benefit advancement of curriculum for the Learning Lab course and for future involvement from other areas in terms of collaboration inside and outside of the classroom. Findings indicate the impact of student learning through enhanced negotiation and communication skills, real world applicable insights, as well as impact on empathy and understanding of critical thought and awareness of self and others.

Introduction

According to over twenty-five years of research on generational change in the workplace, Tulgan (2015) has seen the soft skills gap with younger generations exponentially growing in recent years. Soft skills can be identified as "interpersonal qualities, also known as people skills, and personal attributes that one possesses" (Robles, 2012: p. 453). As highly collaborative students continue to become more valued in the workplace, it is becoming critical for higher education to develop learning environments that foster teamwork, communication, critical thinking, and creative problem solving in groups. Based on observations, students in both design and merchandising seem to have limited experience in academia to apply soft skills such as negotiating, working towards a common goal, and problem solving as reflected in industry practice. These observations are further supported by Chi, Liu, Salusso and McCracken (2018) who found that recent college graduates and corporate recruiters feel students are not thoroughly prepared for industry standards of leadership, communication, and problem-solving skills.

Higher education institutions are often siloed in traditional learning systems where students can become isolated within their major. According to the Association of American Colleges and Universities survey of employers, "many companies are seeking candidates who possess excellent communication and teamwork skills as well as a demonstrated ability to think critically and solve complex problems" (Hart Research Associates, 2015: n.p.); "Higher education traditionally resists such endeavors, which can largely be attributed to the role of departments, disciplinary silos, and bureaucratic administrative structures." (Harris, 2010: p.22). Evidence of the importance of collaboration for students in higher education is increasing, as "The majority of college graduates are confident in the level of their abilities, while in reality their skills fall short of employer expectations." (Stewart, Wall and Marciniec, 2016: p. 276). According to Krskova, Wood, Breyer and Baumann (2020), "In our digital 21st century, work demands a different set of skills than that of our industrial past. Educational institutions need to do more to help students both complete tertiary education and be ready for a future that will require continual learning. This chapter presents a case for improving non-cognitive skills, and particularly discipline, to achieve these and other goals. Evidence for the positive impact of non- cognitive skills is growing." (p. 265). This student-centered approach focuses on learning development through a collaborative engaged activity. The purpose of this research is to engage design and merchandising students in a project that situates them in a real-world scenario to practice specific soft skills relating to critical thinking, problem-solving, and negotiation to achieve a cohesive apparel collection.

Revolution RETOLD is a project that aimed to create real-world learning opportunities for students to solve sustainability challenges in the fashion industry using a School of Fashion's retail store located in the USA. The project's purpose was to revitalize the School of Fashion's retail store by addressing a need for sustainable practices, experiential marketing, and create a conversation around a new era of retail and manufacturing through collaboration from design and merchandising students, as well as outside majors and the local community.

Methodology

Professors from both merchandising and design connected their students in a hands-on project to provide an opportunity to apply soft skills along with specialized, developed knowledge from their specific majors. The School of Fashion Store Learning Lab course was developed, and 15 upper-level undergraduate students from both design and merchandising majors enrolled for the fall 2019 semester. In the course the students decided upon a theme Revolution, to coincide with an important event within the local community and university taking place in the spring 2020 semester. The students hosted a buy day calling for theme-related submissions from faculty and students around the community and campus in which apparel items, garments, illustrations, retail experiences, visual displays, technology, and advertising campaigns were collected and shopped publicly so that anyone on the campus could take part in voting on items for the store. Key items bought for the store focused on more sustainable manufacturing processes such as upcycling, zero-waste patternmaking, and local labor. For example, denim products were upcycled with a laser cut pattern by a junior design student. The students then continued to curate the collection and set up the store unveiling to be sold and available the next semester.

Students were asked to create merchandise and market an innovative and sustainable clothing collection for the School of Fashion Store. Students were to be the change agents in this vision and meeting the goals of unveiling a new collection in the Store for the upcoming spring 2020 semester. Student goals and outcomes were as follows: 1) Develop leadership skills including problem-solving, creative thinking and task delegation. 2) Develop collaborative skills and effective communication to successfully complete tasks in group settings. 3) Develop a vision and strategy for the upcoming season of the School of Fashion Store. 4) Analyze the School of Fashion Store's successes and failures to find ways to increase sales and traffic flow. 5) Address factors required in running a successful retail store including customer, budget, product, services and merchandising 6) Apply learned skills that address needs for marketing and manufacturing the vision of the upcoming season for the School of Fashion Store. This may include product development, tech pack and patterning development, sourcing, visual merchandising, event planning and advertising.

Roles and responsibilities were indicated by the professors and students chose their preference based on backgrounds and skill sets. See table 1.

Roles	Responsibilities
Editor in Chief / Creative Director	Management of Groups/vision, final magazine
Product Design Management:	Sampling, Tech Design, Patternmaking, Sourcing, Quality Control, Communication with the School of Fashion's Collaborative Fashion Production course
Communications	Advertising, Social Media Marketing, Brand Management
Store Planning and Design	Visual Merchandising, Store Layout, Product Placement, Logistics for Events
Buying	Organize Buy Day, Management/Follow up of submissions and Final Buys, Sourcing, Quality Control, Merchandising, Analyzing Sales Reports and Creating, Overview next semester, Management/Follow up of submissions and Final Buys
Outreach	Public Relations, Fundraising, Community, Events, Getting Traffic to the Store, Sponsored Inquiries

Table 1. Roles and Responsibilities

There were three phases to the project which indicated how the course would progress regarding the responsibilities.

PHASE 1: Planning Concept (Week 1-3)

Group 1: Trend Forecasting Group 2: Concept Design

Within Phase one, the concept of the line was determined as well as the keywords, color story, and name of the line. See image 1.

Figure 1. Revolution RETOLD Trend Board

Group	Goals
Product Design Management	- Come up with textile & detail samples to inspire Buy Submissions - Develop ideas to update core products - Communication with Collaborative Fashion Production course to determine production timeline and execution - Exploring the school for existing leftover materials and trying to identify new material sources

Communications	- Advertising for Buy Day - Communicate season concept to School of Fashion classes - Developing a visual identity for season concept - Researching and brainstorming new marketing strategies
Store Planning and Design	- Develop visual merchandising concepts - Mockup window display ideas - Prepare store layout and space planning
Buying	- Communicate season concept to School of Fashion classes - Organize buy day event - Management/Follow up of submissions and final buys - Work with curatorial committee on selections and costing
Outreach	- Get traffic to the store - Track and participate in local and university events - Develop new strategies for awareness of the store - Creating a press kit for the new season concept & reveal event / workshop / Experience
	Planning an event / workshop / experience for the season reveal

Table 2. PHASE 2: Planning & Development (Week 4-9)

Group	Goals
Product Design Management	- Editing and communicate techpacks & patterns for Buy Day selected submissions with Collaborative Fashion Production - Apply potential sampling and sourcing investigations to Buy Day and core products - Evaluate quality of products with Buyers

Communications	- Planning all social media posts through Hootsuite - Advertising and marketing the upcoming reveal event - Implementing visual identity in all communication
Store Planning and Design	- Implementing window display and store floor plan - Working with buyers to develop planograms - Deciding on logistics for reveal event
Buyer	- Supporting planogram development and merchandising of store floorplan - Analyzing sales reports and creating overview including possible new products and/or removal of any current offerings for the next semester - Evaluate quality of products with Products Design Management
Outreach	- Public Relations, Collaboration, Community, Event - Executing event / workshop / experience for the season reveal - Distributing the press kit to local and university media outlets

Table 3. PHASE 3: Production & Implementation (Week 10-15)

A final magazine was developed, organized, and submitted by the editor in chief of the course. A reveal day was promoted and planned to include local industry representatives, alumni, and current students and faculty to attend.

Throughout the course there were three job reflections that the students completed to help them think through the process and their roles within the bigger picture of the store and the course. Questions included strengths and weaknesses, challenges, struggles, communication problem solving, and evolution of self within the entire course and in their individual teams. For example, “What do you see as a strength/challenge of the entire team in this course?” and “What is a strength/challenge you've had in working with your team. Describe a situation where you were able to help solve a challenge or contribute in a unique way.” Additionally, it was asked about their own strengths and weaknesses and performance within their roles as a team

and as an individual. For example, “What is one strength/challenge that you had coming into this semester? How has that evolved/changed/developed?”

Findings and Discussion

Research producing tangible, shareable outcomes was conducted throughout the semester. This included journalism, weekly working reports, peer evaluations, and concept ideation/prototyping descriptions. Field work with students being in and out of the daily inner workings (i.e. sales reports, store traffic etc.) and future plans for the store (i.e. virtual reality, experiential retailing, workshops, etc.) on a daily basis it was expected to determine outcomes that benefit advancement of curriculum for our Learning Lab course and for future involvement from other areas in terms of collaboration inside and outside of the classroom. Student success was measured through the shareable outcomes mentioned earlier, student reflections and a final magazine of the entire process and showcasing what was offered in the store for the Revolution RETOLD season.

The two professors involved in the collaboration (one design and one merchandising) looked at the information and data collected from the semester long project including the weekly working reports, self-reflections of the participants, and course evaluations to individually code the data and then come back for a final discussion and dissemination of findings. These findings were dissected into main themes from the two perspectives.

Findings from this project have shown to impact student learning in a variety of applicable ways. Students strengthened communication skills with those outside of their close discipline and practiced negotiation skills between varied perspectives to create a cohesive apparel collection. Students gained a broader understanding of their unique roles in the fashion industry through an applied real-world project. Through the three assigned job reports, peer evaluations, and a final discussion with the students who took part in the experience, a number of outcomes and learning points were determined including overall self-awareness regarding strengths and weaknesses. A final magazine/catalogue of the line was also developed (see image 2 and see here for entire magazine https://www.flipsnack.com/revolutionretold/revolution-retold-magazine.html).

Figure 2. Final Magazine

Below are the three main themes found by the two lead professors of the project based from their individual perspectives of the experience and the findings from the course work and final evaluations (see figure 3). Examples of student responses regarding each theme is also provided.

Figure 3. Themes of Research Findings

Empathetic Perspective

Overall the students showcased more empathy throughout the applied experience based on giving and receiving feedback and understanding differing opinions based on the lens of the entire class working together towards a common goal. One student stated, “This class so far has been great in preparation for the real world in industry. I love that were able to use a real-life store and see all the behind the scenes not only on our own team but in discussion of the other teams.” And another, “I’ve always been good at working with other people and this class has made that skill even stronger by working in more uncomfortable situations.” Finally, “One weakness I had coming into this semester was that I didn't necessarily trust others with work so I would double check everything but this semester there’s so much to do and I feel that were all on a greater level of our academics where we have a greater sense of the fashion world. Also

working with the design team has had me become more trusting because it's not an area where I'm an expert in as they are."

Being able to have empathy allowed them to also have the space to recognize where their strengths and weaknesses lie in knowledge and application within the industry. Once they could become more self-aware, they able to process further understanding of self and be able to attempt to apply that in collaboration and communication in the smaller teams and as a larger group. This leads to the second themes found within the findings, communication.

Communication Skills

Overall students indicated that their communication skills were tested and evolved over the course of the experience. They better understood how to speak up and how to talk with people from different skill sets and backgrounds.

One student stated, "As a strength, I see many of the students in this course giving and receiving criticism and opinions in a positive manner." And another indicated, "I have always had good communication skills; however, I feel as if I've really developed them this semester. I have been able to talk to people higher up with me, finding ways to email people professionally, as well as be focused on the task at hand."

Again, "A weakness that I had coming into the semester was speaking my mind. I think I have become more comfortable not only with my new group but with the class as well. "And finally, "One weakness I had at the beginning of the semester was definitely my inability to articulate my ideas in a way that people with different areas of knowledge can understand. So far, over the course of the semester, I feel that I have become more confidant with sharing my ideas, and having class with people from merchandising, who have different areas of knowledge, has given me direction to begin to figure out how best to share my knowledge."

The students needed to understand themselves through communication before it could be applied to the final finding of the study, negotiating skills.

Negotiation Skills

Due to the participants better understanding of their own communication skills and their peer's manner in communicating and providing a safe place for people to indicate their personal and professional opinions students learned how better to negotiate and choose when to speak up. They were able to process what was most important to them and find ways to find for their values in the project. They understood they had to be a voice for their smaller teams in a larger conversation. This was reiterated weekly to encourage everyone to check in with their smaller teams and then report back to the larger group as a whole. Over time they refined their ability to use their communication skills effectively to make change.

For example, one participant indicated, "Since I know that we are still working out the timeline and divvying up of tasks for the course, I think one of our strengths as a class is being candid

about our opinions and ideas. In addition, when there is pushback, it has been mutually respectful. The members of our class are able to give and take constructive criticism without being defensive, which adds to the professional environment." And another, "One weakness I had was voicing my opinion. Now I say what needs to be said and do not worry about what others say or think in the response because I stand firm in my opinion."

Another indicated self-awareness saying, "One weakness of mine is that I always seem to prefer my own ideas as opposed to the ones of those around me (unfortunately!) This is still something I constantly struggle with in class especially when we enter large group discussions based on opinion and I am sure I have been spotted standing in the back looking unconvinced about final decisions we as a class have made on a few topics. However, this has been very valuable for me to feel this way and experience the results of decisions that I do not agree with because I have discovered something very important: the world does not end. Although I may not agree with a decision it has not caused the downfall of our campaign, or destroyed our credibility, or ruined the creative direction of the collection. As I enter the workforce many decisions will be made with which I disagree, so I am happy to be learning how to support my team and the success of a project despite disagreements. "

Finally, a participant indicated, "A weakness of mine is that I tend to want to take charge when working in groups. I become very excited and attached to my own ideas that I can be disappointed when decisions are left to others which at times slightly discourages me. However, within my small group I have learned that the solution to this issue is open-minded collaboration a shared standard of quality. I believe one of my greatest strengths as a team member is recognizing the details and inner workings required of a plan and analyzing the feasibility and potential success. For instance, after my teammate explained her ideas for the store planogram, I noticed several spacial practicality issues and we mildly edited the design to be more shop-able."

Overall, the students understood better their own strengths and weaknesses and were able to apply those to the situation in meaningful ways.

Conclusion

This project emphasized the importance of collaboration between both design and merchandising in the fashion industry to create a well-targeted and cohesive apparel collection that would be on sale to the local community. This type of experience has been lacking in earlier research. The learning environment utilized a cooperative project to provide a real-world experience calling for students to navigate the complex challenges that come with this type of collaboration. While the project was not without challenges, this experience facilitated the learning process in an impactful way. This project will hopefully be implemented in upcoming semesters (-post renovations).

Overall it was found that students found it difficult in the beginning to begin to have those harder conversations with their peers but over time and through practice found it easier to implement constructive criticism in areas of concern to them. Through becoming connected to

the vision for the collection, design of product, buying of product, production, space allocation, and marketing the students developed ownership and more passion to speak up and make a case from their individual points of view. Also, over time the participants understood their personalities and better how to approach diverse groups with conflicting issues or differing opinions. They learned how to speak up for themselves but support their ideas and opinions with reasoning to negotiate with the opposing side.

In terms of the course content, most suggested revisions from students focused on more detailed calendars and clarifying responsibilities of each representative team member. Student feedback has also resulted in a detailed collaboration packet for the project addressing each stage and to help aid with follow through of expectations. Finally, this project has positive implications for preparing students for collaboration in the industry, specifically product development. The project has addressed the growth within product development positions in the industry and linked both design and merchandising through the process. The presentation of this project includes visuals of the final magazine and the physical store space. This would be an interesting collaboration within an online retail space to bring technology, logistics, and website management to the study.

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INSIDE THE WESTMINTERS MENSWEAR ARCHIVE: a case study of garment-research as a pedagogical practice

Author

Andrew Groves,
University of Westminster

Corresponding Author: grovesa@westminster.ac.uk

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Abstract

Menswear has a long history of utilising garment archives as a research method to inform the creation of new design outcomes, with Massimo Osti, an Italian designer, widely credited as the primary proponent of this approach. He made extensive use of his garment archive in Bologna during the 1970s and 1980s, resulting in numerous innovations in menswear that we now take for granted. His method of drawing inspiration from existing garments has become embedded in the processes of most fashion houses and designer brands. As a result, this method of referencing design archetypes necessitates access to previous iterations of clothing-objects to interrogate, investigate, and create new transformative outcomes.

The Westminster Menswear Archive was established in 2016, allowing the replication of this process within the academy, enabling researchers, students, and designers in industry to access and use the collection for garment-based research. It was founded to assemble a collection of artefacts to develop the technical and functional study of menswear design, raise general awareness of menswear as a design discipline, and serve as a resource tool to inform contemporary practice.

With garment-based research being a critical component of the fashion industry's research and development process, it has become essential in the University of Westminster's pedagogic practice, with students increasingly using archival garment research to expand their knowledge of the materiality of fashion and enable them to generate new ideas and prototypes for their design development.

Using examples from the collection, this paper examines how the archive has inspired a fundamentally different approach to pedagogical practice for students, replicating contemporary industry methods while also reflecting on how industry engagement with the archive has influenced the archives collection policy.

Introduction

Garment archives in the fashion industry

The value of archives to fashion brands as a means of reinforcing their history and communicating it to consumers has increased over the last decade (Stoppard, 2016; Ahmed, 2017). One of the ways that this is further enhanced is by using the archive as a means to produce re-editions (Nast, 2012; Yotka, 2020) or to inspire new design outcomes (Gleyse, 2021). Within the fashion industry, the use of garment archives as a means of research for creating new designs has been a long-standing practice (Murphy, D, 2011). Most noticeably, within menswear, the Italian designer Massimo Osti who started C.P. Company in 1971, used pre-existing garments as his starting point for creating new fashion outcomes (Moreno, 2021, p13). By the end of the 1990s, his archive contained more than 33,000 garments (Osti and Facchinato, 2016, p96).

Figure 1. The Archivi di Ricerca Mazzini in Ravenna, Italy, which holds over 400,000 items.

© Archivi di Ricerca Mazzini

The relevance of garment archives to a designer's research process has grown over the last fifty years, with designers such as Nigel Cabourn, Neil Barrett, and Paul Harvey having all built private collections that have been vital to their design processes (Limnander, 2009; Tempe, 2016; Dystant, 2017). Simultaneously, specialised archive services have also been established to address the industry's requirement to access source garments for research.

Several private archives serve this purpose globally, for example, Archivi di Ricerca Mazzini in Ravenna, Italy, Artifact NYC in New York, and Contemporary Wardrobe in London.

While large fashion brands are happy to reveal their use of their house archives for inspiration (Fury, 2017), there is little discussion or even acknowledgement of how designers undertake object-based research by examining garments created by other companies to inform their design process. The persistent invisibility of this practice means that students may have difficulty understanding that this is a legitimate means of research enquiry.

Rather than being regarded as plagiarism, the analysis of the cut, construction, materiality, and cultural significance of existing garments and the capacity to synthesise disparate elements to create new outputs are vital components of contemporary design practice. While many designers are reticent to acknowledge their use of pre-existing garments to inform their research, Vigil Abloh has incorporated this practice into his design philosophy. Abloh outlined his approach to object-based research during a lecture he delivered at Harvard University.

> *I have my 3 percent approach. Right now I'm only interested in editing something 3 percent from its original form…I don't want another shoe. I want to see something that makes me recognise the shoe that I already have.*
>
> (Abloh, Sigler and Whitman– Salkin, 2018, p21–23)

Paul Harvey, creative director of Italian menswear brand C.P. Company, echoes the notion of menswear design as a process of research, editing, and bricolage within the confines of established archetypes. Speaking about his use of military garments as a source of design development, he said:

> *I do believe we are happier with things we know in some way. [The military] spend a long time developing stuff, you know 5 to 6 years, we don't have that luxury…That's what why we do this constant referencing, one is to do with memory and the other is a lot of ideas that have been worked through very carefully and then you can use that.*
>
> (Harvey, 2021)

Garment archives in the academy

Anecdotal evidence suggests that in fashion education in the United Kingdom, the usage of garments to inform new design outputs has historically depended on individual tutors bringing clothing from their personal wardrobes in for object-based learning. However, several teaching collections are located throughout the United Kingdom, ranging from a few garments to over 2,000 artefacts, but no unified resource lists their locations, contents, or accessibility. It has been more than three decades since the publication of Hazel Clark's short overview of textile collections held in British polytechnics and colleges (Clark, 1988).

Clark's paper provided an overview of nine collections, most of which predominantly contained textiles and swatch books with only a relatively few examples of whole garments.

In 2021, correspondence with the author revealed some details about the current teaching collections of dress at several fashion schools throughout the United Kingdom. The University of Huddersfield's 12-piece teaching collection focuses on examples of dress that students would not have access to otherwise and their educational value (Evans, 2011). The Yorkshire Fashion Archive (YFA) is housed at the University of Leeds Design School and holds around 2,000 items of apparel and accessories manufactured or acquired in the Yorkshire region throughout the last century (Hall, 2017).

Figure 2. The storeroom of the Yorkshire Fashion Archive, University of Leeds.© Andrew Groves

The fashion collection held by the Museum & Study Collection at Central Saint Martins holds 379 objects, predominantly produced by students or alumni of the fashion design courses. In addition, it also holds a further 126 artefacts that belonged to the designer Hardy Amies (Willcocks, 2021). Kingston University is home to the Benenden School Costume Collection, which comprises 351 costumes from the 18th, 19th, and 20th centuries, comprising men's and women's clothing (Renfrew, 2021). Kingston also has around 375 items from London-based knitwear business Sibling (Alexander, 2021). The Textile Study Collection at Goldsmiths University has approximately 400 dress items, which comprise complete clothes, fragments of garments, and accessories (Cameron, 2021). While some fashion institutions, such as the Royal

College of Art, do not have teaching collections, research indicates that their students continue to use garment research to inform their design processes (Murphy, 2011). This brief overview demonstrates the continued use of garment- based research as a teaching tool; however, it does not clarify how these garments are utilised by fashion design students or the new artefacts that may have been generated as a result of their use for garment-based study.

Significant research has been conducted that documents the creation of specific collections and fashion archives situated within the academy outside of the United Kingdom, for example, at the Fashion Institute of Technology (Trivette, 2017) and the Hong Kong Design Institute (Peirson-Smith and Peirson-Smith, 2020). These articles examine the construction and usage of archives as a means '*preserving, curating, and narrating fashion'* (2020, p274), but they also highlight that these collections are not designed to function in a similar way to commercial fashion archives, which exist solely to generate new fashion outcomes.

Research has been conducted to determine the factors that influence the use of dress collections within the academy (Marcketti and Gordon, 2019), expanding on a previous survey of historic clothing museums and collections at American colleges (Marcketti et al., 2011). While other research has examined the use of fashion collections held within the academy to inform dress studies with some analysis of their use to inform design practice (Banning and Gam, 2020; Cobb, Orzada et al., 2020).

Object-based learning (OBL) has become increasingly popular within universities as a method of experiential learning (Kolb, 1984) that can enhance teaching across a variety of subjects. Given that a significant focus of most fashion design courses is devoted to the creation and construction of new fashion artefacts, it's perhaps surprising that little research has been conducted on the use of teaching collections to enable students to develop new outcomes using object-based learning. Instead, OBL is more frequently employed in fashion education in relation to fashion history or dress studies. Often, it is employed to decipher the social, historical, or artistic significance of the artefacts under consideration (Mida, I. and Kim, A., 2015).

While there is some research on the use of object-based learning (OBL) as a means of informing pattern cutting and construction (Birk and Saiki, 2017; McKinney and Cho, 2018), little has been written about the use of teaching collections for OBL as a distinct pedagogical methodology to generate new fashion design outcomes. A notable exception is the use of the Yorkshire Fashion Archive by undergraduate students at the University of Leeds (Almond, 2020), which provides an example of how fashion teaching collections can enrich pedagogy through object-based learning.

The formation of the Westminster Menswear Archive

In May 2015, before establishing the Westminster Menswear Archive in October 2015, the exhibition *Archetypes* (Groves and Leach, 2015) at the University of Westminster examined how garment-based research was an integral process within modern menswear design.

Through the investigation of six archetypal garments, the denim jacket, the trench coat, the duffle coat, the leather jacket, the field jacket, and the MA-1 Jacket, the show analysed how various designers have taken these tropes and reworked them within their aesthetic. To highlight this creative process, the display juxtaposed source research garments displayed adjacent to their designer counterparts, together with secondary research imagery and design development work. In revealing this usually hidden creative process within menswear design, the exhibition legitimised and elevated it. In turn, the response from students and academics to the show underlined the importance of continuing to develop this research by establishing a significant teaching collection.

Established in 2015 at the University of Westminster, the Westminster Menswear Archive (WMA) was inspired by the garment archive created and used by Italian menswear designer Massimo Osti, which housed over 33,000 items by the late 1990s (Osti and Facchinato, 2016, p96). Osti's collection was non-hierarchical, combining military, utilitarian, industrial, and fashion garments, a strategy that the WMA has adopted.

The WMA was devised to be integrated within the pedagogical practice of the university's design courses and to replicate the fashion industry's use of garment archives as part of their research activity. The WMA started acquiring garments in October 2015, focusing on army uniforms and camouflage in preparation for the exhibition *The Vanishing Art of Camouflage* (2016). It received a £350,000 grant from the Quintin Hogg Trust in June 2016 as part of the trust's objective to improve education at the University of Westminster by funding various projects proposed by staff. By 2021 the WMA had acquired over 2000 garments from 1780 to the present, predominantly focusing on post-1940s British menswear. The collection includes designer fashion, streetwear, everyday dress, sportswear, workwear, and uniforms. It is notable for its extensive selection of early Alexander McQueen menswear, Massimo Osti's work for Stone Island and C.P. Company, and Umbro's collaborations with designers such as Peter Saville, Aitor Throup, Kim Jones, and Palace. It also houses a growing range of garments by University of Westminster alumni, including Liam Hodges, Priya Ahluwalia, San Kim, and Robyn Lynch.

Figure 3. By 2021 the Westminster Menswear Archive held over 2000 garments. © WMA

It is the first large-scale collection designed to be used by industry and students to be housed within an English university (Burns, 2017). It has resulted in the establishment of a hands-on environment in which industry professionals and design students are co-located to conduct object-based research to inform their future design outputs. By incorporating this fundamental principle into the design of the archive, industry and pedagogical practice are brought together

to foster the development of communities of place and communities of practice (Wenger, 2000). Students get an understanding of how to integrate aspects of an object's materiality, functionality, or aesthetic into their work by studying examples of other designers' reinterpretations of archetypal garments. In contrast to traditional teaching collections or collections of dress housed in museums, the WMA was purpose-built to replicate the procedures of a commercial archive but within the academy. Industry users include designers from Burberry, Versace, C.P. Company, Dunhill, Bottega Veneta, Pringle, and Nike. This unique dual-use enables the working processes of designers to be observed and documented, increasing the understanding of the innovative ways in which the archives are used by industry for garment-based research. Further, it enables the development of a pedagogical strategy guided by this knowledge, thus aligning teaching with current industrial practice.

Figure 4. Student examining garments in the Westminster Menswear Archive. © WMA

using the archive for garment research at the beginning of the 2016-2017 academic year. Due to the two-year duration of the new postgraduate programme, the first publicly visible design outputs informed by research undertaken using the WMA came from the June 2017 BA Fashion Design graduates. The three case studies presented reflect on two of these students who used the archive for object-based research in 2017 and a student from the following year that used the archive to inform their graduate collection.

Case study one - Aimee Determann 2017

Aimee Determann produced some of the first garments created in response to research undertaken in the Westminster Menswear Archive. Determann gained access to the archive in September 2016 and undertook object-based research on several items within the WMA, including disposable overalls, immersion suits, and the internal fastening on a Stone Island jacket. Determann's garment research focused on utilitarian workwear that could be worn over other garments. The packaging for the DuPont Tyvek Overall (2016, WMA.2017.041) includes illustrations on how to put on and take off the suit. While the Xingtai Thermal Immersion Suit with Built-in Flotation (2005, WMA.2017.037) features graphics depicting how to put on the suit printed onto the garment's exterior. Aspects of these garments were integrated into her graduation menswear collection, which was comprised of six multi- layered outfits. Determann discussed her inspiration in correspondence with the WMA's curator (Determann, A. 2017. Email to Danielle Sprecher, 21 September):

> *The inspiration for the collection came from protective chemical workwear and functional clothing. Looking at utilitarian clothing designed to be worn only in the work place, I felt some elements of the safety clothing had an unexpected level of aesthetic consideration. I began to question how much of the design was really useful and how much was there to simply allow the wearer to feel safe.*

The outfit consists of three garments, Tyvek Jumpsuit (2017, WMA.2017.275.1), Tyvek Jumpsuit hood (2017, WMA.2017.275.2) and Pair of boot covers (2017, WMA.2017.275.3). Determann's jumpsuit is constructed in two parts. The garment zips up the centre front and has large yellow and black stripes down the back and front. The second section fastens to the front on both sides using Dutch rope-style fastenings that thread through the outer covering. This second layer is printed in red with four large images of a male figure labelled A, B, C, and D, along with instructions on how to wear the garment. Several garments from the Westminster Menswear Archive are referenced within Determann's outfit, and these were used to inform her use of print, graphics, fastenings, and materiality for her collection.

Determann's jumpsuit is made of Tyvek and is materially similar to the archive's DuPont Tyvek Overalls (2016, WMA.2017.041). Tyvek is a spun-bonded material developed by DuPont in 1955. It is composed of high-density polyethene fibres. It is highly resilient, resistant to water and chemicals, tear- and puncture-proof, breathable, and printable. The seams on the DuPont overall are stitched together using cover-stitching on the inside.

Figure 5. Left to right: Aimee Determann runway outfit (2017), DuPont Tyvek Overall (2016), Xingtai Thermal Immersion Suit with Built in Flotation (2005). © WMA

Externally the seams are then covered with blue tape. In contrast, Determann's jumpsuit is sewn with a standard lockstitch and a 1cm seam allowance. Black tape has been applied to the outside of the garment to accentuate the cut of the garment; however, it is not aligned to the garment's seam lines. The jumpsuit also references the Stone Island Ice Suit (1988), which features an inner liner attached to the coat via a series of cords that loop into one another, a feature adapted from its use in the sailing world.

Rather than concealing this functionality within her jumpsuit, Determann used it to secure an outer layer to the garment by threading yellow Dutch rope-style fastenings through the outer layer. The use of contrast colour accentuates this usually hidden functionality.

Figure 6. Top row: Instructional illustrations on Xingtai Thermal Immersion Suit (2005), bottom left: Dutch rope system within Stone Island Ice Suit (1998) Bottom right: Aimee Determann runway outfit with printed instructions and Dutch rope fastening (2017) © WMA
The second garment selected as a research reference is the Stone Island Ice Suit - Jacket and Liner (1988, WMA.2016.299.1).

The final garment that informed Determann's collection is an immersion suit, Xingtai Thermal Immersion Suit with Built in Flotation (2005, WMA.2017.037). An immersion suit is a full-body suit designed to keep the wearer afloat and alive during high-seas emergencies. It fastens using a black waterproof rubber zip that is laid onto the outside of the suit. This detail has been replicated on Determann's Tyvek suit, which features a similar rubberised zip stitched onto the front of her garment.

The other feature that Determann chose to reinterpret in her design is the graphic instructions printed on the outside of the anti-exposure suit. These instructions are designed to enable the wearer to be put on in less than two minutes without the assistance of others. To help with this, the garment's lower body is printed with four drawings, numbered 1-4, showing a man putting on the garment. In Determann's reimagining of this detail, she depicted someone dressed in her jumpsuit in four distinct stages, accompanied by instructions on how to wear the garment properly. These illustrations of a male figure were relabelled A, B, C, and D, were then screen-printed in red ink onto the outer layer of Determann's Tyvek jumpsuit.

Following her graduation in June 2017, the Westminster Menswear Archive acquired one of these ensembles to add to the permanent collection. Determann also discussed self- referencing garments in her correspondence with Danielle Sprecher three months after the runway show (Determann, A. 2017):

> *The designs became increasingly complicated and amusingly difficult to get in and out of, referring back to direction diagrams printed on safety clothing, I developed my own illustrations specific to each garment explaining how to wear the clothing. When deciding how to put together the Tyvek pieces I referred back to chemical clothing with taped reinforced seams, spraying the seams with paint allowed Tyvek tape to stick better and referenced the painted seams of safety clothing.*

Case study two - Nicholas Yip 2017

The second example of student work informed by archival research is by Nicholas Yip, who also graduated from the University of Westminster's BA Fashion Design programme in June 2017. Yip showed a military-inspired collection that drew inspiration from several of the Westminster Menswear Archive's outfits. The archive owns two complete catwalk ensembles from Yip's graduate collection, including Nicholas Yip Khaki Green Greatcoat with Black Moiré Ribbon Decoration (2017, WMA.2019.84.4). For its silhouette, detail and ornamentation, this greatcoat was inspired by two specific military coats in the archive.

Figure 7. left to right Nicholas Yip Khaki Green Greatcoat with Black Moiré Ribbon Decoration (2017), Dege and Skinner Life Guards Officer's Frockcoat (1994), British Military Household Division Greatcoat (1970-1979). © Westminster Menswear Archive.

The coat's silhouette was influenced by another military garment housed in the WMA: a ceremonial greatcoat worn by a Foot Guards soldier, British Military Household Division Greatcoat (1970-1979, WMA.2015.62). This full-length military coat features a half belt at the back, an open double pleated skirt, a high collar that can be pulled up, two hip pockets, and epaulettes on the shoulders. Yip reinterpreted each of these aspects of cut into his coat design. While the Foot Guards coat is composed of single-layer grey wool, Yip's runway version is constructed using a furnishing fabric called Divina from Kvadrat. Several metres of this material were donated to Yip during his internship year at Louis Vuitton in 2016. Divina is a woven fabric that undergoes mechanical processing and high heat during the dyeing process, imparting colour richness and depth. This produces a smooth, directionless, and uniform surface that is very similar to felt. The decorative use of moiré ribbon on Yip's coat references a Life Guards officer's frockcoat held in the archive, Dege and Skinner Life Guards Officer's Frockcoat (1994, WMA.2017.134).

This military uniform was worn by a Major who served in Iraq and, Afghanistan, and Bosnia. It was made in 1994 by Savile Row tailor’s Dege & Skinner as part of a contract the company had with the Ministry of Defence. It is crafted from blue doeskin and features a stand-up collar with intricate figured braiding on each sleeve. Each sleeve takes approximately one week to

complete by hand due to the complexity of the application and pattern of the braiding. In 2018 Dege & Skinner made a similar frockcoat for Prince Harry, Duke of Sussex, to wear for his wedding to Meghan Markle.

Figure 8. Close-up of the ribbon decoration and rosettes that adorn Nicholas Yip's Khaki Green Greatcoat with Black Moiré Ribbon Decoration (2017, 2019.84.4)

Nicholas Yip reinterpreted this decorative motif into his design by using wide black grosgrain ribbons stitched decoratively into folded points across the coat's centre front and let loose to varied heights, the longest extending beyond the coat hem. In Yip's interpretation, each row of the ribbon increases rather than decreases in length as they descend the body. A narrower green grosgrain ribbon is placed over the left chest to resemble military ornament.

It is finished with the same black grosgrain ribbon as shoulder epaulettes, but with the ribbon extended down the arm and a military symbol. The moiré ribbons were created by Toye, Kenning, and Spencer. The company was founded in 1685 and is renowned for its fine weaving and supplying regalia and insignia to the British military and the royal family.

The back of the coat includes a cross-shaped design comprised of two rows of black grosgrain ribbon stitched to the coat with khaki and black rosettes resembling military crosses and secured with metal poppers running the length and width of the cross design.

Cases study three - Megan Williams 2018

The third student case study features garments designed by student Megan Williams for her Autumn/Winter 2018/19 collection, shown in February 2018 at London Fashion Week as part of the BA (Hons) Fashion Design course's runway show. Williams produced an oversized MA-1 style bomber jacket in olive green with silicone reinforced shoulders and an integrated backpack. The jacket features raglan sleeves, with ribbed piping over each shoulder and a horseshoe-shaped line of wide white webbing running down the front of the jacket, which is secured by a white double-tab zip. Each sleeve features a 3-D box pocket at the top, and the front of the jacket has two oversized angled patch pockets with flaps. Green ribbed fabric is used to finish the hem and cuffs, and the jacket is double stitched in contrasting white thread. Following her graduation, the Westminster Menswear Archive acquired a runway ensemble that included Megan Williams Bomber Jacket, Megan Williams Hooded Top, and Megan Williams Knitted Trousers (2018, WMA.2019.182.1, WMA.2019.182.2, WMA.2019.182.3).

Figure 9. Left to right: Megan Williams outfit at London Fashion Week, February 2018, Megan Williams Bomber Jacket (2018), © WMA

The functionality of Williams' collection is inspired by space suits, which consist of protective outer jackets and tightly knitted underlayers. She conducted research using clothing from the archive and studied the book *Spacesuits: The Smithsonian National Air and Space Museum Collection* (Young, 2009). Williams examined early military garments worn by the United States Air Force in the WMA, particularly the MA-1 jacket, which was introduced in the 1950s, because these military garments influenced the design language of spacesuits in America. The

MA-1 jacket has evolved into an iconic menswear garment and was featured in the University of Westminster's 2015 exhibition Archetypes (Groves and Leach, 2015). Williams attended this show and conducted research on the designer versions of the MA-1 jacket housed at the WMA, including those by Vivienne Westwood, Calvin Klein, Jean-Paul Gaultier, Paul Smith, Burberry, C.P. Company, and Liam Hodges.

Figure 10. Left to right: Vivienne Westwood Clint Eastwood Jacket (1984), USAF N-3B Cold Weather Parka (1965), Stone Island Mussola Gommata Jacket (1991) © WMA

Williams' development of three-dimensional box-shaped pockets was influenced by similar pockets that featured on a Stone Island jacket from 1991, Stone Island Mussola Gommata Jacket (1991, WMA.2016.269) and Vivienne Westwood Clint Eastwood Jacket (1984, WMA.2016.267) from Westwood's 1984 Clint Eastwood collection. In contrast to the traditional MA-1 jacket's set-in sleeves, Williams' garment incorporates raglan sleeves reminiscent of those found on the USAF N-3B Cold Weather Parka (1965, WMA.2016.057).

In communication with Dr Danielle Sprecher, curator of the Westminster Menswear Archive, Williams (2018) outlined how she used the archive to inform her creative process:

> *Once I had an idea of the kind of garments, I wished to reference in my collection I would usually make a few provisional visits to the archive. Covering the wider bases of shapes and details through photography and making quick sketches from these. From these visits I'd get a better idea of which garments I'd like to reinterpret. I was able to take detailed measurements and replicate patterns to toile and modernise in my own way, borrowing a beautiful sleeve shape, pocket or hood construction while maintaining the integrity of that particular garment. The archive*

also inspired my personal design solutions by seeing how others solve the same problem.

Conclusion

The three case studies presented in this article demonstrate a range of approaches to object- based learning as part of a pedagogical approach to teaching fashion design using the WMA.

Aimee Determann's research focused primarily on the functionality and materiality of utilitarian workwear and questioned the value system inherent in differentiating between fashion and non-fashion garments. The physical and symbolic layering of clothing was a feature of both her research garments and runway collection, with each displaying illustrated schematics of the outfits on their surfaces. Nicolas Yip's research examined the tensions inherent in the language of ceremonial military dress, which is traditionally regarded as being fundamentally masculine but allows for the use of adornment and surface decoration in ways that in a fashion context are typically used for womenswear. Megan Williams' research explored the evolution of an archetypal garment from its military origins to the countless designer reiterations that have been created over the last 45 years. The archive enabled her to examine several of these designer reinterpretations allowing her to have a better understanding of how different designers interpreted them. This enabled Williams to create her own response, which incorporated an exaggerated silhouette, distortion of scale, and detail to reinvent this iconic garment in her aesthetic.

By replicating the environment of a commercial fashion archive, the WMA has enabled students to benefit in several ways. It increased students' awareness of how object-based learning might assist them in interrogating the outcomes created by others in their discipline to support the generation of new knowledge in the field of fashion. It has provided students with access to a diverse range of exemplar clothes that they would not have had otherwise and has prompted them to seek out design solutions that already exist in these garments. The emphasis on design archetypes within the WMA, such as the MA-1 jacket, trench coat, and trucker jacket, has enabled students to view their work as a continuum within categories, building on existing knowledge and expanding it within specific garment histories. The WMA's non-hierarchical collection policy has assisted students to synthesise the materiality, processes, and concepts inherent within the design languages of industrial, military, or designer clothing. Finally, hands-on access to physical objects has enabled students to understand garments from the inside out, their construction, materiality, and hidden functionality. As a result, their design output has expanded beyond the usual emphasis on only the exterior appearance of their garments.

Additional research is necessary to ascertain the extent of teaching collections housed in universities and colleges in the United Kingdom that provide fashion education. Preliminary inquiries seem to suggest that many collections remain under-resourced,

incompletely catalogued, with limited digital accessibility and with little public information about how users can access them. Garment-based research has been an intrinsic part of the fashion industry's design process for at least 50 years and is an integral part of the skills required of graduates. Further research on how teaching collections are integrated into fashion pedagogy via object-based learning would enable a better understanding of the varied approaches utilised and assist academics to integrate this process within their teaching practice.

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THE CHANGING FACE OF KHADI: a heritage fabric

Author

Shruti Gupta,
Assistant Professor, NIFT Panchkula, Haryana, India

Corresponding Author: gshru07@gmail.com

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Abstract

Khadi is a hand spun and hand woven cloth from India and has historical significance for bringing about extensive rural empowerment. Khadi fabric originally used hand spun yarn made on a spinning wheel (*Chrakha)* and then woven on a handloom. *Over* the years, many innovations have been done in its manufacturing processes for increasing the production and improving the quality. From being a fabric of the freedom fighters to those in politics and social sector, Khadi is slowly gaining popularity as a fashion symbol. Government of India is also promoting Khadi by recommending it for uniforms in its various departments.

In view of the above an attempt was made to gather experiences of people using khadi. Data was collected from 130 consumers and 65 salesmen using purposive sampling method. Detailed information was collected through questionnaires on preferences for variety of products, patterns, colours, performance of khadi fabrics and products.

*It was interesting to know from the results that people find it as an authentic cloth linked with the cultural heritage of India. It is considered to be a pure, soft, durable and comfortable fabric. Khadi products are associated with high quality and no side effects. It is a green fabric and provides employment to vast number of people. Today, k*hadi has become favourite segment of consumer's choice in this growing demand for natural products across the world.

1. Introduction

Khadi is a hand spun and hand woven cloth from India and has historical significance for bringing about extensive rural empowerment. Khadi fabric originally used hand spun yarn made on a spinning wheel (*chrakha)* and then woven on a handloom. Since its establishment, khadi manufacturing has gone through several stages of technological developments. Improvements in different stages like spinning, weaving, finishing etc. have been done in order to enhance quality as well as overall efficiency and wages of khadi workers of all categories.

Many efforts have been made to improve the design and performance of spinning instrument. Earlier, a simple tool called *'takli'* was used to spin the raw cotton. The *takli* used to be 10" to 14" long and thick like a large needle made of iron rod with the bottom of a brass circle (Figure 1).

Figure 1. *Takli* used for spinning cotton khadi. Source: National Gandhi Museum, New Delhi.

Later, *charkha* was introduced as a better tool to spin the yarn and was mainly made of wood. A yarn count of less than 60 was considered a thick yarn and it was spun on the *charkha*. The yarn count more than 60 and up to 400 was spun on *takli* (http://shop.gaatha.com). There were mainly two types of *charkha* used for spinning during freedom struggle:

a) Bardoli *Charkha* has a regular form having spinning wheel (Figure 2). It is one of the oldest known forms of the spinning wheel. The *charkha* works with a drive wheel being turned by hand, while the yarn is spun off the tip of the spindle.

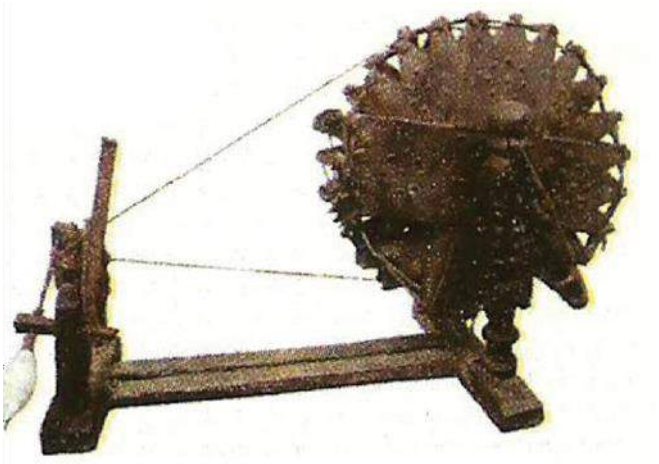

Figure 2. Bardoli *Charkha*, Source: Heritage Charkha Museum, New Delhi.

Various designs of traditional *charkhas* were used by artisans to spin the yarn. Some of the designs used in different periods of time are shown in Figures 3 to 5.

Figure 3**.** *Takua Pankhudi Charkha* 1912. Source: Heritage Charkha Museum, New Delhi.

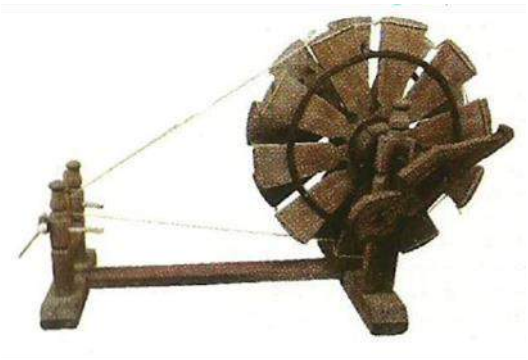

Figure 4. *Banjoo Charkha*, 1943. Source: Heritage Charkha Museum, New Delhi.

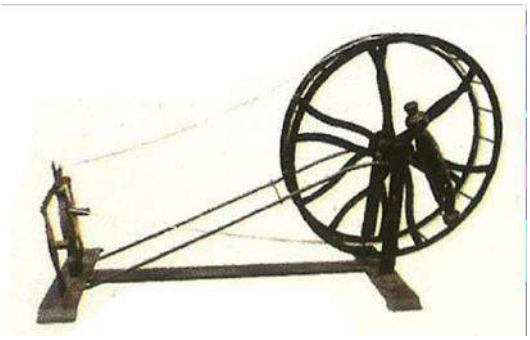

Figure 5. Traditional Iron *Charkha*, 1977. Source: Heritage Charkha museum, New Delhi.

(b) Yerwada *Charkha* had a box-form and is efficient, portable and foldable (Figure 6). Since the traditional *charkha* was bulky and difficult to move, Mahatma Gandhi needed an instrument that could easily be transported. During his imprisonment in Yerwada jail, he had used the portable spinning wheel that folds and has a handle for carrying. It is compact and folds into a wooden box (http://shop.gaatha.com).

Figure 6**.** A box-form Yerwada *Charkha*. Source: National Gandhi Museum, New Delhi.

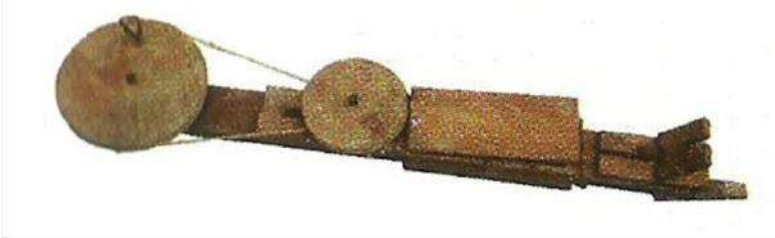

Figure 7. *Peti Charkha*, 1943. Source: Heritage Charkha Museum, New Delhi.

Figure 8. *Peti Charkha*, 1947. Source: Heritage Charkha Museum, New Delhi.

The New Model Charkhas were introduced by KVIC incorporating the ring spinning technology having multiple spindles ranging from 2 to 12 spindles to give high speed and to provide better wages to the spinners (Figure 9). Although most of the spinning is now done on the New Model *Charkha* (NMC), in some remote villages the traditional hand spinning wheel is still being used. The spun yams are wound into reels of 1000 meters each. Khadi is identified by the direction of twist in yarn. In khadi yarn twist direction is "S". Usually it is called left twist or anti-clockwise twist.

Figure 9**.** New Model Charkha (NMC 8 -Spindle *charkha)*. Source: http://www.kvic.org.in

Khadi is popular in both domestic and export markets and is available in many varieties i.e, cotton, silk, wool and polyvastra. As seen in the Table 1, khadi is sourced from different parts of India, depending upon its raw materials. Silk variety is sourced from West Bengal, Bihar, Odisha and North Eastern states, the cotton variety comes from Andhra Pradesh, Uttar Pradesh,

Bihar and West Bengal. Khadi poly is spun in Gujarat and Rajasthan while Haryana, Himachal Pradesh, Karnataka and Jammu &Kashmir are known for the woollen variety.

Khadi fabrics and their products come in a wide variety. Khadi is also considered a fabric that embodies purity and simplicity in India. The versatility of the fabric lends itself for use in apparels as well as furnishings. Many types of apparel are made from it like tops, shirts, trousers, *dhoti*, jackets, skirts, handkerchief, ties, *salwar kameez*, *kurta pajama*, sarees, dupattas, vest and jackets, coats, *lois*, shawls, gloves, caps etc. Khadi is also used in upholstery, bedspreads, curtains, table linen, kitchen linen, cushions, blankets, throw and bags.

TYPES	VARIETIES	PRODUCTS
Cotton Khadi	1. Muslin Single Thread (West Bengal) 2. Muslin Single Thread (Tuni-A.P.) 3. Muslin (4 ply) 4. Muslin (6 ply) 5. Muslin Coating 6. Muslin Check 7. White SF 8. White SE 9. White Triple Thread 10. White Double Thread	*Kurta, Kurta Payjama* set, Jawahar Jacket, *Baniyan*, Gandhi Cap, Shirt, *Nada*, Night Suit, Ladies Suit, House Coat, Maxi, *Salwar*, Ladies Top, Cotton Gown, Shoulder Bag, Underwear, Apron, Petticoat, Saree
Silk Khadi	1. Matka Silk 2. Tassar Katia 3. Matka Katia 4. Matka Jute 5. Balkol 6. Dupion Silk 7. Andi Silk 8. Tassar Silk 9. Munga Silk	*Kurta*, Jacket, coat, Tie, Shirt, *Payjama*, *Kurta Payjama* set, Blazer, Scarf, Ladies top, Saree, *Achkan*, Stole
Woollen Khadi	1. Woollen Marino Shirting 2. Terewool	Gown, Coat, *Kurta*, Shirt, Shawl, Stole, *Chadder*, Gloves, Cap, Gandhi cap, Blanket, Mufflar
Polyvastra Khadi	1. White Polyvastra (Padyur) 2. Polyvastra Shirting 3. Coloured Polyvastra	*Kurta*, Shirt, Top, Pillow covers, Duster

Table No. 1 Varieties of Khadi fabric

Source: Anonymous, KVIC Product Directory

Over the years, many innovations have been done in its manufacturing processes for increasing the production and improving the quality from being a fabric of the freedom fighters to those in politics and social sector. Khadi is slowly gaining popularity as a fashion symbol. In view of the above an attempt was made to gather experiences of people using khadi and to study the possibility of acceptance of khadi amongst people of diverse professions.

2. Significance of the Study

Government of India is promoting khadi through 'Make in India' campaign and boost the rural economy and generating employment for people. Government is making efforts to promote the use of khadi products in various other departments including police forces, government hospitals, railways and airlines. According to MSME there is a big market for school uniforms in the country and promotion of khadi uniforms will lead to the growth of the rural economy (http://indiatoday.intoday.in). In view of the above an attempt was made in this paper to gather experiences of people using khadi and look into the possibility of acceptance of khadi amongst people of diverse professions.

3. Methodology

In order to study experiences of people, 13 khadi retail outlets were selected in manufacturing states, New Delhi and NCR region of North India. These comprised one each in Dausa, Jind, Kurukshetra, Moradabad, two retail outlets in central Delhi (Connaught Place), one in each zone in Delhi (east, west, north and south) and one each in Faridabad, Noida and Gurgaon. Purposive sampling was used to identify stores in each region; the inclusion criteria for selection of stores were (1) khadi retail outlets stocking fabrics and (2) khadi retail outlets located in the main market of the region.

A sample of 65 salespersons and 130 consumers (5 salespersons and 10 consumers from each retail outlet) was taken using purposive sampling method. The inclusion criteria for selection of salespersons were (1) salespersons that have experience of selling khadi fabric and (2) their willingness to participate in the study. The inclusion criteria for selection of consumers were (1) consumers who have used khadi fabrics and (2) their willingness to participate in the study.

Information from salespersons and consumers was gathered through questionnaires. Since the information was to be collected from large number of respondents, it was convenient to administer a questionnaire. Detailed information was collected such as variety of products available, preferences for pattern and colour, problems associated with performance of khadi fabrics and products. The feedback received from salespersons and consumers regarding use of khadi were noted. The responses received were entered in MS Excel, data was tabulated and worksheets were prepared. Data was analyzed using frequency, mean, percentage and rank order method.

4. Results and Discussion

It was observed from the data that most of the **salesperson** were employees of KVIC and had been working as regular employees in retail outlets while some of them were hired on contractual basis. They possess minimum educational qualification from high school to maximum post-graduation**.** Findings revealed that 18% salesperson were educated upto high school, 39% until senior secondary, 36% were graduates and 7% were post- graduates (Table 2). Out of 65 salespersons, only 11 were females and 54 were males.

Gender	**Age**	**Education**	**Years of experience with khadi**
Female(F) -11	18-33yrs: 8 34-49yrs: 2 50-65yrs: 1	High school: 1 Senior secondary: 4 Graduate: 4 Post-graduate: 2	1-10yrs: 9 11-20yrs:1 21-30yrs:1 Above 30yrs: 0
Male(M)- 54	18-33yrs: 25 34-49yrs: 12 50-65yrs: 17	High school: 12 Senior secondary: 22 Graduate: 18 Post-graduate: 2	1-10yrs: 34 11-20yrs: 8 21-30yrs: 7 Above 30yrs: 5
Total	65 salespersons		

Table 2. DETAILS OF SALESPERSON

Table 3 below depicts the demographic data of the **consumers**. Analysis reveals that out of a total of 130 respondents, 23% were females and 77% were male in the age group of 20-80 years of diverse professions.

Gender	Age	Education	Occupation
Female-30 (F)	20-35yrs:11 36-49yrs: 9 50-65yrs: 9 Above 65 yrs-1	High school-5 Senior secondary-5 Graduate-7 Post-graduate-13	Students, Housewife, private jobs, Journalists, Software engineer, Business, Doctors, Teachers, self-employed
Male-100 (M)	20-35yrs:45 36-49yrs: 26 50-65yrs: 27 Above 65 yrs-2	High school-25 Senior secondary-15 Graduate-47 Post-graduate-13	Students, private jobs, Software engineer, Bank employee, Army, Police, UPSC aspirant, CA, Mechanic, Accountants, Shopkeepers, Government employee, Insurance agent, Freelancer, Farmer, Business, Writer and editor, Teachers, self-employed
Total	130 consumers		

Table 3. Details of consumers

The results are based upon consumer's response and salesperson daily interaction with the consumers to know about their preferences for variety of khadi products, patterns, colours, frequency of purchase and opinion regarding perception of khadi. The findings of the data collected have been explained below and represented through pictorial depiction.

4.1 Highest season and frequency for sale and purchase of khadi

It was observed that consumers buy khadi products both in summer and winter season and the most popular pattern amongst people of all ages was plain white followed solid dyed, checks, stripes, prints and dots (Figure 10).

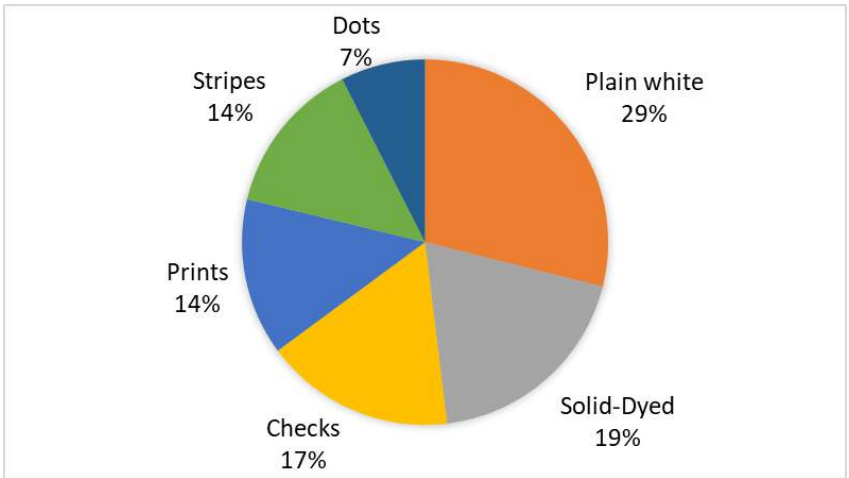

Figure 10. Favourite pattern of khadi products

It was found from the respondents that 37% people prefer to purchase khadi fabrics, 31% apparels, 18% made-ups and 14% home furnishings (Figure 11).

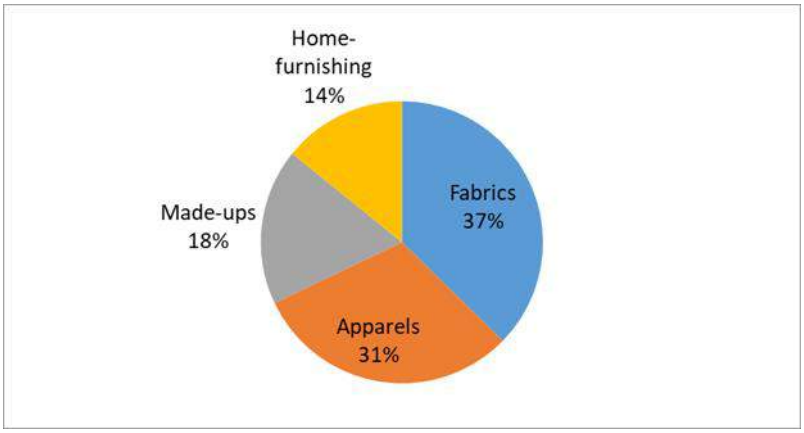

Figure 11 Details of preferences of khadi products

Additionally, under each category consumers preferences were noted about khadi products.

4.1.1 Fabrics: It was analysed from **salesmen and consumers** data that cotton khadi was preferred the most amongst people with 38% followed by 22% khadi silk, 21% Polyvastra and 19% khadi wool (Figure 12). Cotton khadi was in high demand in all the retail outlets.

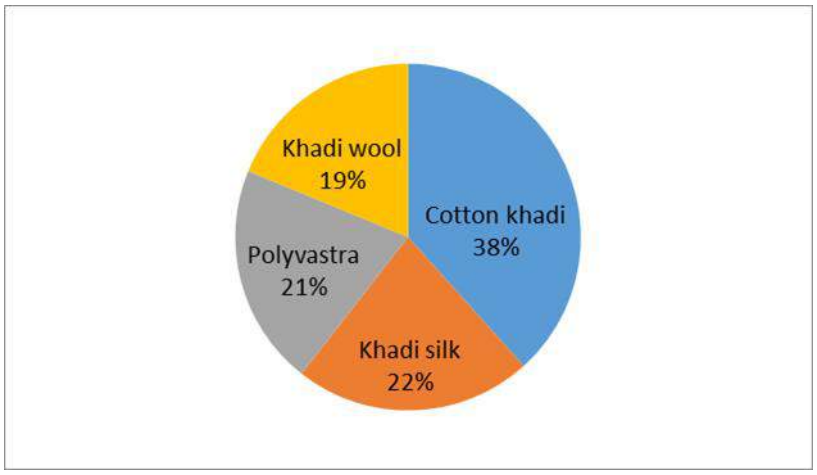

Figure 12 Details of highest selling khadi fabric category

4.1.2 Ladies Products: According to results, kurta was found to be the most popular product in ladies category in all retail outlets amongst people of all ages (Appendix I).

4.1.3 Gents Products: According to results, kurta and pajama was found to be the most popular product in gents category in all retail outlets amongst people of all ages (Appendix II).

4.1.4 Kids products: According to results, kurta was found to be the most popular product in kids category in retail outlets (Appendix III).

4.1.5 Made-ups: It was found from the results that the most popular product under made-ups category was hankerchief (Appendix IV)

4.1.6 Home-furnishing: It was noted from the results that the most popular product under home-furnishing category was bedsheets (Appendix V).

Note: National flag was a common product being sold in each store at special occasions.

4.1 Viewpoint of salesmen and consumers about khadi

According to the primary data obtained, it was interesting to note that the salesmen and consumers in the retail outlets had diverse perceptions about khadi. It was important to know about their understanding regarding khadi, therefore, various responses were collected from them (Figure 18 and 19).

Analysis of data revealed that 46% **salesmen** think khadi or *khaddar* is a term for handmade cloth (hand spun and hand woven) from India. In addition, for a large number of salesmen about 29%, khadi stands for a national (*swadeshi*) fabric. They associate and attribute positive features to it and describe it as a pure, natural, comfortable and good quality soft cloth which is best for our body. Khadi is skin friendly fabric that does not cause any allergies or irritation and is a relief cloth for skin, it remains cool in summers and warm in winters. Moreover, 15% salesmen associate khadi with abstract attributes and expressed that khadi is just not a cloth it is an idea, thought and an opinion. It is an inspiration promoted by Mahatma Gandhi which has become a symbol. 10% salesmen said khadi is not only a fabric, it is basis of giving work to people. Khadi is a service to nation as it provides employment for rural people and has become a point of the interest of nation's youth.

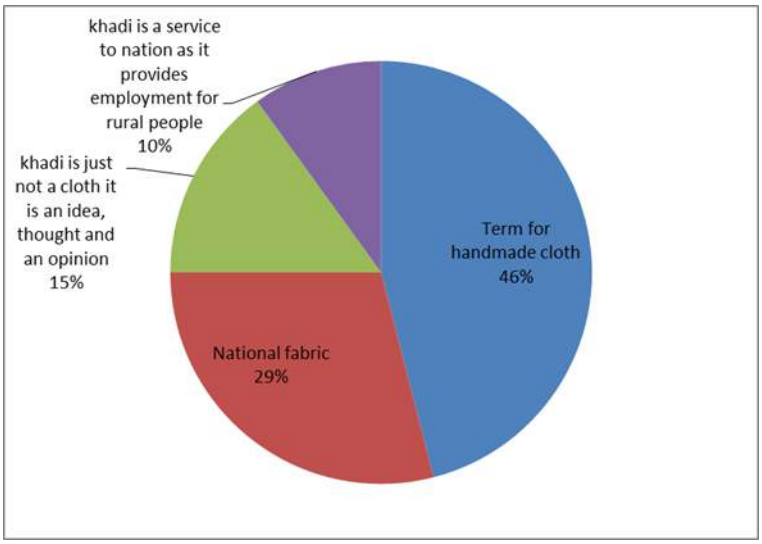

Figure 18: Salesmen viewpoint about khadi

As stated by **consumers**, the first group around 25% was found nationalistic. According to them, khadi is Indian traditional cloth which is very authentic and linked with our culture. Khadi being made by the people and for the people was preferred over other brands by consumers. Second group of consumers about 21% was influenced by positive fabric properties of khadi. According to them, khadi is pure, soft, durable and comfortable cloth. It represents simplicity, quality and nationalism. Near about 20% of consumers of third group responded that khadi represents trust and authenticity. Khadi products are genuine which are better than cloth available in other shops. Fourth group of 20% consumers favours khadi due to its quality. They found khadi products have high quality with no side effects. *Swadeshi* fabric khadi is

made by spinning yarn on *charkha* and it is long lasting. Fifth group of consumers around 7% liked khadi as it is indigenous and eco-friendly fabric. According to them, everyone should accept khadi fabric in their lives as it doesn't harm our body and is skin friendly, it doesn't stick with our body, after wearing khadi one feels fresh. Next group of consumers near about 5% feels inclined towards khadi as it is home- made finest fabric which is best wearing cloth in every season as it is warm in winter and cool in summer. They feel that since khadi is made of natural fabric it works very well in our tropical climate. Last group of consumers around 2% showed their affinity towards khadi. They wish that efforts to promote our local products should be done in national interest, everyone should be proud to have it. It is a gift to us from our father of nation Mahatama Gandhi.

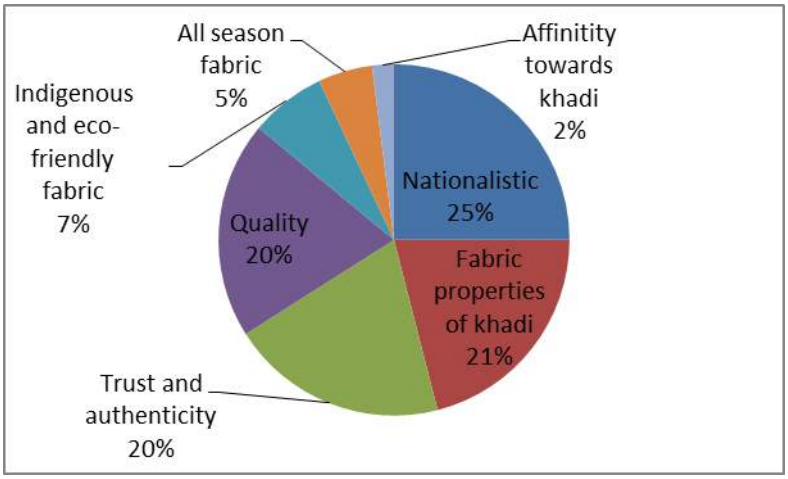

Figure 19: Consumer's viewpoint about khadi

Conclusion

People differentiated khadi from other fabrics by bringing up various properties; they had positive perceptions about khadi fabric. According to them Indian fabric khadi is a primitive handmade textile that can be 100% pure cotton or can be manufactured using different fabrics wool, silk and polyester. Khadi is made by hand spinning in rural India by spinners & weavers that is why it is softer and much more porous than mill made cloth which gives khadi a ventilated feel. It is more comfortable, durable and of better quality than other cloths. It is ecofriendly and skin friendly fabric as compared to other fabrics. Over the years, many innovations have been done in its manufacturing processes of khadi for increasing the production and improving the quality. From being a fabric of the freedom fighters to those in politics and social sector, khadi is slowly gaining popularity as a fashion symbol. It was interesting to note that the salesmen and consumers in the retail outlets had diverse perceptions about khadi and they think that after using khadi fabric they feel like having their own identity. Hence, it can be concluded that khadi carries different values, morals and ethics for people and has become way of the life for them. People of diverse professions are ready to use and accept

khadi fabric wholeheartedly. It is being re- re-imagined for new future for fashion focusing on social responsibility as it has emerged as the fabric of the people, keeping its artisanal roots and sustainability.

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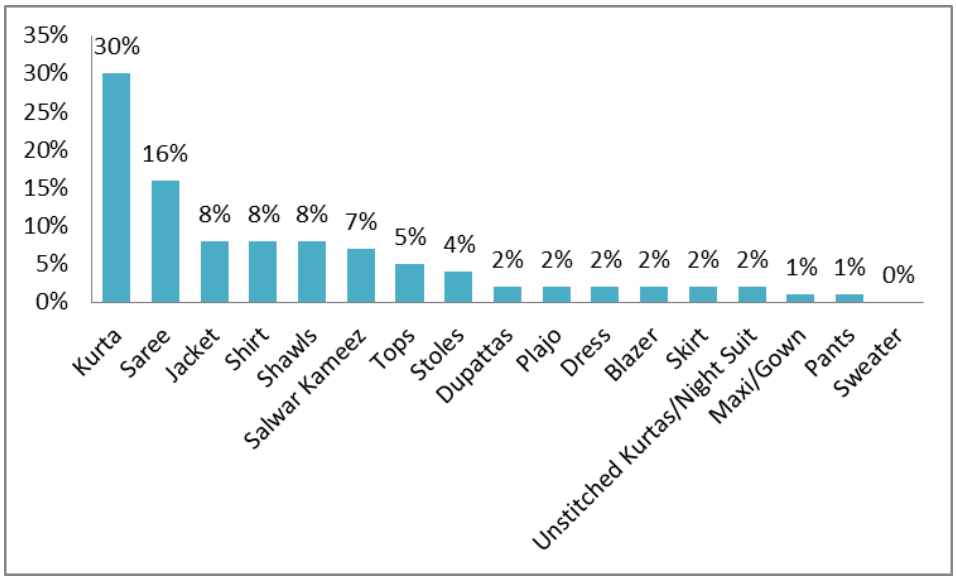
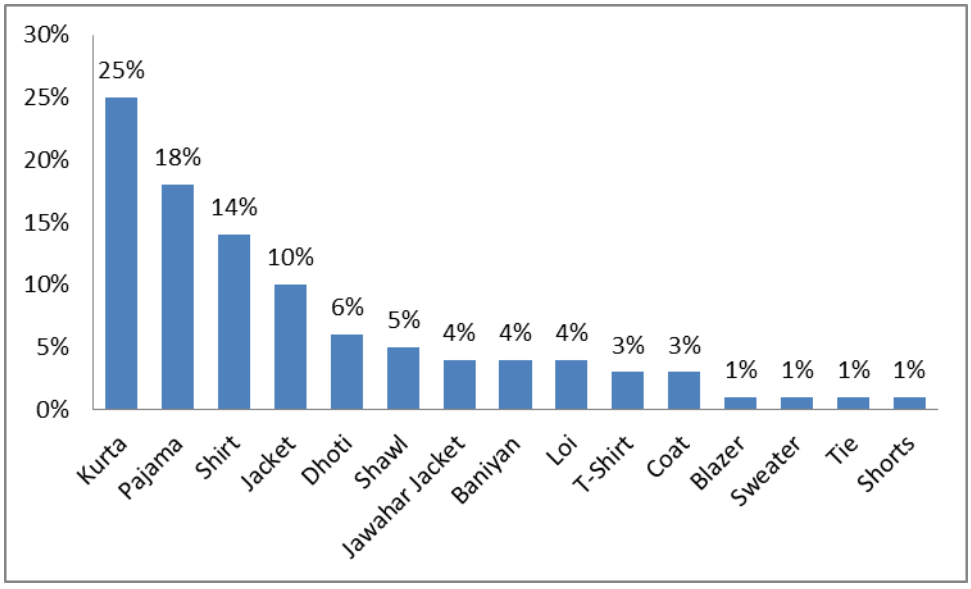
Appendices

Details of preference of ladies products according to consumers



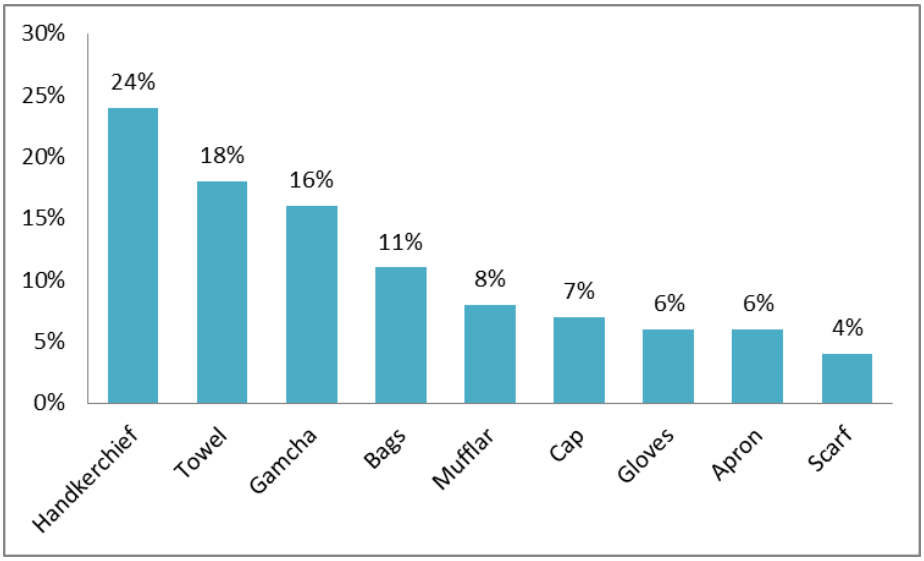
Appendix II

Details of preference of gents products according to consumers



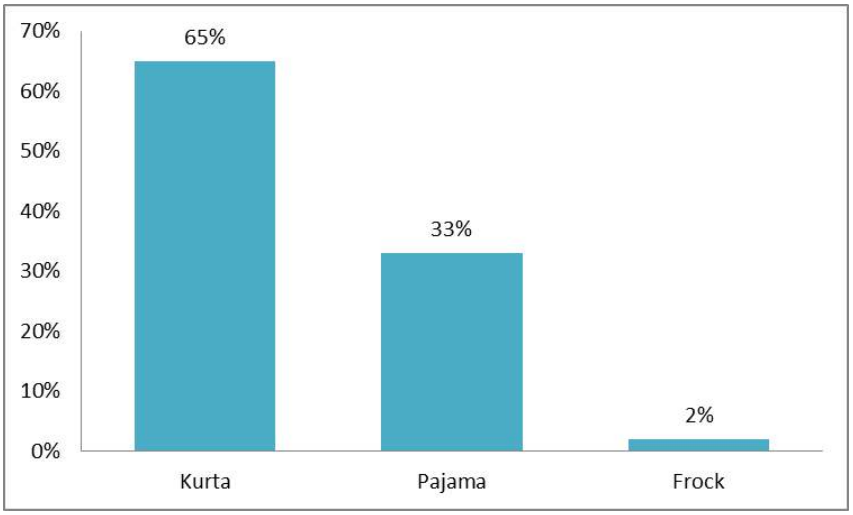
Appendix III

Details of preference of kids products according to consumers



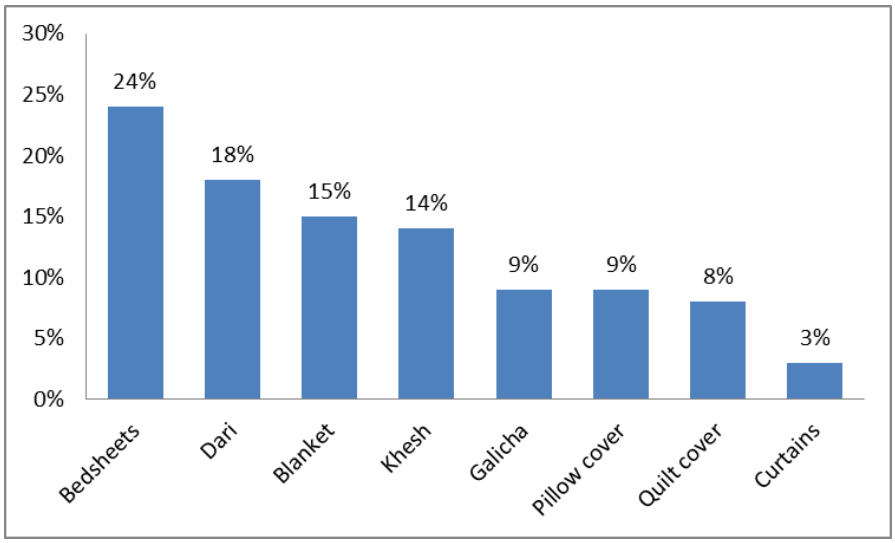
Appendix IV

Details of preference of made-ups according to consumers



Appendix V

Details of preference home-furnishing according to consumers



T-EXTINCTION: A co-created fashion and textiles sustainability awareness project that takes a long-time approach

Authors

Carolyn Hardaker, Sally Gaukrodger-Cowan and Buddy Penfold,
De Montfort University

Keywords

Sustainability, long time approach, UN SDGs, co-creation, community Text based paper

Abstract

Climate change activism and the widespread acknowledgement of the polluting impact of Fashion and Textiles industries inspired this novel co-creation sustainability awareness project that takes a long time approach.

Promoting long time, cathedral style thinking contrasts sharply with current fast fashion practice. Saltmarshe and Pembroke (2018) of the Long Time Project state, “Short termism is rapidly becoming an existential threat to humanity” while Fletcher (2010) proposes slow culture as an opportunity to develop systems change within the fashion sector.

At De Montfort University, the UN SDGs are embedded within the Fashion and Textiles curricula. This project started as an opportunity to co-create an extra-curricular community response. Inspired by the long time approach, Fashion Buying academics and students set themselves the challenge to identify products or processes that would be extinct or taboo in the year 2090. Named T-Extinction, a project was launched in 2019 to get academics and students alike thinking. T-Extinction proved to be an innovative sustainability awareness strategy providing a conduit for staff and students to share their skills and learn from each other. For 2021-22 Textile Design students and academics are now taking on the T-Extinction challenge, which resonates with the local industry and textile heritage in Leicester.

This paper outlines the aim and approach taken in the running of the project. Co-creation was key, with student led graphic design input and a dedicated social media account incorporated to promote T-Extinction ahead of a co-created physical exhibition featuring a range of responses from denim products, hosiery, trainers and sizing which went on display in March 2021. Student engagement is evaluated by reviewing the influence of sustainable development and co-creation within design practice.

Introduction

Stark warnings about the climate emergency have been increasingly articulated and the recent COP 26 Climate Conference in Glasgow finished with an agreed set of ambitious measures to reduce CO2 emissions to keep to within a global temperature rise of 1.5 degrees (COP26, 2021). The enormity, severity and the timespan of the challenge was articulated during the conference by leaders including U.S. President, Joe Biden, who stated,

> There's no more time to hang back or sit on the fence or argue amongst ourselves. This is a challenge of our collective lifetimes. The existential threat, threat to human existence as we know it, and every day we delay the cost of inaction increases. So let this be the moment that we answer history's call here in Glasgow.

With the time frame for action noted by UK Prime Minster Boris Johnson,

> The people who will judge us are children not yet born and their children, . . ." and we are now coming center stage before a vast and uncountable audience of posterity, and we must not fluff our lines or miss our cue, because if we fail they will not forgive us.

The Fashion and Textiles industry is recognised as a key contributor to climate change, often quoted as being the second most polluting global industry. With an output of 15 billion garments per year, the USD 2.5 trillion industry employs 430 million people globally in both a complex and in many parts opaque value chain (Srivastava, 2021).

There is a plethora of contributing factors to the negative impact which include:

- the voracious demand for low cost fast fashion products,
- water pollution caused by production processes across the value chain,
- the high level of water consumption for crops such as cotton,
- the release of microfibres from synthetic fabrics into the air and water supply,
- limited recycling technologies for mixed fibre fabrics and garments,
- the vast amounts of textile waste destined for landfill,
- fair pay and working conditions for workers across the value chain.

Recent years have seen much activity to innovate to combat these issues with a myriad of sustainability initiatives developed. Payne (2017) collates these against a taming and rewilding framework, where she notes technologies to tame and minimise damage to the earth's resources exist alongside projects that rewild and return to a more localised artisanal approach. This is exemplified by the School of Fashion and Textiles at De Montfort University, a recent the winner of a Green Gown Award for Next Generation Learning and Skills and recognised for its integrated approach comprising curricular change, co-curricular opportunities, innovative research into new materials and community engagement to address the challenges of the textile industry, locally in Leicester, nationally and internationally (Sustainability Exchange, 2021).

The scale of the industry means that potential solutions to positively impact the environmental and social challenges are significant. Across the industry the immediacy of the challenge is the

focus of many of the initiatives. This paper in contrast, considers the challenge over a greater time span, by using a long-time approach, stakeholders are asked to consider the world in the future, project themselves to a time when the initiatives and actions that are being put in place over their careers will have had time to have an impact. Careers, where design, communication, buying and management professionals will have the opportunity to influence, with a sustainability focus, design decisions for thousands of garments.

Inspired by climate activism and the group Extinction Rebellion, an extracurricular co- creation project at De Montfort University has been developed to encourage long-time thinking, Named, T-Extinction and with a new theme each year, students and staff from different departments are invited to consider the world in the year 2090 through a sustainability lens. The year, chosen to represent a time in the lives of current students when they might reflect on their careers. The paper presents the long-time approach as a theoretical framework and details each T-Extinction theme along with key findings both from a sustainability and pedagogic perspective. The paper concludes with an evaluation of the approach and ideas for future work.

The long-time approach

In 2019, Greta Thunberg, the Swedish teenage climate activist referred to the need for cathedral thinking to develop effective solutions for combat the climate emergency in her speech to World Economic Forum, (The Guardian, 2019). Cathedral thinking is a key aspect of the long-time approach to problem-solving. By considering a problem over at least the life span of a long living human, a unique perspective is brought to a problem and its solutions. Krznaric (2020), comments that the long-time approach enables humility, and encourages a desire to leave a legacy that will be remembered well by posterity with an overriding goal to strive for a thriving planet. Key techniques include consideration of the impact by the seventh generation ahead and cathedral thinking, which involves planning projects beyond a human's lifetime.

Similarly, the Long Time project publicises this approach (Saltmarshe and Pembroke, 2018). Their wide range of projects and initiatives and toolkit to engage the public imagination, along with a recent collaboration with the Royal Society of Arts and was the inspiration behind the T-Extinction concept.

T-Extinction Theme 1: Sustainability awareness

The first T-Extinction theme focussed on sustainability awareness, with the premise to consider what Fashion and Textile product or process would be extinct by the year 2090. Commencing late Summer of 2019, before the Covid-19 pandemic it was a response to what was happening in the world, the climate emergency and activism that was taking place. The first project was run with BA Fashion Buying students, strategically their influence as professionals within the fashion system was viewed as considerable and was viewed as an exciting new extra-curricular journey for students and academics to consider sustainability from a different perspective. A poster (figure 1) and competition brief was set and open to all years of study, with winning responses from seven first year students. Three academics from across School brought a

breadth of specialisms to the team and combined with the students to create a diverse mix of skills and experience.

Figure 1. T-Extinction Poster

Many of the co-creation opportunities centred around the responses and showcasing. The initial idea for a physical exhibition postponed due to the Covid-19 pandemic, led to a social media campaign and a student inspired instagram account. Student and academic T- Extinction responses demonstrated extensive thinking from products that were envisaged to be extinct such as sequins, denim, rubber soles, nylon tights through to the fast fashion product category and current processes for sizing, buying and disposal. The full set of responses are shown in figure 2.

Figure 2: T-Extinction Theme 1 Responses

Posts on Instagram enabled the project to reach a wider audience and when lockdowns eased a physical exhibition was curated and featured on the Instagram feed. The thought-provoking imagery created by each respondent had a visual impact both at scale for the physical exhibition and as a social media post. Further dissemination of the project was extended nationally through articles and conference papers, with the novel approach being featured by Fashion United.

T-Extinction Theme 2: Endangered craft

An original aim of the T-Extinction project was to take the framework and pass to a new department and/or institution on an annual basis. On passing the 'baton' to the Textile department there was a desire to maintain the co-creation and community spirit of the T-Extinction but create relevance to textile specialisms, encouraging a broader approach to creativity and sustainability. The Textile department developed the context of the project across the practical skills taught in the department, pedagogical learning from teaching online due to the pandemic and the strategic direction of the new Vice Chancellor, Professor Katie Normington.

The Covid-19 pandemic and lockdown had meant a review of how to teach practical courses online. A different approach was needed for skills that could be developed within the home environment without access to workshops and equipment. The resulting work, innovative and creativity of the students led to a review of how to capture experimentation and innovation away from modules, assessment, learning outcomes in the new academic year.

Combining this with a consideration of the roots of the School of Fashion and Textiles based in Leicester is a multi-cultural city renowned for the production of textiles. The BA Textile Design, as a practical creative course, develops designers in the context of a global textile market. Part of the ethos of the course is the to consider the development of traditional craft for contemporary textiles, learning through live projects with industry and the practitioner expertise of academic team. This approach was echoed in the inaugural speech of De Montfort University's Vice Chancellor.

> The roots of DMU are in Leicester School of Art, established in 1870. From that period until the formation of DMU in 1992 (…the institution) sought to bring together technology and craft' (Normington, 2021)

When creating the brief for the T-Extinction project for the Textile students, the literature was reviewed relating to policies and research. The idea of craft skills associated with longevity links in with 'The Long-Term Project' focused on finding ways to care about their long-term future. Valuing craft in household items that were used every day as an alternative to using mass produced items that may be changed and replaced often creating landfill. Craft items are valued for the time and skill taken to create them. Klamer et al (2019) speak of craft as an heirloom, a view which fits the 'cathedral view' of the T-extinction project, creating the opposite to fast fashion. This view is echoed in the article 'Craft, Innovation and Creativity';

> …those characteristics associated with craft – slow evolution, material quality, skill, diligent but not mindless copying to achieve refinement – that constitute the basis, not just of recognized craft, but also of leading artists' and designers' works. They enable innovation by building on established and proven ideas and by refining and honing them with each iteration (Niedderer and Townsend, 2014)

The Craft Research Journal describes the role of craft as

> …rooted in its flexible nature as a conduit from design at one end to art at the other. It gains its strength from its at times experimental, at times developmental nature, which enables craft to explore and challenge technology, to question and develop cultural and social practices, and to interrogate philosophical and human values. (Niedderer and Townsend, 2021)

International recognition and support of craft, is also noted in the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention of the Safeguarding of Intangible Cultural Heritage in 2003.

> This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. (UNESCO, 2021)

This agreement to formally recognise traditional craft as part of the UK cultural heritage was not ratified by the United Kingdom (UK). As a consequently, crafts are not included within any government remit for support and promotion. In the meantime, an all-party parliamentary

group for craft (APPG) has been formed in 2018. (Craft APPG, 2021), while the Heritage Crafts Association, an UNESCO accredited NGO for Intangible Cultural Heritage, has compiled The Red List of critically endangered crafts. (Heritagecrafts.org.uk. 2021) The students and academics wanted the T-extinction project to go beyond the creation of product, and instead to consider the sustainability in terms of the longevity of the product. Many students had learnt skills from the older generations, or their projects were influenced by cultural heritage. The ethos of this T-Extinction theme, emphasing the connection between traditional maker practices and expertise with sustainability are noted by Walker et al (2019) who state:

> …our investigations illustrate the potential for design and creativity to contribute to the sustainment of these crafts and reveal connections to contemporary understandings of sustainability, including synergies with place, community, and what is felt to be mindful of responsibility to past, present and future generations.

From this review of literature, on how craft is viewed, a brief was written inviting students to join in creative practice. Specifically, students and academics were asked to respond to the following statement:

Many traditional British Crafts are in danger of becoming extinct by 2090. T- Extinction, this year, wants to highlight this situation by considering craft processes and re-inventing them for the contemporary market to ensure the skills are saved Your challenge is to identify an endangered craft where you can see the potential to re- create the process but in a new sustainable context.

Through co-creation, the students and academics have used the Heritage Crafts Red List of Endangered Crafts to choose craft areas to explore. Through discussion the cohort of students and academics have decided to document their ideas through photographs and journals, At the time of writing, ideas have been shared and inspired ready to start development on samples. This project will be documented to inform developing skills in textiles and how craft techniques can inform pedagogic and contemporary practice. Links with Heritage Crafts Association have been made for advice and information on the endangered crafts and ways to promote the stories of the craft and project creation to a wider audience to create a connection with craft, with physical and digital showcasing to follow.

Discussion and evaluation

The outcomes of T-Extinction are both specific to the initial project and the concept's wider potential. The initial learning from the first T-Extinction project is twofold.

The team of students and staff developed an enhanced understanding the UN SDGs and a passion for sustainability, with the resulting responses covering a broad spectrum of products and processes provided a series of thought provoking imagery. The responses aligning to the 'taming' aspect of Payne's sustainable fashion framework (Payne, 2017).

Co-creation can be seen as a key element of the original T-Extinction concept, in addition to discussing the subject matter, this aspect has highlighted the potential of intergenerational working. Students and staff have had the opportunity to co-create with peers and lecturers. Students are developing team working skills, independent thought, confidence, organisational skills to meet deadlines and researching skills. One of the student contributors when referring to T-Extinction states 'it is joyful to look at practical ways of moving forward in the right direction'.

The benefits of intergenerational working have been exemplified by the showcasing aspect, where student respondents instigated the social media response with a social media plan and strategy, imparted their knowledge to older staff members who were not as familiar with the in-depth use of these communication tools. The value of this intergenerational working is seen as a key finding from the first project contributing further to the long-time approach.

Through transferring the T-Extinction 'baton' from one department to another within the School has extended the reach of the concept further and is creating momentum internally and within the wider community. Using the long-time approach concept, is proving successful with a second project that is considering endangered craft, The brief aligning to the rewilding context of the aligning to the e rewilding aspect of Payne's sustainable fashion framework (Payne, 2017).

It can be seen from the first two T-Extinction projects that the long-time approach resonates with students and academics alike and provides interesting outcomes that have the potential to reach a wide audience. Co-creation and the intergenerational nature of the approach are resonating with the student and academic team.

There is great potential to develop the project further, to work with themes to address sustainability challenges of niche products areas offered by the School of Fashion and Textiles such as lingerie, swimwear and footwear provides further opportunities not only to impact the thinking today, but throughout the careers of the next generation of industry professionals.

Conclusions

By challenging the next generation of designers, communicators, buyers and managers while they are students, with critical questions about the sustainability of products and processes, a long-time approach provides the opportunity for these future professionals to consider the impact of their individual actions, reinforcing the call for action.

The extra-curricular nature of the project provides the opportunity to build a sense of community and a maker culture away from the rigors of a module brief. Anecdotally students report that co-creation provides an open forum for ideas and experimentation, making the design process more transparent. This is an interesting area for further investigation to inform practical teaching as we come out of the pandemic.

With the co-creation ethos, and through the transfer of the project from one department to another has provided the opportunity for more students and academics to become involved,

building momentum through maintaining a focus on previous work and the importance of the approach.

Highlighting endangered craft through this approach provide visibility for red list of heritage crafts, and highlighted a variety of techniques that have enriched the practicalprocess. Further exposure will take place through showcasing activity.

The annual themes provide an opportunity to focus on different areas of challenge and by developing and highlighting these challenges new insights are developed.

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THE POSSIBILITY OF UNSEEN CREATION WITH WHITE, 'THE COLOUR OF NOTHINGNESS'

Author

Sayaka Kamakura,
Bunka Gakuen University, Tokyo 151-8523, Japan Corresponding Author:
kamakura@bunka.ac.jp

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Abstract

White has been mainly regarded as a symbol of purity or spirituality since ancient times, and it is often referenced as such in various fashion costume histories and design examples. However, is that the only possibility of expression that white has? Hara described white as follows: 'This identity as a colour that can "escape colour" makes white very special. Not only does white's texture powerfully evoke the materiality of objects; white can also contain temporal and spatial principles like *ma* (an interval of space and time) and *yohaku* (empty margin); or abstract concepts such as non-existence and zero' (Hara, 2008:6). In other words, white can be said to be an existence that indicates the denial, erasure, and absence of existing colours and their concepts, while at the same time creating a completely new and infinite stage of expression from it. In this research, white is defined as 'the colour of nothingness' by equating it to the concept of 'nothingness,' which is a unique and irreplaceable existence with infinite possibilities of expression. The purpose of this research is to investigate how white has been adopted and developed as a colour or form of expression, focusing on characteristic examples of architecture, art, and fashion design in and after the twentieth century, and to reveal potential possibilities of creation in it. First, the expression of white found in the concepts of pioneering examples of modernist architecture from the 1900s to the 1930s is elucidated, mainly focusing on the essays by Adolf Loos, who advocated the denial of decoration, and Le Corbusier, who aimed at functionalism through decorative art without decoration. Second, expressions such as non-objects and the abandonment of existing concepts brought about by white are investigated by examining the art movement Suprematism, founded by Kazimir Malevich in 1915, and especially *White on White* (1918). Finally, from the example of fashion brand Maison Margiela, formerly Maison Martin Margiela, focusing on the period from 1988 to 2003 in which it was mainly operated by Martin Margiela and Jenny Meirens, three major types of white are considered: commercial white, which is associated with the absence of the designer and arouses curiosity; anonymous white, which does not show anyone or threaten anyone; and white that is worshiped and attracts fascination as a religious cult.Elucidating these potential creativities of white can be expected to provide new guidelines for creation that is not bound by the existing rules or frameworks of fashion costume history and design, and lead to the proposal of innovative methods of expression.

Introduction

Is white a colour? Is it light? Or is it just a blank space left by drawing something? It is very natural that there are different views on white, because this is a trajectory of how white has existed. It is also the result of how white has been treated as a symbol of various things, or rather, of how it has not been regarded as a symbol of anything. In this study, white is defined as a colour and treated as a statement that was intentionally used for a specific reason, not as light or as something unintentionally left over from a drawing.

It is also about nothingness. What is the colour of nothingness? Does nothingness even include colour? Is it not black? Or transparent? Certainly, nothingness has no rules to be defined as one particular colour. It can be no-colour, black, transparent, or semi-transparent. Or it may be white. This study is just the beginning of a great journey of defining nothingness. This time, first of all, white is assumed to be the answer to the colour of nothingness, and is the first to be investigated.

The purpose of this research is to break through the conventional treatment and symbolism of white, and to derive the possibilities of white creativity and white statements that could not be seen or have not been discovered from the centre stage. Furthermore, the answers derived from these new investigations of white are entrusted with the mission of creating new fashion design examples with white, in order to counter the concepts such as purity or spirituality that have already appeared many times. The research method is summarized according to the following four sections.

The first section unravels the origin of white and classifies what white symbolizes. This classification can lead to the basic hypothesis that white is not just a colour as it is an existence, a concept (a form of expression), capable of negating, erasing, and absenting existing colours and concepts, while at the same time creating a completely new and infinite stage of expression. This hypothesis will then be explored in the subsequent examples of architecture, art, and fashion design from the twentieth century onward to uncover how white has been incorporated and developed as a concept (a form of expression) or statement, and what the creative potential of white might be.

The second section elucidates the representation of white in the pioneering modernist architectural concepts of the 1900s and 1930s. The main examples are Adolf Loos, who advocated the denial of decoration, and his essay ‘Ornament and Crime’(1908), and Le Corbusier, who aimed at functionalism through decorative art without decoration, and his essay ‘The Decorative Art of Today’(1925). In the context of white walls, Mark Wigley’s book *White Walls, Designer Dresses: The Fashioning of Modern Architecture* (2001) is also included in the references.

The third section discusses the artistic movement Suprematism, founded by Kazimir Malevich in 1915, and in particular *White on White* (1918), as well as the expressions such as objectlessness and the abandonment of existing concepts brought about by white. Malevich’s book *The*

Non-Objective World: The Manifesto of Suprematism (1927) and Sei Takeyama's essay 'Decolorizing Space' (2017) are the main sources of investigation.

The fourth section uses the example of the fashion brand Maison Margiela to illustrate the creative influence of white on fashion design. Key references include Susannah Frankel's article 'The birth, death and re-birth of conceptual fashion' (2009), 'The Woman Behind Martin Margiela' (2017), Eric Wilson's article 'Fashion's Invisible Man' (2008), and the film *We Margiela* (2017).

1. White: The colour of nothingness

The meaning of 'white' in English is 'colour produced by reflection, transmission, or emission of all kinds of light' (Simpson, 1989:263). The etymology of white is Old English *hwit*, which means 'bright, radiant, clear, fair'.

The word for 'white' in Japanese, *shiro*, means 'colour seen when the sun's rays are reflected uniformly over all wavelengths' (Niimura, 2018:1489). One etymology of *shiro* is said to be '*shiroshi*, meaning "to stand out". The second is that it comes from the word *shiro*, which means the "unaltered" plain colour of a material' (Masui, 2010:457).

In both English and Japanese, the etymology of white is associated with the meaning of clarity and brightness. So, what else has white symbolized in its development? White has left a variety of symbolic marks from the trajectory of its existence. Taking into account the ethnic and cultural background, the following major classifications are made from a broad perspective.

(1) Purity

> Innocence, virginity, purification, hygiene: many of the things that white symbolizes are associated with 'purity'. It represents a state of innocence before colours are stained. The state of blank paper: a *tabula rasa.* (Suoh, 2004:178)
>
> Some of the tales of the period depicted characters in all-white clothing, and this was described as *Ito namamekashi* (very beautiful). In particular, *The Tale of Genji* (which is Japanese classic literature written by Murasaki Shikibu in early 11th century) emphasize the beauty of a colourless world sublimated into colours that are not colours at all. (Fukuda, 1997:101)

(2) Spirituality

> In Egyptian mythology, as in other mythologies, white was the colour of the gods. The god Osiris, represented in Egyptian wall paintings, is represented in colour by a white kalasiris. (Jo, 2016:9)

> In Japan, *shiro* has been considered the most sacred colour. […] Even if it is always clean and polished, it will soon be damaged by time and must be made again from scratch. This was the most precious *shiro* for the Japanese. (Horihata, 2019:77)

(3) Fading

> Everything in which life is extinct approximates to white, to the abstract, the general state, to clearness, to transparence. (Goethe, 1840:234)

> The colour of autumn in five phases. It is the colour of white autumn. In China, white is the colour of mourning and funerals. (Jo, 2016:9)

> In most parts of ancient Europe, people wore white to express their grief at the loss of a close relative. […] Like the monks' clothes, mourning clothes were also made of raw cloth as a sign of obedience and penitence. (Varichon, 2009:30)

(4) Reduction

> The Cistercians were a Catholic order born in France at the beginning of the eleventh century, which adhered to strict precepts and forbade idolatry. In clothing, too, they wore simple white monastic robes in opposition to the authoritarianism of flamboyant dress. (Jo, 2016:21)

> White is not the absence of colour, but the end of the saturation of colour. The 'end' is an aesthetic that seeks to quell the afterimage of intense colour and reduce it to white. (Hara, 2018:119)

(5) Absence

> Whiteness is not so much a colour as the visible absence of colour; and at the same time the concrete of all colours. (Melville, 2001)

> In some cases, white denotes 'emptiness'. White as non-colour transforms into a symbol of non-being. Yet emptiness doesn't mean 'nothingness' or 'energy-less'; rather, in many cases, it indicates a condition, or *kizen*, which will likely be filled with content in the future. On the basis of this assumption, the application of white is able to create a forceful energy for communication. (Hara, 2008:28)

In a sense, it can be said that (1) through (3) according to the above classification show the typical symbolism of white. White, in this sense, has been cited many times as a source of inspiration in fashion design because of its direct link to clothing culture, such as wedding dresses, sacred costumes, and white mourning clothes. However, this study will focus particularly on the white of (4) 'Reduction' and (5) 'Absence', which have rarely been cited in fashion design, and will examine the potential for new designs to be discovered from them. What is particularly interesting here is that these symbolisms of reduction and absence are also found in the symbolism of

‘Nothingness’. In other words, these whites can be linked not as a negative nihilistic aspect, but with the aspect of positive proactive creativity that ‘Nothingness’ brings, and can be a trigger for new creativity in fashion design in the future.

2. White: Denial of ornamentation

Adolf Loos (1870–1933) was an Austrian architect and theoretician of modern architecture in Europe. In his essay ‘Ornament and Crime’ (1908), he advocated smooth, clear surfaces in contrast to the sumptuous ornamentation of the Vienna Secession, and contributed to the theory and criticism of modernism in architecture and design.

Loos strongly affirmed the elimination of ornamentation, stating that ‘The evolution of culture is synonymous with the removal of ornamentation from objects of everyday use’ (Loos, 1997:167). His ideal figure of the removal of ornamentation from architectural surfaces can be seen in the following statement: ‘We have gone beyond ornament, we have achieved plain, undecorated simplicity. Behold, the time is at hand, fulfilment awaits us. Soon the streets of the cities will shine like white walls!’ (Loos, 1997:168).

Thus, this statement assumes that the elimination of ornamentation is connected with being unadorned, simplicity, and whiteness, and draws from Loos’s argument regarding what effects and creativity such an ideal image can bring about.

Loos asserted that ‘I do not accept the objection that ornament is a source of increased pleasure in life for cultured people’ (Loos, 1997:169). He stated that the idea of ornamentation as a product of culture is backward, and that culturally sophisticated modern ornamentation means finding value in plain, unadorned surfaces. Loos continued as follows:

> We have become more refined, more subtle. When men followed the herd they had to differentiate themselves through colour, modern man uses his dress as a disguise. His sense of his own individuality is so immensely strong it can no longer be expressed in dress. Lack of ornamentation is a sign of intellectual strength.
>
> (Loos, 1997:175)

Ultimately, the complex personality of sophisticated moderns and modern society no longer has a content so shallow that it can be expressed by superficial ornamentation and colour. From now on, the absence of ornamentation must be looked at from the positive point of view that it is not a cause of grief, but leads to the creation of a progressive attitude towards the acquisition of various intellectual, spiritual, and cultural improvements.

Le Corbusier (1887–1965) was a French architect of Swiss descent as well as a designer, painter, urban planner, and writer, and he is one of the pioneers of modern architecture. His essay ‘The Decorative Arts Today’(1925) became famous as a spirited attack on the very concept of the decorative arts.

Le Corbusier likened his concern for decoration to that of Loos above, stating: 'It would seem correct to assert that the more a people's culture improves, the more ornamentation fades into the background. Perhaps it was the architect Adolf Loos who was the first to make such a statement' (Le Corbusier, 1966:104).

In addition, Le Corbusier asserted that 'False "riches" are not only filthy, but the mind that decorates its surroundings is already a false spirit, an abominable depravity' (Le Corbusier, 1966:109). He dismissed decoration not only in terms similar to those of Loos, as unsuitable for cultured moderns, but also in terms of the way in which decoration itself disguises and corrupts the inherent charm of objects. Le Corbusier's examples of ideal situations are:

> The walls are white. Rattan chairs or curved wooden chairs made of tonneau. White Ripolin-painted tables in the department stores' Hotel de Ville (beautiful Louis XIII-style tables). Well-cleaned lamps. White porcelain tableware. […] Health, tidiness, and modesty. So few things are needed to make a good room.
>
> (Le Corbusier, 1966:109)

From all this it should be clear that, as far as Le Corbusier is concerned, white plays an important role in his ideal of an unadorned, simple, and clean scene. In other words, white can bring us not the luxury of falsity, but the 'purity of finish, the true luxury of practical efficiency' (Le Corbusier, 1966:112) that we really need. The removal of ornaments only facilitates the creation of a real spiritual luxury, removing only what is falsely called decoration. The richness born from this will lead us to a new world of 'decorative art without decoration' (Le Corbusier, 1966:110), which could not be achieved with decoration.

The architect and writer Mark Wigley (b. 1956) provides a more thoughtful analysis of the creativity of white and white walls in modern architecture, particularly in the work of Le Corbusier, as follows: 'Clearly the white wall is far from neutral or silent. For the modern architect, it speaks volumes. Indeed, nothing is louder. The white wall is precisely not blank' (Wigley, 2001: xiv). He refers to the role of white as a 'non-statement statement' (Wigley, 2020). The first thing he argued for was the purifying and cleansing action of white. He claims that white paint is an act of 'replacing the degenerate layer of decoration that lines buildings. […] Whitewash liberates visuality. It is a form of architectural hygiene to be carried out in the name of visible truth' (Wigley, 2001:3). Next, after preparing the surface and restoring hygiene, white is expected to take on the task of shaping the contours of the building and its existence. He states:

> The white wall, like the white shirt, institutes the very distinction it appears to merely demarcate, carving out a space that was not there before. The white surface does not simply clean a space, or even give the impression of clean space. Rather, it constructs a new kind of space.
>
> (Wigley, 2001:7)

A white surface, with its clean surface, can liberate the vision and help to re-establish ideas and spaces that have been lost, hidden behind things. After all, the creativity that white brings is not

merely neutral, pure, and so on, but, as Wigley argues, an ‘active mechanism of erasure’ (Wigley, 2001:8) that looks far ahead of purification.

3. White: Radical regeneration

Kazimir Malevich (1879–1935) was a Russian avant-garde artist and art theorist, whose pioneering work and writing had a profound influence on the development of non-objective or abstract art in the twentieth century. He founded the art movement Suprematism, which used its subject matter to access the supremacy of pure spirituality.

Malevich described his system of Suprematism as ‘constructed in time and space without depending on any aesthetic beauty, emotion, or state of mind whatsoever’ (Néret, 2003:49), referring to a way of being in art that does not require any of the things that have often been the subject matter of art movements in the past. Furthermore, he stated that even objects and consciousness are not necessary for Suprematism: ‘The object itself is meaningless to the Suprematist—the representation of consciousness is worthless’ (Malevich, 2020:65).

He reasoned that the direct description of the object, on the contrary, prevents us from seeing the pure emotion behind it: ‘The pictures of Raphael, Rubens, Rembrandt, etc., have become nothing more than a mass of innumerable “things” for critics and the public. It obscures their inherent value—the sensations they evoke’ (Malevich, 2020:72).

He produced one of the most famous works of the Russian Suprematist movement, *White on White*, in 1918 (Figure 1). Malevich eliminated most of the characteristics of figurative art in this painting, leaving simple geometric shapes with no sense of colour, depth or volume, no precise symmetry, and no clear boundaries.

Figure 1. White on White 1918

What, then, was the possibility of white in Suprematism that he expected? In a statement in the catalogue of the Tenth State Exhibition: Non-Objective Creation and Suprematism (Moscow, 1919), Malevich described the transcendental position of white as follows: 'The blue of the sky has been conquered and bleached by the system of Suprematism, giving way to a transcendental white which represents the real and eternal concept, thus freeing it from its sky-blue background' (Bowlt, 1988:181).

His rebellion against various conventions and practices, and his insistence on the existence of white as a complete departure from these notions of colour, was even more evident in the following:

> I have bleached the blue lampshade that marks the limits of colour and have moved on to the transcendental white. Come with me, comrade aviators. Let us sail into the depths. I have completed the signal of Suprematism. I have conquered the underside of the coloured sky, I have uprooted the colours, I have put them in my bag and I have tied it tightly. And off we go! White, free and deep, eternity is before you.
>
> (Bowlt, 1988:182)

This extreme restructuring of his prescriptive concept is of course understandably confusing. However, he did not see this confusion as a negative thing, but as a positive thing that can lead to new creation:

> Nor did Malevich conceive his square as nihilistic. On the contrary, he viewed it as a culminating point: painting, sculpture, the applied arts and even writing would have to be reformed and reconceived in the light of it. His *tabula rasa* was the precondition of a renaissance.
>
> (Néret, 2003:50)

The Japanese architect Sei Takeyama (b. 1954) summarizes the similarities between Loos's and Malevich's unconstrained view of decoration and objects as follows:

> In art, too, instead of leaning on the narrative and symbolism of the depicted object, a reduction process was pursued, away from the depicted object, out of the object, so to speak, to the pure senses, without otherness. The impurities are removed. If we are to follow the words of Adolf Loos, 'Ornament is a crime', 'style', 'causation', 'meaning', and all that is not needed is removed and reduced to pure form. Reduce art, reduce architecture, to a state so pure that it cannot be removed any more.
>
> (Takeyama, 2017:58)

He also states that the task of modern architecture is 'a thorough departure from conventional values. To erase meaning. To extract the pure flow. To find in it a new value, a new order' (Takeyama, 2017:58). As in the previous paragraph's arguments, he also reiterates that this reduction process is not a negative one.

Decolorizing is not about removing colour as a mere pigment and leaving a plain, tasteless world of white. Rather, it is the creation of a plentiful white that removes the meaning of colour and the stereotypes surrounding it, in order to create a new world.

4. White: Anonymous statement

Maison Margiela is a fashion house that was founded in 1988 by Belgian designer Martin Margiela (b. 1957) with Belgian retailer Jenny Meirens (1944–2017). This section focuses in particular on the period between 1988 and 2003, when Maison Margiela was run by mainly Margiela and Meirens.

First of all, investigation will start from the origin and achievement of the white label without the brand name, which is a characteristic feature of the Maison (Figure 2). As Meirens mentions in her interview in the film *We Margiela* (2017): 'The tag was a very distinctive image. It was my idea. […] I persuaded Martin. He said that "my parents would be disappointed if they didn't have my name", but he thought about it and said "Let's do it"' (*We Margiela*, 2017). Also, Meirens explained the reasons for it: 'When people come into a shop and see strong clothes with no name on them they are going to be more curious' (Frankel, 2017). Having owned a boutique and handled many designers' clothes, Meirens felt that the generic appeal of logos and brand names had become commonplace for many customers, so she wanted to create a new effect by intentionally showing nothing at all.

Figure 2 Maison Martin Margiela White Label

Additionally, about the stitching at the four corners to hold the white label in place, she noted that 'The white thread stitching was Martin's idea. It's instantly recognizable from a distance' (*We Margiela*, 2017).

As a result, the idea of a white label, made of plain, unprinted fabric with the corners sewn on with white thread, was a great success. It became, as they had envisaged, one of the most

prominent signatures in the world of fashion design, generating curiosity and recognition from various quarters that could not have been achieved with a traditional brand label. The lack of prominence of the brand name has conversely led to greater prominence.

The whiteness and namelessness of the brand's name label overlaps with the anonymity of Margiela and Meirens themselves, too. 'Like that label, and despite critical acclaim, both Meirens and Margiela remained almost entirely anonymous throughout their 16-year partnership, refusing to be photographed or to speak to the press' (Frankel, 2017). Also, their official glossary explained anonymity as follows: 'A reaction against the ubiquitous star system, the desire to let the idea do the talking. Not one published portrait of designer, no personal interviews' (Margiela, 2009:360–361).

This was supposed to ensure that the meaning given by information such as the details of the designer himself and his features did not affect the work itself that had been created. As previous section mentioned several times, when there is too much information (sometimes ornamentation, sometimes objects) this prevents the work from reflecting its true meaning. Margiela stated: 'Like a lot of things, when you try too hard, then it's definitely "out of it" and you have missed what you were aiming at. A dress that tries too hard to be intellectual and/or intelligent will automatically become ridiculous' (Margiela, 2009:40–41).

As a result, for Meirens, 'the "freedom of creative expression and the courage and conviction" that small piece of untreated white cotton represents is her proudest achievement' (Frankel, 2017), it is clear that white allows for creative expression in a way that no other material can from these examples of Margiela's achievements.

White remains a big part of the Maison Margiela itself and the people who work there: At the Margiela atelier, in a former schoolhouse here in the 11th arrondissement,

everything is shrouded in a lightly scuffed white fabric, including the furniture, walls and even staff members, who wear uniform lab coats that have the unsettling effect of eliminating a sense of the individual. (Wilson, 2008) (Figure 3)

Figure 3. Maison Martin Margiela Atelier

Their official glossary explained this white coat as ‘A symbol of belonging to the house of Margiela, a repudiation of hierarchy’ (Margiela, 2009:360–361). White contributed to the development of a sense that everyone was equal.

Meirens also described the white in their studio as follows: ‘The uniform was white. White is good to look at. During the show, we could tell at a glance that it was someone from our company’ (*We Margiela*, 2017). The white colour also served as a marker to link people in the company together as allies.

However, it is here that white also takes on the role of capturing side effects that are derived from Margiela’s (and Meirens’s) anonymity, as mentioned in the previous section:

The house’s democratic, determinedly anonymous uniform of the blouse blanche, the fact that any questions sent to Margiela are answered using the pronoun ‘We’ as opposed to ‘I’, and that it is a group of people as opposed to one man that comes out to receive the applause at the end of the show are all aspects of this one central idea. (Margiela, 2009:40–41).

In this way, the democratic discipline of equality, without hierarchy, which had been the Maison’s corporate culture, was replaced by a new discipline of ‘We’ by the glue of white.

In their official glossary, they also emphasised that the results of their work (for better or worse) are not the work of a single designer: ‘The Maison… The collective name chosen to highlight the work of the group rather than that of one designer. External communications using the word “We” rather than “I”’ (Margiela, 2009: 360-361).

In the film *We Margiela* (2017), the staff who worked at the Maison at the time described their mixed feelings about this 'We':

> Martin didn't speak, so 'We' did. There were many of us in the company, so we became 'We'. 'We' is easy to use, it's easy for the outside world to understand, and if you use 'We', you are not identified as you. (Axel Keller, then Commercial Director)
>
> 'We' can mean something positive, but it's also a cleverly deceptive use of the word. (Lutz Huelle, then knitwear designer)
>
> Margiela was like an opaque cloud, reflecting everyone's thoughts. White is a screen on which people project themselves a lot. (Patrick Scallon, then Communications Director)

For the Maison, and for the people who work there, white (= We) is a symbol of community, of unity, and of allyship. It does not identify you as an individual, it makes you feel safe. On the other hand, it also makes them involved and consistent in various responsibilities. Coordination, co-operation, group decision-making, and various democratic disciplines also arise there.

Lastly, a reflection on the sanctification of Margiela in which white was complicit. As explained in the first section, uncoated white readily stains and changes colour. For this reason, it has been considered as a sacred colour. If Margiela saw white as a symbol of the finite, he must have embraced white as it is with the passage of time. In a way, Margiela's obsession with white sometimes overlaps with this general symbolistic idea of white as a sacred colour. The peculiar structure of the Maison referred to in the previous paragraphs also accelerates the development of this kind of sanctity.

'Once you are in that company you have no choice. There was no such thing as working half-heartedly. That's why some people used the word "sect". That's what they thought of the company' (*We Margiela*, 2017). There is no denying that many fashion houses have this temperament, but with Margiela, there are too many factors leading to perceiving it as such, like, Patrick Scallon mentions that Margiela himself said: 'I exist by not showing myself' (*We Margiela*, 2017).

In this case, absence also evokes complex desires and expectations due to the conflict of wanting to see but not being able to see, and longing to touch but not being able to reach. The following facts also remain: 'What surprised us was that one day we sold out of nothing. The price was fixed, but we didn't tell them what we were selling. But everyone bought' (*We Margiela*, 2017). The customers' faith in Maison Margiela, their willingness to believe, creates a desire to buy his collection even when there is nothing presented. After all, white is one of Margiela's greatest assets, helping him to achieve many things, in some cases as intended, in others unintentionally.

5. Conclusion

The purpose of this research is to break through the conventional treatment and symbolism of white in fashion design, such as wedding dresses and sacred costumes, to focus particularly on the symbolism of white as reduction and absence, and to derive a creativity and potential of white that has not often been cited in fashion design. The investigation conducted above in Sections 2 to 4 has revealed how white has been incorporated and developed as a colour and method of expression, focusing on characteristic examples of architecture, art, and fashion design in and after the twentieth century. This section provides summaries of possibilities of creation with white derived from the results of the investigation.

5-1. Surpassing decoration

According to the summary in Section 2, Loos stated that the complex individuality of sophisticated modern society is no longer a shallow kind of content that can be expressed by superficial decorations and colours, and a lack of decoration leads to the creation of progressive attitudes to achieve various intellectual, spiritual, and cultural improvements.

Also, Le Corbusier stated that decoration itself erases and corrupts the inherent charm of an object, and that white brings us not the luxury of falsity, but the purity of finish that we really need: the true luxury of practical efficiency. In other words, the creativity of white derived here is 'white that surpasses decoration'. The layers on layers of decorations and colours that seemed necessary were completely unnecessary. In fact, it is the pursuit of white that leads to the acquisition of a more refined spiritual richness and luxury that cannot be obtained through decoration.

5-2. Creating a new world

Also, according to Section 2, Wigley stated that white surfaces can help build new kinds of space that were previously absent and invisible, and help re-establish ideas and spaces that had been lost behind things. The creativity that white brings is not simply neutral or pure, but is an 'active mechanism of erasure' that looks far beyond purification. Section 3 notes that Malevich also stated that the meaning of things – any aesthetic beauty, emotion, or consciousness – is meaningless: the transcendent being that represents the concept of reality and eternity is white. This is not a nihilistic point of view, but a craving for an extreme reconstruction of the prescriptive concept in order to create something new. Likewise, Takeyama stated that instead of leaning on the narrative or symbolism of the depicted object, there is a need to erase the meaning, extract the pure flow, and find new value and order in it. For Takeyama, reduction means to get rid of the meanings of colours and the stereotypes associated with them, and to create a rich white in order to create a new world. In other words, the creativity of white derived here is 'white that creates a new world'. The idea is to thoroughly detach yourself from all the information, knowledge, and prescribed concepts you have acquired so far, and turn everything into a pure white (*tabula rasa*). After a mental reset, creation begins in the new-born white, in a new, non-calculative world, according to new rules and concepts.

5-3. Artificial, together, fascination

The overview of Maison Margiela provided in Section 4 can be summarized in three parts.

Firstly, the meaning of information needs to be thoroughly anonymized to avoid affecting the work itself. The work must reflect the true meaning, not the meaning transmitted by such information. It is important to note that the concept of white in this case is the act of intentional anonymization based on the assumption that basic essential information exists, which is different in meaning from the removal of unnecessary decorations mentioned in Section 2. This kind of anonymity, such as withholding information about the designer or collection, or hiding the face of the model, is in a sense a contrived act of self-creation. In other words, the creativity of white derived here is 'artificial white'. White made on purpose: Where there should be information, but there is nothing… only white. It is only white, but the question 'why is there white?' cannot be erased, and people become more and more curious about white.

Secondly, 'White (= We)' is a symbol of community, unity, and alliance. It does not identify something, someone, or an individual, but it brings a sense of security. On the other hand, it is also something that makes it possible to be involved and consistent in various responsibilities. Additionally, it creates coordination, cooperation, group decision-making, and various democratic disciplines. In other words, the creativity of white derived here is 'white with everyone together'. It can be called the white of security and stability, but is this perhaps because white is just a sensible choice? It could be called universal white, but does white have that much value or qualification? Other motives will also be provided, which include the disappearance of individuality, peer pressure, and various other issues.

Thirdly, when white is singularly intertwined with absence, it sometimes causes mutation as a bizarre kind of sanctification. The conflict of wanting to see but not being able to see, and longing to touch but not being able to reach, evokes complex desires and expectations, adhesion, addiction, and clinging. White has the power to bring about both intended and unintended attraction. In other words, the creativity of white derived here is 'white fascination'. Is this fascination dangerous? It is not dangerous at all, because, as we may recall from the last time we were truly into something, there is a sense of elation that comes with being impulsively addicted to something. It is truly a pleasant sense of danger, like being hooked on a swamp of white.

5-4. Conclusion

The results of this research only extended to the extraction of the possibility of creation with white, but in the future, it will be necessary to develop it to a practical stage to examine if it can actually be cited as a new case study of fashion design. Ultimately, all the results will be compiled to combine the research and practical parts. In addition, this research was limited to an investigation of examples of white in architecture, fine arts, and fashion design in and after the twentieth century. Future projects will include examples of white from other eras and fields, and an investigation of more varied examples of white that can be developed into fashion design.

Figures

Figure 1 MOMA https://www.moma.org/collection/works/80385 [Accessed 29 November 2021]

Figure 2 ARCHIVED https://archived.co/FROM-0-TO-23-A-LOOK-INTO-THE-MAISON-MARTIN-MARGIELA-REFERENCE-GUIDE [Accessed 29 November 2021]

Figure 3 AnOther Magazine https://www.anothermag.com/fashion-beauty/7363/inside- martin-margielas-all-white-maison [Accessed 29 November 2021]

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AN ATTEMPT TO CREATE A NEW VALUE OF TRADITIONAL JAPANESE CLOTH: sustainable clothing design using *Sakiori* weaving

Author

Kyoko Kubodera,
Bunka Fashion Graduate University

Corresponding Author: k-kubodera@bunka.ac.jp

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Sakiori weaving, Sustainable Fashion, Upcycling, Japanese Traditional Cloth, Kimono

Abstract

The purpose of this study is to examine the effectiveness of *sakiori*, a traditional Japanese cloth, for sustainable fashion. Two characteristics of *sakiori* that may contribute to sustainable fashion are discussed: the "power of upcycling," and the "spirit of using things for a long time with care." Subsequently, an actual garment was created using *sakiori*, and the effects of its characteristics are examined. The *sakiori* technique, in which the cloth is torn into thin strips and turned into the weft for weaving, gives rise to the power of upcycling. This technique gives new design and uniqueness to the fabric, and the uncontrollable coincidence of the weft attracts people. In addition, as long as a fabric can be torn into yarns, any material, pattern, and color can be used, so it has versatility to be used across various fabrics. Given these characteristics, *sakiori* can make use of deadstock fabrics that have become a problem in the fashion industry. In fact, when observing brands developing products using the *sakiori* technique from deadstock of past collections, we found that not only does this reduce the deadstock, but contributes to the creation of new design concepts." The "spirit of using things for a long time with care," inherent in *sakiori*, originates during the Edo period (1603-1868), when cotton could not be cultivated in the cold Tohoku region, and cloth was precious and difficult to obtain. It was from here that such a spirit emerged from the thoughts of the weavers when creating *sakiori* and from the cloth itself, which carries and passes on the existence of people from the past and their stories onto future generations. A garment was created using *sakiori* to examine the characteristics and the role it plays. Kimono fabric was upcycled through *sakiori* into a beautiful fabric, upgraded into a modern and sporty design, and transformed into clothing that can be worn on a daily basis. By using the kimono fabric inherited from the author's grandmother, she also inherited her grandmother's and mother's history and became more attached to the piece. It was confirmed that *sakiori's* technique and spirit nurtured throughout time possesses great potential in sustainable fashion. In particular, its upcycling power and the spirit of using things for a long time with care are effective against the problem of product life cycle shortening caused by the mass production and disposal of clothing.

Introduction

The meaning of making clothes is increasingly being questioned. At the 2019 United Nations Conference on Trade and Development, the fashion industry was identified as the world's second most environmentally polluting industry. According to the United Nations, society, economy, and the environment have been negatively impacted by fast fashion. The dominant business model in the sector is that of "fast fashion", whereby consumers are offered constantly changing collections at low prices, and encouraged to frequently buy and discard clothes. The mass production and mass disposal of clothing occur with the lowering of clothing prices in fast fashion and the shortening of the clothing life cycles fast fashion causes. Both mass production and disposal requires the consumption of enormous amounts of energy and water, the emission of greenhouse gases, and other environmental problems such as microfiber pollution of the oceans.

To address these issues, focus is given to two characteristics of *sakiori*, a traditional Japanese fabric: its "power of upcycling," and its "spirit of using things for a long time with care." The purpose of this study is to clarify whether these two characteristics of *sakiori* are effective for sustainable fashion, and to verify their function through the production of clothing pieces.

The research methodology consists of the following three sections. Section 1 defines upcycling and then describes and discusses the characteristics of *sakiori* and its upcycling potential. The relationship between *sakiori* and upcycling will be analyzed based on specific examples of international fashion brands such as Issey Miyake Men and Anrealage. Section 2 examines how *sakiori*'s "spirit of using things for a long time with care" was born from particular historical and cultural contexts. Section 3 examines the effectiveness of *sakiori* for sustainable fashion by actually creating a garment using *sakiori*.

Sakiori and Upcycling

The term "upcycling" is attracting interest as active efforts take place around the world to address environmental issues. These include efforts to reduce waste, reuse goods, and recycle resources. Upcycling is gathering attention as a way to effectively use resources by transforming unused goods and discarded material into products with added value. For example, Ecoalf, a sustainable fashion brand that began in Spain in 2009, has been carrying out a project called "Upcycling the Oceans," in which plastic waste in the oceans is collected, sorted, renewed, and given new life as new products. Similarly, Mafia, a San Francisco–based bag brand that began in 2012, has been producing bags made by upcycling unused sailcloth. These two companies have obtained B Corporation, which is an international certification conferred on companies of high social and environmental utility; they are considered to be outstanding companies in terms of environmentally and socially oriented performance, transparency, accountability, and sustainability. There has been an increase in brands and projects such as these, which use the term "upcycling" in their official descriptions. However, there are ambiguous aspects to the use of this word. Therefore, the definition of the term "upcycling" should be clarified. Wegener C describes upcycling as follows:

> In the simplest terms, upcycling is the practice of taking something that is disposable and transforming it into something of greater value. Therefore, when we upcycle, we create something better out of what is already at hand. Upcycling counters the argument that an object has no value once it is disposed of or that it must be destroyed before it can reenter into a new circle of production and value-creation. [….] Upcycling is not just a design approach. The upcycling processes and upcycled products demonstrate the interrelation between old and new and even dissolve 'old' and 'new' as distinct categories in a way that is relevant to our general understanding of creativity. In upcycling, the past is embedded in the present, and that the future is already here. The short story is that creativity does not follow the logic of linear progression from new to old.
>
> (Wegener C, 2016:181)

Thus, rather than turning unneeded products into raw materials or reusing them, upcycling involves producing things that have a higher value than the original products. Moreover, in addition to the design approach to adding value, upcycling involves creative work that transcends the concepts of "old" and "new" and transverses the past, present, and future. Having defined upcycling in this way, and its relevance to *Sakiori* will be discussed.

Ripping and weaving is a great way to utilize fabric deadstock and has the potential to reduce disposal amounts. According to Queen of Raw, an online deadstock market website, the amount of unused fabric in the industry exceeds $120 billion annually. Considering the environmental impact of fabric production, this is hardly an ethical way of production. The word *saki* in *sakiori* means to tear in Japanese, while *ori* means to weave. Originally, *sakiori* used hemp yarn for the warp, and torn clothes for the weft. By tearing, the original colors and patterns of the cloth are deconstructed, and by weaving, they are given new positions. The uncontrollable coincidence of where the weft ends is what makes it attractive, and gives a new design to the fabric. Not only does it have a warm and unique texture that only hand weaving can give, it also produces original, one-of-a-kind pieces (Figure 1, Figure 2). In addition, the technique can use any material, as long as it can be torn and made into yarn. Furthermore, since the fabric is torn, it is not affected by trends in fabric selection; in other words, it can be used universally across a variety of fabrics.

Figure 1. *Sakiori* vest, Author unknown, production year unknown, Kyoto Prefectural Tango Regional Museum

Figure 2. *Sakiori* rug made of fragments of old textile, Goro Aota, Early Showa Period (1926-1941), cotton and silk, Asahi Beer Oyamazaki Villa Museum of Art

Sakiori is attracting attention as an upcycle material because of these characteristics and is being used in the products of international fashion brands. Issey Miyake Men presented items using *sakiori* in its Autumn/Winter 2013 collection "Winter Wisdom & Urban Mobility" (Figure 3). Previous collections fabric stock was transformed into a modern style using the traditional *sakiori* technique. Recycled polyester was used for the inner parts of the sides and sleeves. In 2014, Anrealage teamed up with workshops and artisans in the areas affected by the Great East Japan Earthquake in the "Tokyo Designers meet Tohoku" project to produce, exhibit, and sell original items. *Sakiori* weaving was done using the leftover fabric of the brand, collectively producing men's and women's wear with "Sansa Sakiori Koubo Saccora Japan" Morioka City, Iwate Prefecture (Figure 4). In 2018, "Sansa Sakiori Koubo Saccora Japan", which collaborated with Anrealage, was also commissioned by Asics Onitsuka Tiger to produce sneakers using *sakiori* fabric (Figure 5). Denim scraps from domestic denim factories and man-made suede material that had been lying in stock were used as weft yarns, and the *sakiori* cloth was used in the upper design of the sneakers. The use of past stock fabric by brands portrays an attitude of sustainability. In addition, the *sakiori* technique can conceptualize the themes and stories of past collections, or mix different themes, contributing to the creation of new design concepts. To reiterate, *sakiori* is creating new values by reusing the dormant resources of today.

Figure 3. Issey Miyake Men 2013 A/W collection, Winter Wisdom & Mobility

Figure 4. Collaborated Jackets between Anrealage and “Sansa sakiori kobo saccora Japan”

Figure 5. Collaboration sneaker using *Sakiori* between Onitsuka Tiger and Sansa sakiori kobo

The Spirit of *Sakiori*

Sakiori' s "spirit of using things for a long time with care" stands face to face with the problem of short product life cycles in modern fashion. Since 2000, the rise of fast fashion has increased the production of clothing and encouraged overconsumption. According to McKinsey Sustainability, the production of clothing doubled between 2000 and 2014. In turn, the number of clothing items purchased increased by 60% per person on average, but the length of time they were kept was roughly halved. According to Carbon Trust, simply wearing clothes for longer reduces various environmental impacts. In terms of greenhouse gases, doubling the lifespan of clothes from one to two years would reduce annual emissions by 24%. In this section, the historical and cultural background of the *sakiori* "spirit of using things for a long time with care" will be discussed.

"Don't throw away any cloth that can wrap three red beans," is a saying in the Tohoku region of Japan, where the weather is very cold. That is how precious cloth, especially cotton cloth, was to the people of this region. During the Edo period (1603-1868), cotton could not be cultivated in such a cold region, so the warm cotton clothes and second-hand cotton clothes brought by ship from Osaka, a big city in the west, were very valuable to them. When these clothes tore, they were patched up, and when they could no longer be worn, they were torn into thin strips and reused as yarn for weaving. This is how *sakiori* was born. A thick and strong fabric, *sakiori* was used for work clothes, sleep clothes, kimono obi-belts, and rugs.

Sakiori is a traditional technique born out of the spirit of using things for a long time with care. An example of the life of *sakiori* can be seen through a kimono. A kimono is made from a single piece of cloth, which is cut and sewn in straight lines, so when it is unstitched, it turns into a collection of parts that form a single piece of cloth. Reaching the end of its life, the kimono is unstitched. Then the cloth is torn into thin strips and woven, thus it is reborn into a new *sakiori* cloth. This cloth is made into a jacket and is first used as a nice piece of clothing for going out. Later, the sleeves are taken off and made into a vest, used as work clothes when carrying items on one's back, or harvesting wheat. When the cloth is worn-out or torn, it is patched up. When it becomes tattered, it is used as cloth for patching, as diapers, or cleaning rags. At the end of its life as a piece of cloth, it is twisted into a rope and lit on fire to repel insects during farm work. Burning to ashes, the cloth becomes compost for the land; hemp and cotton grow from the land, which become cloth, and finally return to the land once again. In this way, the longevity of the *sakiori* cloth used with care, and sometimes handed down over generations from parents to children, to grandchildren, while changing shape multiple times.

In addition, urban areas in the Edo period had systems for increasing the longevity and durability of various products. During this period, material resources were in chronically short supply. Therefore, to avoid wasting precious resources, the development of urban life was accompanied by the development of a recycling system that used sophisticated methods for the collection, reuse, and renewal of waste and unused goods. Recycling was a part of the period's industry, and there were merchants and craftsmen with specialized skills who profited from recycling. Some craftsmen specialized on the repairs of metal hardware such as pots and pans or in sharpening tools such as knives. There were also businesses that focused on collecting materials and products which included used paper items, second-hand clothing, and ashes.

Various ways to increase the longevity and the durability of goods were devised and practiced as natural and integral parts of life.

One reason why *sakiori* was not immediately thrown away, but was treasured for a long time, is because cloth itself was very expensive and precious in the past and difficult to obtain. However, this cannot be the only reason; we all have clothes and items that we cannot throw away, and not necessarily because they are expensive or valuable. For example, I still cannot throw away the clothes and small pouches my mother made for me when I was a child. This is because I imagine the time she spent making them while thinking of her daughter, and this adds value to them. Moreover, the communication and memories that occurred between my mother and the items, are the reason for their existence. In *sakiori*, the act of tearing the cloth and weaving it by hand while thinking of someone becomes the added value of the cloth. Not only does *sakiori* include the background of the creator, but the cloth used for *sakiori* itself carries the stories of the past. *Sakiori* becomes a hub of the past, present, and future, connecting the lives of everyone related to the cloth, and a relationship of attachment between people and items emerges.

Sakiori **and Clothing Design**

Sakiori was used to create a garment to examine the potential of *sakiori* for sustainable fashion. The *sakiori* cloth used here was produced with the cooperation of Takamitsu Orimono Factory Co., Ltd. (henceforth: Takamitsu Orimono), which is located in Kiryu city, Gunma prefecture, Japan. Kiryu is a silk capital that began offering silk to the Imperial court about 1,300 years ago. In the Edo period (1603-1868), Kiryu was given preferential treatment by the *shogunate* and prospered as a place of silk fabric production. Starting from the production of silk fabrics for kimono and kimono obi-belts, today, active development of textiles occurs using the latest technology and a wide variety of natural and synthetic fibers there. The area has become a textile production hub where outstanding techniques of dyeing, weaving, knitting, and embroidery are concentrated, meeting the needs of various fashion brands in Japan and abroad. Takamitsu Orimono was established in Kiryu in 1913, and is currently managed by Mr. Yasuro Takahashi, the fourth generation. Mr. Takahashi has been certified as a Traditional Weaver of Kiryu Cloth, a Traditional Handicraft designated as such by the Japanese Minister of Economy, Trade and Industry. He specializes in the weaving techniques of *mojiri-ori*, *washi-ori*, and *sakiori* and mainly produces kimono and obi-belt fabrics. The company also runs a direct-to-consumer business model, in which it receives kimonos that are no longer being worn from customers, weaves them into *sakiori*, and makes them into obi-belts.

The cloth used for *sakiori* in this study is a kimono inherited from the author's grandmother (Figure 6). According to my mother, this kimono was made using the kimono cloth my grandmother had saved for my mother's wedding. In Japan, when a daughter marries, she is given a set of 'tools' so that she will not have any trouble in her new life; "*yomeiri dōgu*," which means "bride-to-be's tools." A kimono is one such tool. My mother wore this kimono for special events, such as my elementary school graduation. I inherited this kimono from my mother when I graduated from university. The fabric of the kimono is white with red and white

floral patterns on a background of light pink and light purple plants and trees (Figure 7). The material is 100% silk.

Figure 6. The kimono used for production

Figure 7. Close up view of the kimono pattern

The production method of *sakiori* is as follows: First, the kimono is unstitched and returned to a single piece of cloth. The cloth is then torn into thin strips of 5 mm width with scissors and wound around the wooden bobbin of the shuttle for the weaving machine (Figure 8). The warp is set with 672 warp yarns, and each individual warp yarn is made from reeling 10 threads of 21-denier raw silk. This is the same specification as the *sakiori* obi-belt that Takamitsu Orimono usually makes, and the finished fabric is 31 cm in width. The weft is made by alternating the 5 mm torn cloth yarn and the same silk yarn as the warp. To weave the fabric for each torn fabric thread, the silk thread is passed through the weft five times (Figure 9). It took about one month to produce 10 meters of *sakiori* (Figure 10). The resulting *sakiori* cloth

is a beautiful, transparent, and light tweed-like cloth that softly retains the colors and style of the original kimono pattern, but with less Japanese elements.

The clothing item produced was a half coat with a flared silhouette. In order to make the best use of the *sakiori* fabric itself, I tried to make the design with straight lines and as few pattern changes as possible. The elbow-length sleeves are drop-shouldered, and a large tuck was included in the back to create a fuller silhouette toward the hem. Tucks were also added on the sides around the waist to create a point. The blouson type collar and the zip front closure bring in a sporty element. In terms of pattern making, I focused on how to make the sides thicker and more three-dimensional within the limitation of the 31cm cloth width. I adjusted the vertical roominess by loosening the slope of the shoulders (Figure 11). As for the sewing specification, all the seam allowances were piped with the leftover kimono cloth. The necessary length of fabric was 7.25 meters, and the cut pieces were made with the least possible amount of waste (Figure 12).

Next, I will examine how the creation of this piece reveals the potential of *sakiori* for sustainable fashion. The kimono used for *sakiori* here was handed down from mother to daughter across three generations, but I had never worn it before. Nowadays, kimonos are mostly worn for ceremonial occasions, and rarely in daily life. Additionally, the pattern of this kimono differed from my taste. These issues were addressed by upcycling using the *sakiori* technique. The kimono was transformed into a beautiful, one-of-a-kind fabric through *sakiori* and subsequently made into a modern and sporty coat that can be worn on a daily basis (Figure 13). Furthermore, *sakiori* weaves in the story of the kimono are figuratively being handed down from my grandmother, to my mother, and from my mother to myself. This made me more mindful of inheriting my loved ones lived out memories and to cherish them with affection and care adding to the longevity of this item. I would like to pass this on to my daughter someday.

Figure 8. 5mm width thin strips wound around the wooden bobbin in preparation for weaving

Figure 9. *Sakiori* weaving process

Figure 10. Completed *Sakiori* fabric and Close up view
(left: original kimono fabric right: *Sakiori* woven fabric)

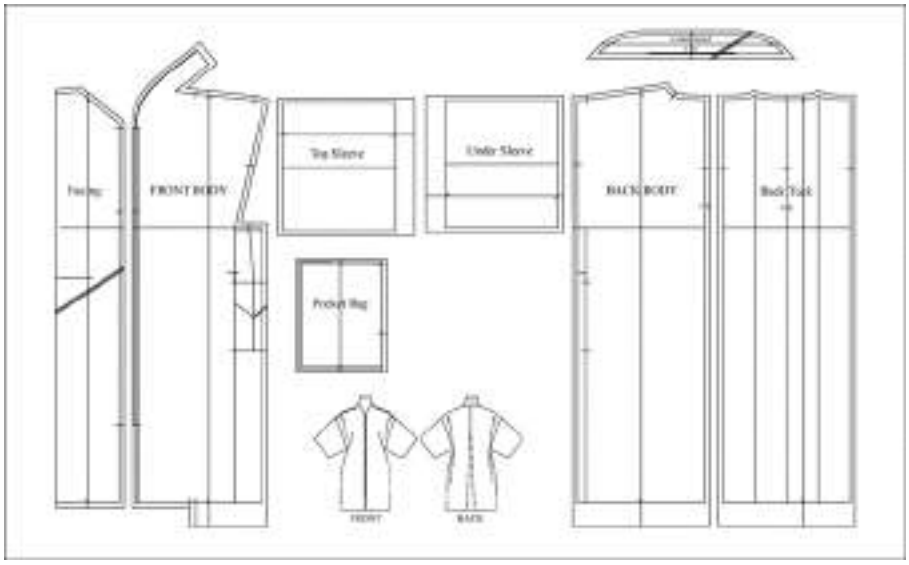

Figure 11. *Sakiori* half coat pattern

Figure 12. Pattern layout for cutting

Figure 13. Completed *Sakiori* half coat design

Conclusion

Section 1 discussed how the upcycling power of *sakiori* can be applied for sustainable fashion. This technique gives new design and uniqueness to fabrics, and can be used to eliminate fabric deadstock in the industry. By focusing on brands that have actually used *sakiori* in their products, it was shown that the *sakiori* technique can conceptualize the themes and stories of past collections, mix different themes, and help to create new design concepts.

Section 2 discussed how *sakiori's* spirit of using things for a long time with care was born from historical and cultural contexts. This spirit was born in the context of the Edo period, when urban areas had systems to increase the longevity and durability of various products, and where cloth itself was very precious due to the fact it was difficult to obtain. In addition, the weavers' thoughts when making *sakiori*, and the people and stories of the past were passed on to the cloth itself figuratively as it was handed down from generation to generation, creating a relationship of attachment.

Section 3 examined the potential of *sakiori* towards sustainable fashion by using *sakiori* to create an actual garment. A kimono, which was handed down across three generations from

my grandmother was used for *sakiori*, which in turn was made into a half-coat with a sleek, flared silhouette. The kimono fabric was upcycled by *sakiori* into a unique and beautiful fabric, and transformed into a modern and sporty garment that can be worn on an everyday basis.

From this study, it was confirmed that the technique and spirit that *sakiori* has nurtured over time have great potential in contributing to the future of sustainable fashion. In particular, the upcycling power of *sakiori* and the spirit of using things for a long time with care are important in addressing the problem of product life cycle shortening caused by mass production and disposal. The examples introduced in Section 1 and the garment produced for this study and introduced in Section 3 have both similarities and differences. They both used *sakiori* techniques to salvage deadstock and give the fabric new life, creating new products with added value in relation to the temporal concepts of the past, present, and future. On the other hand, while the previous examples performed *sakiori* using deadstock and discarded material, the garment for this study was interwoven with the marks of an individual's existence in this world, as it used the author's late grandmother's kimono. The presence of such marks increases attachment, contributing to the longevity of items. While their versatility and marketability are limited, human attachment and the extension of the longevity of things that accompany this attachment can inspire the motivation to think and design sustainable fashion, as well as helping to re-imagine fashion for the future. Further considerations on versatility and marketability are needed in future research.

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Figure List

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TAKING STUDIOS VIRTUAL AND ELEVATING CRAFT

Authors

Traci Lamar and Kate Nartker,
Woodbridge, Janie NC State University, Raleigh, NC, USA

Corresponding Author: traci_lamar@ncsu.edu

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Craft, digital, materials, pedagogy, design Process

Abstract

In early 2020, faculty were asked move our fashion materials studios online. In a program where the pedagogy emphasizes practice using state-of-the-art technology and equipment, students lost studio spaces and an environment that encouraged collaboration with experts and peers, and they lost access to the most important design, development, and prototyping techniques in their toolbox. Faculty sought new pedagogies and innovative ways of teaching and practicing, developing novel approaches by finding innovative ways to meld centuries-old techniques with digital tools in a virtual environment. Unexpected benefits were gleaned as students embraced handcrafting processes as a means of enriching their design process and outcomes and expanding their breadth of knowledge. Over time, students were able to integrate both approaches in their practices, advancing their design processes and furthering their thoughtful exploration of fashion materials. Holistic integration of craft and technology engaged students in understanding through haptic perception and material intelligence. This paper focuses on the role going virtual with studio courses played in enhancing students' integration of craft and technology in creating the materials of fashion. Through case studies of three technology-based courses, we discuss how a deeper exploration of craft and increasing the role of the designer's hand in making unexpectedly enhanced creativity and breadth of design outcomes. We analyze the impact of integrating craft techniques on student work and on their approach to design through a critical analysis of student projects and learnings. We also discuss the novel ways in which students interlaced craft materials and processes with digital tools. Our aim is to contribute to the larger discussion related to design, technology, and craft and to explore how this intersection can expand the development of design methods and new aesthetics.

Introduction

In early 2020, faculty were asked to do what was previously considered unthinkable; move our fashion materials studios online. The pedagogy in the Fashion and Textile Design program in our university emphasizes practice using state-of-the-art technology and equipment. Our students rely heavily on industrial CAD systems and tools, and production scale prototyping equipment, becoming highly skilled in digital design and the use of industry-standard software programs and practices. In addition to losing studio space and an environment that encouraged collaboration with experts and peers, students lost access to the most important design, development, and prototyping techniques in their toolboxes. With many of these industrial technologies inaccessible, faculty sought new pedagogies and innovative ways of teaching and practicing in our curriculum. Instructors developed novel approaches to teaching by introducing handcrafting practices and finding innovative ways to meld centuries-old techniques with digital tools in a virtual environment.

Though many of the consequences of this pedagogical shift were anticipated and challenging, unexpected benefits were gleaned from the experience. Students embraced the handcrafting processes, not as a replacement for technology but as a means of enriching their design process and outcomes and expanding their breadth of knowledge. Over time, as we developed electronic methods to ease back into working with the extensive industrial technologies, we found that many students did not abandon the crafting processes or forego leveraging the technology. Rather, they were able to integrate both approaches in their practices, advancing their design processes and furthering their thoughtful exploration of fashion materials. This is consistent with Cyr's (2014, p. 2) conclusion in her study of craftsmanship and technology that "craftsmanship brings new modes of thinking and engaging" to design and the materiality of fashion. Holistic integration of craft and technology engaged students in understanding through haptic perception and material intelligence.

This paper focuses on the role going virtual with studio courses played in enhancing students' integration of craft and technology in creating the materials of fashion. Through case studies of three technology-based courses, we discuss how deeper exploration of craft and increasing the role of the designer's hand in making unexpectedly enhanced creativity and breadth of design outcomes. We analyze the impact of integrating craft techniques on student work and on their approach to design through a critical analysis of student projects and learnings. We also discuss the novel ways in which students interlaced craft materials and processes with digital tools. Our aim is to contribute to the larger discussion related to design, technology, and craft and to explore how this intersection can expand the development of design methods and new aesthetics.

Background

When working with textile handicraft techniques, such as handweaving, knitting, or needlepoint, one develops an embodied understanding of material properties and behavior. Balanced tension, for instance, is difficult to grasp until one feels the material pulled taut or slacking. Identifying the textural variance between different yarns is possible through visual assessment, but handling the fibers themselves leads to a deeper, instantaneous understanding. This haptic knowledge is something design researchers have attempted to theorize for the past several decades. Anni Albers discussed the inability to articulate the knowledge gained from working with materials, but felt that it was a type of internal awareness that can be described as tacit knowledge (Albers, 1959). In 1983 Schön (as cited in Bye, 2010) developed the concept of the reflexive practitioner which is based on the idea that understanding is something that develops during the process of design. Johnson (2007) went on to build on this theory by advancing the concept that knowing involves action and practice, meaning that the design process serves as the basis of understanding when it is practiced with reflection, critique and creativity.

The benefits of integrating hand techniques into the design process have been documented in previous research. Philpott (2012) found that innovation in textile production was generated through the designer's physical response to the behaviors of the material, something that was not possible when designing in a digital interface. This was echoed in Pinski, Evans and Kane's (2019) study that examined the integration of handwoven textile processes in commercial footwear design. They found that introducing handweaving techniques early in the design process fueled innovation, generated in-depth knowledge, and enhanced control in decision-making. Further considerations related to material properties and product design were approached simultaneously, leading to improved design outcomes.

Today, textile and fashion designers are increasingly using digital design tools to conceptualize and develop commercial applications. 3D software, for instance, is being used as a hybrid design and prototyping tool and is even being expanded for merchandising and marketing visualizations (McQuillan, 2020). Petreca (2017) argues that digital design tools should augment, not replace, a designer's embodied experience and that it is critical to maintain bodily engagement in the design process. While digital tools provide undeniable value in improving efficiency and reducing material waste, relying heavily on digital design methods can also limit discoveries and the innovation that is generated from hands-on making. Contributions of materials designers who embrace hand crafting techniques evidence the value this brings to materials of fashion. For example, most of Rebecca Atwood's designs begin as sketches in watercolor, gouache, or simple pen and ink (https://rebeccaatwood.com/pages/process) and end up in beautiful home fashions like those for Pottery Barn (Holdefehr, 2020). Iconic designer Dame Zhandra Rhodes also begins her textile design process by sketching or painting on paper (Bowers, 2011).

The improved problem solving skills that designers gain from grappling with materials is reduced when working digitally from ideation through design finalization, then engaging with materials only when ready to prototype. The haptic knowledge gained from engaging with materials off the screen can play a critical role in expanding the design process. One only has to imagine detangling a string visually to acknowledge the significance of touch as a means of figuring something out. In the context of higher education, textile design programs are challenged to prepare students for an industry that is centered around digital design methods, while ensuring that students acquire a foundational understanding of material properties and textile construction techniques. Industrial CAD programs can be highly complex and require tremendous amounts of time and practice to develop competency. Balancing this with slow and laborious hand processes in a four year program is difficult, not only because of the time, but also the cost of materials, tools, programs, and skilled faculty required to teach each skill set.

This is further complicated when taking into account the historical underpinnings that have positioned craft and industry in opposition to one another. In his seminal book, "The Craft Reader", craft theorist Glenn Adamson examines the Arts and Crafts movement as well as contemporary "DIY" revivals, arguing that craft holds a vital presence in industrial production (Adamson, 2018). Still, the marginalization of craft in fine art and design can be found in the pedagogical priorities of higher education and design aesthetics. Even with the revival of handicraft techniques, negative connotations of craft are commonplace.

In an institution that is known for innovation and technologically advanced collaborations with industry partners, it can be difficult to imagine a place for handcraft. Our curriculum focuses on CAD design processes and utilization of our state of the art industrial facilities.

Students graduate with advanced skills in digital and technical design, in large part due to this emphasis on industry standard CAD programs. The irony that moving courses online to a virtual space ushered in an emphasis on handcraft processes is the focus of our paper. In the following three case studies, we examine novel ways faculty integrated hand techniques to replace access to technology and equipment. We critically analyze student work to locate the ways in which students expanded their design practices with new hand processes and modest materials. The case studies presented are in sequential order within the four year, cohort based undergraduate curriculum.

Case Study 1

Yarn Design Studio is a second year course that introduces students to the yarn design process. In a typical semester, students complete a series of exercises that range from classifying yarn to creating and dyeing their own yarns, and then applying yarns to a fabric through knitting, braiding and weaving techniques. Throughout the course, students develop an understanding of yarn so they can effectively choose appropriate fibers for textile

applications. Outcomes of the course include a physical binder with samples and a final project focused on combinations of techniques learned in the semester. The use of industrial equipment is heavily emphasized and several exercises rely entirely on industrial technologies. For instance, some exercises include yarn analysis using ASTM standardized physical testing equipment, and yarns and fibers are dyed with industrial lab equipment.

When exercises involve the use of hand techniques to aid understanding, they are often paired with technology-based practices. Examples include hand braiding later executed on industrial braiding equipment, hand spinning that is then translated to industrial spinning machinery, or hand knitting later executed on knitting equipment. The exercises result in hand-produced samples and larger industrial samples that students can compare to investigate the differences. Often, students are so enamored with the efficiency of the industrial machinery that they lose focus of the importance of hand techniques to their learning.

When the course moved online, both the structure and the content changed. While biweekly meetings continued online, the length of the synchronous class time was reduced allowing students to work on exercises at their own pace off screen. With no access to industrial equipment, all of the class design exercises focused on hand development processes.

Handcraft techniques that were added include needle felting, rug hooking and macramé knotting. Students were provided with a supplies packet including items such as drop spindles, wool roving, needle felting materials, knitting needles, rug hooking supplies and a selection of yarns. Lectures related the hand techniques to industrial processes, and exercises that had previously relied on industrial lab equipment were adapted for execution by hand at home. Fiber and yarn dyeing techniques were recreated with at-home ingredients of food coloring and vinegar. Spinning was done on drop spindles, and yarn analysis was carried out by visual and physical observation. At the end of the semester a digital portfolio documenting all exercises was submitted in place of the physical binder usually required.

After the initial exercises, students were assigned to create a final collection of soft products for the home using the techniques they had learned. For this collection students could use a combination of handmade samples and digital simulations to convey their ideas on a larger scale. Adding the digital CAD component enabled students to see their material concepts through to a final large-scale application and evaluate how the materials translate into application.

The course changes came out of a necessity, yet several benefits led to students' deeper understanding of the materials and innovative ways of working with them. Allowing additional time for material engagement deepened understanding. In actually feeling the fibers draw into the yarn during hand spinning and observing the fibers binding together during needle felting, students could engage more closely with the materials. Several developed a passion for the processes, continuing on with spinning, felting, macramé or rug

hooking, long after the class was completed. A couple of students independently investigated dyes after the home dyeing exercise, experimenting with coffee, tea and other natural dyeing methods.

It was noted that this group of students was more open to experimenting and mixing materials than previous students who had taken this class. Some students experimented with weaving or knitting using unconventional materials such as plastic bags, rubber bands or plants. Others took to creating and weaving on alternative looms like an embroidery hoop, plastic bin and a loom created from found sticks. Experiments with unique combinations of materials, such as wool roving needle felted to velvet or knotted macramé that was then painted, were seen. It is possible this openness to experimentation came out of a deep engagement and curiosity about the materials and process.

The time spent with hands-on making and craft became a critical outlet for the students in a time when all of their education was also virtual. The focused energy on craft provided a respite from the virtual time on the computer, as students highlighted in their class evaluations.

Case Study 2

In Woven Textile Design Studio I, students in their third year are introduced to handweaving through the use of 16-shaft computer assisted dobby looms. The dobby looms use electronic devices to lift the shafts during weaving, driven by weave drafts created in the woven design software program, WeavePoint. Students learn how to create weave drafts of woven structures and patterns in WeavePoint. The design process requires both digital and physical processes as pixelated patterns are translated into physical woven material. To students who have never woven on a floor loom, this introduction to weaving is somewhat abstract, as the digital pattern comes first. It is only once the student begins weaving that they are able to see firsthand how yarns impact a pattern, how colors interact, or how the woven fabric behaves. WeavePoint software allows students to explore complex structures and engage in rapid experimentation.

When the course moved online, content had to be completely redesigned as students lost access to the dobby looms, WeavePoint software, and essential tools and materials. 18-inch wide tapestry looms replaced the computer controlled 16-shaft looms, and students were taught how to set up their looms with four leashing bars, or heddle rods that allowed four-shaft structures to be woven without having to manually thread the weft over and under warp ends. The aim was to continue exploration of basic woven structures and complex patterning to create fabric for design applications.

In many cases students developed refined designs that concealed the use of the tapestry loom. Especially when mapped onto products, these handwoven samples almost appear as durable,

industrially woven fabrics. As students gained confidence in weaving and in understanding woven structure development, experimentation was pushed further. The flexibility of the tapestry loom and the ability to manipulate patterns was leveraged.

Much of this experimentation was self-directed as students made discoveries at the loom. The ability to develop patterns *while* weaving, rather than ahead of time on a screen, allowed students to make real time connections between interlocking threads and visual or textural effects. There was not a digital weave draft leading the development of the fabric; it was the students themselves, who could change course and try new techniques at any point. The slower pace of working fostered reflection and observation, which led to a productive curiosity. For example, one student discovered his pattern was manipulated by an area of warp yarns that were slack on the loom. He decided to exaggerate the imbalance of the warp tension to see how the optical effects of the pattern could be enhanced. Clearly this is not ideal for commercial textiles, but as "idea fabrics" these techniques served as a starting point for further development.

For the final project, students created collections for applied design applications, such as home furnishings or apparel, or they could develop experimental weavings focused on textural effects. In each case, the expectation was to further refine techniques learned previously or to research new techniques independently. For students who wove collections, a significant amount of time was spent rendering woven samples into "digital yardage" and mapping fabrics onto commercial applications. These projects did not carry the language of craft or show signs of tapestry weaving as traditional weaving techniques were not utilized. Students rather displayed their understanding of weave drafting through pattern variations that they developed on their own.

One of the fourteen students built a physical product, a headboard woven with 1" wide leather strips. This weaving was completed without the use of a loom, and required the student to develop her own method of securing strips of material together. As students were not stationed at a floor loom throughout the semester, they were accustomed to setting up tapestry looms, carrying them around, and taking their weavings off again and again. In contrast to setting up a dobby loom, which can take up to a week to complete, the warping of the tapestry loom can be achieved in less than a few hours. This flexibility, and the simplicity of the loom, deemphasized the equipment itself, and enabled students to think of weaving in ways that are not dependent on a loom. While it is difficult to imagine transitioning from a 16-harness pattern on a dobby loom to loom-free weaving, it is less of a leap to go from a handheld loom to a table top.

For the students who explored tapestry techniques, a range of effects were achieved. One student focused on discontinuous wefts to create asymmetrical compositions with varying density. Open areas with leno lace patterns were contrasted with dense sections of plain weave. While complexity in structure was not the emphasis in this case, experimentation with material and the weaving process itself is visible. There is a sense of spontaneity that

comes across as decisions were made throughout the process to leave areas unwoven. Tapestry weaving lends itself to this way of working, compared to a computer controlled loom. For example, one can decide to work on the entire left side of a weaving on a tapestry loom before moving on to the right. On a floor loom, one is confined to building the weaving line by line, from the bottom up. Any change in pattern requires stopping the weave function and loading a new weave draft. The interactive nature of tapestry weaving gives the weaver, again, a sense of control and freedom from the loom set up. From a teaching standpoint, one can see how this may lead to greater confidence in the process.

In reviewing what students gained from working with the tapestry looms, one of the greatest benefits was perhaps the opportunity to experiment with a wide range of handweaving techniques. Because it was not feasible to focus exploration on complex weave structures in the same way one can on a dobby loom, students were challenged to improvise and push the potential of tapestry weaving. The areas of exploration include irregular warp spacing, warp painting, discontinuous wefts, alternative materials, off-loom weaving, leno weaving, imbalanced warp tension, and pictorial weaving techniques. Students also made discoveries on how to integrate handweaving techniques with digital tools. For example, students translated pixelated images to weavings through printed grids that were then used as guides. The creation of "digital yardage" from handwoven samples also required a new skill set to digitally resolve irregularities in the fabric.

Throughout the semester, students made connections at the loom, rather than dividing the process between a digital design phase and physical making. This in large part led to confidence that enabled robust experimentation. There was little hesitation in trying something new, whereas students in previous semesters were tasked with learning how to operate complex equipment and a new CAD program, while also learning foundations about basic weave structures. Independent problem solving is difficult in this scenario as the loom must be set up properly and settings in weave drafts must be correct in order for the loom to function. Working on a tapestry loom, however, is more forgiving. One can easily see how weave structures form and when errors are found, it is possible to explore solutions without a significant penalty if one fails.

It was also empowering for students to see that tapestry weaving, a process they could do at home with simple equipment and minimal supplies, can be used as a sophisticated design and development tool for commercial fabrics. Emphasis was placed on contextualizing the woven samples as conceptual prototypes that could potentially be expanded for industrial use. Mid Century examples were discussed in class, such as Dorothy Liebes's handwoven works and her collaborations with industry partners. Students found inspiration in the potential of bringing the craft of handweaving to commercial applications.

Case Study 3

The third case focuses on a fourth year collection studio for materials designers. As conceived, it is a capstone experience for students who have previously had two and a half years of courses learning specific technology-focused techniques. The prerequisite courses include computer aided textile design, yarn development, weaving with computer assisted looms, flat bed knitting with computer driven knitting machines, machine garment knitting and electronic jacquard weaving. In each of these studios, students learned in parallel complex software, machine and production variables and designing for a given output. Little time is left for exploring slow processes associated with manual craft.

However, the first group of fourth year students to return to campus as pandemic restrictions began to ease brought with them a very different prior learning experience. They had spent nearly a year engaged in virtual studio learning, without access to production equipment that provided the cornerstone of their learning. In non-pandemic times, working alongside skilled technicians to produce their designs on powerful production equipment brings the learning home for students. In those moments as their designs are actualized, ideas that seemed esoteric and unimportant begin to evolve into meaningful knowledge enabling the student designers to push the machines and materials. But without access to the equipment, understanding of how a digital concept might translate to a physical production sample suffered. These students' electronic jacquard weaving and garment knitting studios took place remotely with students unable to experience translating their digital concepts to physical output. In electronic jacquard weaving, for example, these students never got to experiment with new materials and constructions on the electronic jacquard loom, a typical experience in the course. They struggled to grasp concepts of scale, repeating pattern and aesthetics of a physical output as they demonstrated less confidence in the jacquard process. At the same time, their appreciation of handcrafted design methods increased. They embraced small tapestry looms for creating rich woven textures and colors, actualizing designs in real time informed by the materials they touched. By the time they returned to campus for their capstone studio, they were deeply engaged in handcrafting with textile materials. With many of their courses online, they also continued to welcome the respite that handling textile materials provided from virtual experiences.

Not only did fourth year students bring novel handcrafting experiences into their capstone studio, they also returned to an environment different than the one they had experienced pre-pandemic. Despite being in-person again, production labs remained inaccessible due to COVID-19 protocols. Interactions with technicians and lab managers were electronic and asynchronous, as they had been the previous semester for remote courses. Even being back in the studio, they were distanced from the textiles being created as well as the yarns and fibrous components. Furthermore, they were distanced from the technicians producing the textiles and separated from the sensory experience of material being produced. The rhythmic sounds of the machines and visual sensation of watching their materials come to life on the production machines was absent. Conversations with knowledgeable technicians that often took place alongside a weaving or knitting machine, the conversations that empowered

students to push the equipment and their own creativity, still did not happen. Instead, students remained isolated from the transformation of idea to physical industrial sample. This limited iterative development in prototyping and creativity in output. After having limited experience on key production technologies during their prerequisite virtual studios, and distanced from the translation of vision to tangible material, students struggled incorporating industrially produced materials into their collections.

As the semester progressed, collections began to evolve. Students found ways to integrate techniques and handcrafted methods they had practiced in the preceding year with technology-driven processes. Despite needing to develop digital files to have materials woven, knitted, or printed on industrial equipment, many began the design process by bringing their hand to the computer screen. Balancing hand techniques with the need for a digital result, they embraced the opportunity to move fluidly from drawing to digital design element to designed textile. They also found ways to overcome their distance from the industrial material outputs by bringing their hand to the fabrics in post-production. Embroideries and beading accented digital textile prints and wovens. Tufted rugs and textural hand woven wall hangings lived side by side in diverse collections that showcased a wide range of both technology and craft intensive methods. Sculptural macramé pieces interplayed with digitally printed wallpapers and jacquard wovens. Handcrafted tassels and braids detailed larger pieces created from industrially produced materials. Where the materials demonstrated faltering confidence with designing for industrial outputs, the integration of handcrafted methods expanded the range of work, elevating the collections.

Conclusion

In previous work, sensory input was found to be integral to the creative aspects of cognition (Treadaway, 2007). Through online delivery and the adaptation of three technology-based courses, we are able to see how the deeper exploration of craft and materials combined with digital technologies enhanced the creativity and breadth of design outcomes. The increase in engagement with materials contributed to a strong foundation in technical and conceptual understandings. This is consistent with work by Pinski, Kane and Evans (2018) who noted that digital methods provided breadth, while hands-on work provided great depth in understanding.

Treadaway (2006) reported that making by hand provides sensory input that informs practice and encourage emotional expression that can be lacking in digital outputs. This was evidenced in our study as students engaged more closely with the tools, techniques, and materials and took the time to discover and process the craft at their own pace when working with craft based approaches. Instead of moving quickly to more advanced technology, the slowing down and focus on process led students to develop labor intensive works that demonstrate their solid knowledge in foundational concepts. This emphasis on craft also

fostered experimentation. Students took on rigorous investigations in traditional techniques and developed inventive processes. Whereas the focus on exploration in these courses has typically been found in digital design methods, the shift to handcraft led to inquiries in constructing, manipulating, and expanding textile applications. Many ideas were generated from the materials themselves as students approached design in a new craft-based way of working.

There was also a new area of exploration in the language of craft. Design outcomes displayed exaggerated textures, experimental hand techniques, surface embellishments, and an emphasis in materiality. Displaying this textural work online was in many ways a poor replacement for in-person critiques; however, students were also able to share high resolution close-up images which captured details that may not be visible when reviewing work on a wall. The impact of viewing textiles via photographs was referenced in T'ai Smith's paper, *Limits of the Tactile and the Optical: Bauhaus Fabric in the Frame of Photography* (2006). Smith discusses how there was a shift in the early 1930s when photographs used in publications for the Bauhaus transitioned from background wall hangings in architectural spaces to highly detailed, close-up photographs. Smith states, "...weaving had the fortune of gaining a place in the spotlight, for the intimacy of a woven texture was particularly suited to the scrutiny of the lens. The slight swellings, recesses, and shadows produced by the crossing of weft and warp, the way the fabric folded or creased, or the subtlety of the tactile sensations generated by wool against cellophane seemed infinitely refined when framed by the sharp focus of a precise optical apparatus." (Smith, 2006; page 7) While this was not articulated as eloquently by our students, a similar discovery is evidenced by their leveraging of photography to highlight detailed textures in digital format. This has been so impactful that as we have returned to in-person learning, critiques have been reformatted to continue emphasizing digital presentations, as well as physical projects.

The integration of craft and digital technologies also enabled students to see their material concepts through to large-scale applications. Small samples made by hand and then simulated through CAD software allowed students to imagine how their handcrafted materials could be applied to full scale, commercial products. Digitally produced materials were also enhanced with handcrafted details leading to new textural effects. This fluidity between hand and digital tools expanded student collections and led to new ways of working that pulled the hand into digital processes.

Treadaway (2007) noted that future research was needed to understand the role of making by hand in creative insight and how digital tools could complement this. In this work, providing an opportunity to engage with craft techniques and making by hand as a means of grasping foundational concepts and as a form of creative expression has proven to be highly valuable to our students. Going forward, it has become clear that integrating the hand with the digital not only enhances design outcomes, but also empowers students to expand their design processes. In our technology-led program, hand techniques have taken on greater

importance. Craft is now more than merely inspiration for digital designs; it is a vibrant language, process, and approach that holds a critical space in contemporary design pedagogy. As noted by Treadaway (2007) understanding how to most effectively support creative cognition by integrating craft and digital approaches in teaching woven design is a rich area for further study.

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RE-DESIGN FOR PRE-DESIGN: discarded garments as a tool for garment-based learning in fashion knitwear design education

Authors

Karin Landahl and Stephanie Malmgren de Oliveira,
University of Borås

Corresponding Author: karin.landahl@hb.se

Keywords

Garment-based learning, design methods, knitwear design, sustainability, fashion design education

Abstract

The level of complexity in designing and making knitwear is high, as it entails learning about both textile construction techniques and form-building. This research explores the potential of discarded knit garments as a learning tool in fashion knitwear design within higher education, to bridge the gap between translating small-scale two-dimensional knitted samples into a garment collection. Digital sketching and virtual sampling are not sufficient for the full understanding of knitwear design. Practice-based learning is key to fully grasping the potential of the knits. In addition to foundational technology and practice, existing garments can also be considered to be an open source for deriving technical knowledge and a basis for design ideation. In order to explore the potential of garment-based learning in knitwear design processes, a three-and-a-half day workshop was conducted within a basic knitting course for first-year BA Fashion Design students. The participants were divided into groups and instructed to select, analyse, and create new knitted designs using discarded garments, and to reflect on their learning outcomes. The knowledge gained during the workshop bridged the gap between the knit samples and the garment collection making. In their reflections, the students expressed a deeper understanding of various knit properties, structures, and technologies in relation to knitted garment forms and details, as being useful learning outcomes from the workshop, which they were then able to apply to their collection making processes. The collaborative, interactive, and communicative nature of the group work in relation to processes and actions was expressed to be highly beneficial, and the inclusive approach of sharing knowledge and joint learning facilitated creative and technical development. This ‘re-design for pre-design’ approach deepened the understanding of knitwear design using existing garments – constituting garment-based learning – and suggested a sustainable, practice-based method of learning with a high potential within higher education in fashion design.

Introduction

The design process for knitwear is complex, since it requires knowledge of various factors relating to yarns, stitch patterns, colourways, three-dimensional forms, details and finishes. This often presents a challenge when beginners are designing knitwear. This project explored the possibilities offered by using discarded knitted garments as a methodological tool for learning knitwear design in order to connect the processes of making knit samples and garments. A workshop was held for first year BA Fashion Design students, which was intended to facilitate the transition between a foundational technical knitting course and the making of a knitwear collection.

The basics of knitting

In a basic sense, learning about knitting involves the obtaining of practice-based knowledge to a great extent: understanding of the stitches as a construction system, the handling of the knitting machine, the feel of the yarn and its properties, and the relationship between yarn and stitch pattern. All of this requires practical interaction with booth the tool and the material in order to explore and understand the consequences of decisions (Holroyd & Hill 2019, Sissons 2011). When one is learning to design knitwear there are many knowledge variables and steps that need to be considered. With regard to the yarn, there is knowledge and understanding of the specific properties and expressions of each yarn type and the fibre, as well as the consequences of different combinations of these. In terms of stitch, one must understand the different properties and expressions of each stitch type, and their combinations when used to create stitch patterns (Affinito et al. 2017, Motta & Conti 2018). Knitting gains in complexity when more than just one yarn type is used, or when stitch patterns are combined and explored through different densities, scales, repeats and regularities. Adding yet another layer to this complexity is form-building (Kalyanji 2020, Landahl 2015) which is created by how the textile is constructed.

Understanding and exploring different stitches, yarns, patterns and their accompanying design variables constitutes a basis for making and developing knitted samples. The design potential identified in relation to a knitted sample can in turn feed into the process of garment development, although it is not always a smooth transition from knitted sample to garment at the beginning of the learning process. Otto von Busch argues that “a good handling of stitches does not guarantee a good design of a sweater” (2015, p.13). What constitutes a good design is far more complex to understand, the transition from knit sample to garment takes place on both a dimensional level – from two to three dimensions – and in terms of the shift from designing separate units to designing a composite whole. Changes in form and scale affect each part and each part affects other parts, constituting a system wherein variables are in interaction. What is learned from each design segment and phase, along with how choices and decisions affect the final outcome/design, constitutes knitting knowledge.

Digital tools such as CLO and the SDS-One Apex system are becoming increasingly integral in fashion knitwear design education, enabling three-dimensional experimentation, prototyping, and simulation and thus facilitating the transition from knitted sample to garment.

Whilst these tools open up for new possibilities, they do not facilitate the complete transmission of knowledge regarding the physical, tactile material, nor garment qualities such as material behaviour, elasticity (of different stitch patterns), weight, drape, and movement.

Garment as a knowledge generator

The form and material properties of existing garments could play an important role in bridging the transition from knitted sample to garment. Garments are generally recognized as containing knowledge, as with e.g. archive pieces that are collected by museums, fashion houses, foundations and in factories and educational institutions. They can be used to study form and material characteristics or for replication, analysis, or reverse-engineering, which are integral parts of fashion learning. More recently, re-design and upcycling practices have focused on garments as central design elements. The selection of garments for such processes differs from those used as archive garments in terms of status and quality; the former is often worn out, damaged, obsolete and devaluated, they present a design challenge that involves recreating value by revising the appearance, function, and content of the chosen items. The skills of reknitting and deconstruction of garments are highlighted as aspects of the domestic circular economy (Holroyd, 2018), and were felt to be equally valuable during the process of this research with regard to providing a deepened understanding of the system of knitting in order to design from an informed standpoint.

Discarded knitwear

The most common materials used for practice-based learning in knitwear design are fibre-based materials, often virgin yarns. Knitwear can be produced without a large quantity of pre-consumer waste due to the fully fashioned and whole-garment technologies. However, there is a high rate of post-consumer waste; Björkåfrihet, a non-profit organisation in Sweden, which collects and resells discarded garments, states that knitwear is among the most difficult of garment categories to resell due to the changing properties of knits in terms of both form and surface and wearers' narrow acceptance of this type of property change (personal communication, Nije 2019). As compared to the popular wear-and-tear concept of denim, worn-and-torn knitwear is generally not looked upon as trendy or stylish, and is consequently not as desirable.

This background knowledge led to reflection on this unwanted resource and recognition of the potential that it might contain as a learning tool for knitwear design processes: discarded knitwear could open up for profound learning with regard to understanding materials, techniques, form construction, and design, and furthermore initiate reflection and ideation. This transformation of resources, from post-consumer waste in one context into a highly beneficial learning material in another context, relates to the social process of 'resourcification', the ability to see another potential and use it for new purposes, as defined in the manifesto by Hultman et al. (2021) are relatable for the idea of material use, as pursued in this research.

A workshop was tested in a basic knitting course to test whether this sustainable design approach could provide a better understanding of the different stages of the knitwear design process.

Workshop methodology

The workshop was held in April 2021 over the course of three and a half days (spread over two weeks), and was attended by 16 students who were divided into four groups of four. The participants were BA Fashion Design students in the first year of their studies at the Swedish School of Textiles, University of Borås, Sweden, and the workshop was intended to test the concept of learning knitwear design processes based on post-consumer waste knitwear as a tool for analysis, ideation, and experimentation. The sorting facility of Björkåfrihet in Gothenburg provided material to the workshop in the form of discarded donated knitwear that had not been possible to sell. The participants were informed that the workshop was a research project and that the process and results could be published, and all gave their consent for publication. Presentations were audio-visually recorded and PDF files containing visuals and text, which documented the design processes, were obtained from each group. All photos published in this research article are taken by and belong to the workshop participants.

The workshop was conducted as a module in a five-week basic knit course, the aim of which is to teach basic knitting through modules such as knitting technology, material theory, and practical skills and experimentation on domestic and hand knitting machines. The knowledge acquired on this course forms the foundation for a following design project course, wherein students create a number of outfits in a knitwear collection. The workshop had a two-part structure: the first part involved analysis, reflection on, and categorization of knitwear reference images, which were selected by the students, while the second introduced physical material in the form of discarded knitwear as a tool and starting point for analysis and exploration. In relation to unwanted changes in the provided knitted garments, such as pilling, twisted seams, stretched- out rib hems, and elongated garments, three categories were created – Form, Surface, and Detail – in order to facilitate focus and direction in terms of the explorations. After a selection phase in which 10 items were selected by each group, the garments were laid flat and their front and back side were photographed; they were then analysed using the knitting knowledge that had been obtained already in the course. The garments' materials, forms, technical data, details, fit, state, and quality were identified and categorised during this process. The garments were to be used to trigger ideas and conduct experimentation in relation to the categories that were created. Sampling or prototyping was used as a method of learning, understanding, and reflection (Koskinen et al. 2011). Each group were to explore independently and without our interference in the process.

The workshop format is recurring in collaborative research and according to Scott and Gaston "offers the opportunity to explore materials and techniques suitable for knitting leading to greater understanding of the potential of the material system" (2020, p.269). The possibilities of materials and techniques in relation to each other was at the core of the investigations and was approached differently by each of the four groups.

Workshop process

Group A

Group A selected six garments for their exploration, two in dark colours, three in a light colour shade and one in a two-colour pattern (Fig. 1).

Fig. 1: Garment selection

For the analysis of the potentials of each item, a system of plus and minus was used by the group. While the plus category was pointing at positive features of the item, the minus category was highlighting the challenging aspects of the piece, deviating from qualitative standards. However, from an ideation and exploration point of view/perspective, both evaluation features, plus as well as minus could initiate design processes (Fig. 2).

Item	Plus (+)	Minus (-)
Sweater 1	Shrunken/felted Easy to sew Not unravelling	Shrunken/felted
Sweater 2	Rib details	Pilling
Sweater 3	Stretch Thin Shape	Fit
Sweater 4	Rib details	Pilling
Sweater 5	Quality Stretch	
Sweater 6	Pattern Dense	Pattern Fit

Fig. 2: Garment evaluations

The group started out to explore garment characteristics, such as the form, the fit and the overall expression (look) with a strong emphasis on the final result. Draping experiments were

conducted either on person/life model or on a dress stand. Rather than working with small material samples the forming possibilities in relation to the given material properties were tested in a whole garment approach of single garments or combinations. The final garments were seen as the main results rather than the process. Analysis and ideation were conducted collaboratively within the group, while the making was partially conducted individually and partially as teamwork. The explorations led to 6 end results, presented as 6 garment suggestions for the upper part of the body.

Fig. 3: Explorations of elasticity

Fig. 4: Exploration using rib details

Figure 3 demonstrates the exploration of form in relation to stretchability/elasticity through insertion of a circular shape/hula hoop. The result was tested on a life model in relation to movement. Another experiment (Fig. 4) focused on the exploration of fusing/combining two sweaters with a focus on their rib details. The rib details were arranged on the body as a graphical pattern with two contrasting colours (light grey and dark grey). The contracting- stretching potential/property of the rib structures enabled circular arrangements and form compositions on the body without the problematic of creasing parts.

Reflection from a student in group A, expressed in writing at the end of the workshop: *"To see an already made garment and then try to see beyond the given form and only the potential in material, I think is a very fun way to train my fantasy and designing skills. I also learned that I really enjoy working with knit because of its ease to both form against the body/forms and also expand to big forms with a lot of movement."*

Group B and D

Group B and D worked in a similar approach. Six discarded garments were used for analysis and exploration. The knitwear items were analysed and grouped in the categories: *form, detail, surface, structure and intentional holes.* The sweater (Fig. 5) was for example allocated within the category *detail*, and the significant feature; the cable knit, triggered the ideation and gave direction to the exploration process. Possibilities and ideas were tested and communicated through sketches and notes. (Fig. 6) The cable knit structure was then explored through the action of unravelling, located around the cables or within its structure, generating diverse expressions as well as properties. (Fig. 7) Placements, directions and draping possibilities of the altered material were explored in relation to the body (Fig. 8).

Fig. 5: Discarded cable knit sweater

Fig. 6: Sketch work

Fig. 7: Explorations of cable knit

Fig. 8: New design example derived from cable knit

The final result for group B consisted of three experimental garments, one from the category *detail*, and two from the category *form*. Group D also tested their ideas through sketches before conducting the practical explorations. Each experiment was building on a prominent feature of the selected garment. In one example combinations of stitch structures in different gauges and expressions of different assembling techniques were tested. Both group B and D focused on the process and the exploration of possibilities as well as on a final outcome. All of the phases; analysis, ideation, exploration and finalizing were conducted in collaboration.

Reflection from a student in group D, expressed in writing at the end of the workshop: *"Upon reflection I really enjoyed this workshop, mostly for looking at previously knitted garments then taking what parts I enjoyed and appealed to me then applying them to the body via draping, this helped me to start to think how various gauges and knit techniques looked in a "garment" context. Just draping with the stretch properties of knit fabric was really fun as it could be manipulated to easy in many ways and have many fitting styles and feelings of directions."*

Group C

Group C selected nine sweaters for their explorations. The following characteristics were identified in the garments: plain knit, rib knit, short sleeves, long sleeves, monochrome and striped colour patterns. When analysing each item, they noted their thoughts, findings, potentials and ideas on black and white photo copies of the garments. The notes described stitch structure, yarn composition, fully fashioned or cut and sew, colours and finishing details (Fig. 10).

Fig. 10: Garment analysis

The group stated to focus on the process rather than the final result. Emphasis was put on an experimental, playful approach to the assignment, and to conduct every step as a collaborative act. Design potentials, new forms and garment types but also the limitations of the knit structures were tested on the group participants acting as life models. Domestic knitting machines were used as tools, metal wires were incorporated for form manipulations of the garments. Actions like cutting and assembling were performed in interaction.

Experiments were conducted both as small-scale material samples and technique manipulations as well as on garment or body level (Fig. 11).

Fig. 11: Experimentations

In the last step of the process, the participants put their design examples together as one outfit, consisting of hat, top, pants, stockings, shoe accessory and bag. All examples except one, which was about structure dealt with the category form. The explorations were developed from the findings of the analysis phase. Approaches with one as well as with several garments were performed.

One idea was triggered by a material property - the fluffy hairy texture of the material. Actions like cutting and gathering were used to create volume, and metal wires used to further manipulate the forming capabilities (Fig. 12). Another design example explored the draping possibilities triggered by the direction of two stitch structures in interaction, for the creation of a new garment construction. Through the unravelling of parts of the garments, another surface texture, fringing and a semi-transparency was achieved (Fig. 13). In Figure 14, a sweater with a grey and green stripe pattern was unravelled and the yarn was reknitted on a domestic knitting machine into a bag. Through the act of reknitting and yarn sequence, the stripe pattern was transformed into a gradient pattern.

Fig. 12: Re-forming

Fig. 13: Combining

Fig. 14: Re-knitting

Group A, B, C, D

Upon analysis of the workshop outcomes and reflections of the participants, certain patterns regarding methods of exploration and learning outcomes could be identified within all groups.

Common methods were identified as:

- Explorations of unravelling.
- Explorations of elasticity.
- Interplay of different knit structures.

Common learning outcomes were identified as:

- A new understanding of the potentials for forming and draping based on garment properties.
- Positive aspects of collaborative work in regard to diversity in ideation and finalization phases as well as in regard to quality (of design work).
- Understanding of the impact and the consequences of design decisions.

Garment-based learning

Garments as methodological tools

Garments can be described as a foundational source for analysis, ideation, as well as for design and method development. Existing garments have been widely used in the context of learning purposes by museums, industry or educational institutes. They have been studied, replicated and transformed. Knowledge has been generated from garments through various methods in relation to form and material but also technical, social or cultural aspects.

A knowledge acquisition based on garments has tradition, however to further reflect upon the garments' role as a knowledge generator and in a pedagogical context as a source for learning is valuable in regard to design making and sustainable thinking, moreover when it comes to the training of fundamental design skills. Unlike archive garments, discarded garments offer, next to the information of technical data, the possibility for direct, practical exploration. As waste materials they can be disassembled, cut, unravelled, altered or reworked, and consequently be used to develop artistic and technical skills, design sensitivities and methods. A garment-based

learning approach means focusing on garments as a knowledge source, to learn from (analysis) and as a source to learn through (practical exploration/doing).

Re-design for pre-design

From a perspective of garment-based learning a re-design approach was used for exploration, though with a different aim than that of re-design practices. The acts of re-designing were used within this workshop as a methodological approach, with the focus on how garments can function as a source for learning and knowledge assimilation rather than creating a new product. The learning outcomes resulting from these acts were evaluated in regard to how the students' level of knowledge had expanded and how these learnings could then feed into future design work**.**

Conclusion and discussion

The knowledge gained during the workshop provided the students with an understanding of the design possibilities of knits and assisted in the development of ideas in relation to garment- and collection-making, and helped bridging the gap for the students in their transition between designing small scale knit samples and garments. It was expressed that the understanding of the differences between various knitting properties, structures, techniques, garment forms and details had been deepened, and that these learning outcomes could be applied to their own collection-making processes. Ideas, methods, and knowledge gained during the workshop were used and further developed by the students in the subsequent design project course, wherein they design individual knitwear collections. As a teaching method, the re-design for pre-design approach showed high potential for knowledge assimilation on different levels.

On a concrete making level: Through the actions of unravelling, cutting, destroying, stretching, assembling, wearing, repeating, positioning, restitching, and reknitting, knowledge was gained about stich structures, materials, form properties, and the relationships between them, as well as garment details and finishing. This facilitated knowledge acquisition regarding making design decisions in a deliberate way and experiencing their consequences in a concrete way.

On a fundamental level: The participants stated that the existing items invited the 'seeing of possibilities' in terms of directions that could be explored. The garments were understood to be systems of design components, catalysts for ideation and exploration, and carriers of technical information, all in relation to design decisions. They furthermore indued in-depth explorations that aimed to define and test the implications of expressions (Hallnäs, 2017). Traditions, norms, potentials, and challenges consequential to previous design decisions were identified in the garments, and contributed knowledge for future design decisions.

The group work, which involved collaboration, interaction, and communication in relation to processes and actions, proved to be highly beneficial. It was pointed out by the participants that the inclusive approach of sharing knowledge and joint learning facilitated the creative and technical development. Fashion design education often builds on an individualistic approach to designing, though in transitional thinking in relation to a sustainable future, collaboration has been highlighted as a key factor (Fletcher & Tham, 2019), pointing to the value of further developing the collaborative aspects in fashion design education. With regard to future research, the problem of the large quantity of post- consumer waste relating to knits could initiate practice-based explorations with the aim to design knitwear in such way that the factors

that cause its devaluation are reduced. In this context, these factors could initiate design challenges and become a point of departure for new suggestions for more enduring knitted designs. The workshop demonstrated great potential to become a course or course module with the intention of teaching knitwear design through garment-based learning, in addition to existing teaching methods.

In conclusion, the *"re-design for pre-design"* approach constitutes a sustainable, practice-based design method that deepens the student´s understanding of designing knitwear through a *"garment-based learning".*

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PRACTITIONER-RESEARCH LEARNING: a study of adding research elements in fashion and textile design education

Authors

Qingxin Peng and Kinor Jiang,
Institute of Textiles and Clothing, The Hong Kong Polytechnic University, Hong Kong, China

Corresponding Author: qing-xin.peng@connect.polyu.hk

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Practitioner-research, fashion and textile design study, curriculum design, pedagogical experience, strategic planning

Abstract

The effectiveness of applying practitioner-research as a practical learning technique for undergraduate students in Hong Kong majoring in fashion and textile design is evaluated in this study, which challenges the conventions of fashion and textile design education.

Educators are faced with problems of providing students with relevant subject-specific and transferable skills and knowledge as well as appropriate industry interaction. Undergraduate fashion and textile design students lack creativity and critical thinking skills, have less opportunities to engage in design research and have weak competitiveness in the future. By encouraging students to use research methodologies in design activities during class study, the study intended to implement practitioner-research in fashion and textile design teaching and learning. It has the potential to enhance students' learning capacities, enrich their learning experiences, and help them to become more competitive for jobs or future education.

The study is based on both qualitative research and quantitative surveys. We investigated the impact of the strategy, practitioner-research learning, on the overall academic development of fashion and textile design education, as well as student attitudes toward practitioner-research learning and overall performance of the learning experience. Four existing fashion or textile design subjects were upgraded by re-planning the subject syllabus, teaching schedule and assessment criteria. Finding design inspiration, idea testing, result in analysis/problem solving, facility use in lab/workshop, design development, design focus end-use, design interpretation design promotion, portfolio/report writing, and fashion and textile design research directions such as new materials, improving the manufacturing process, and creating better consumer experience were introduced, and outlined for students. Students were tasked with researching and creating fashion and textile applications with imparted design techniques and research methods.

From preparation to students' group design projects, this article chronicles and examines the entire process of upgrading subjects. It also uses surveys to access the effectiveness of practitioner-research in improving fashion and textile design teaching and learning. In addition, it evaluates how well the expected student outcomes such as problem-solving, critical thinking, research skills, self-directed learning, technology application and mastery and assignment completion, were fulfilled based on subject instructor ratings and student course experiences. We can show how practitioner-research learning improves students' learning experience, transforms the way they learn, and makes them more creative in fashion and textile design based on the findings.

1. Introduction

As one of the design areas included in art and design, textile and fashion design subjects should attach to students' acquisition of knowledge and understanding of the cultural context as well as broaden the learning and teaching by referring to issues such as sustainability, business, marketing, social and other professional contextualizing themes Annan-Diab and Molinari (2017). Educators, on the other hand, face difficulties in equipping students with relevant subject-specific and transferable skills and knowledge as well as suitable industry interaction (Harvey et al., 2017). This study involved undergraduate design students with research-related activities that may improve their ability of problem-solving, critical thinking and enrich their learning experience (Darling-Hammond et al., 2014) and make them more competitive for employment or further academic development. Researchers aimed to teach the generic skills essential for personal development and professional practice in the courses through distinct modules with some works being integrated and finished in practice. As special emphasis is placed on research, critical analysis and written and vocal communication skills in to improve students' research abilities.

This study used the concept of practitioner-research to upgrade existing subject syllabuses and teaching materials to include research elements in the teaching and learning process and to assist students in solving design problems facing in textile and fashion design by employing digital technologies. The study was separated into numerous phases to better integrate the research elements in students design study and measure the improvement effect effectively. The first step was to revamp the current subject syllabuses, teaching schedules, assessment criteria to provide students more time to learn about research methods and digital technologies. Secondly, the study intended to maximize tutorial time by allowing students to discuss and communicate research issues with the subject instructor. Through the tutorial sessions, the instructor can also better mentor students' research progress. Thirdly, the assignments and the assessment methods were tweaked to ensure that the study was of high quality. Finally, using an interactive education platform, the students' textile and fashion work and research outputs were guided to publish and promote to the public. This article documents and analyzes the whole process of the upgrading the subjects and evaluates the implementation and efficiency of practitioner-research in enhancing fashion and textile design teaching and learning through surveys. With the findings, we may realize how practitioner-research learning improves the learning experience of students, transforms the way the students learn, and brings them more creative in fashion and textile design.

2. Literature Review

2.1 Versatility Fashion and Textile Design Education

An interviewing of theoretical, technical and practical elements that make up a spectrum of artistic and business-focused manifestations of a phenomenon close to the center of the modern world constitutes fashion education at the university level (Svendsen, 2006). This complexity can lead to a reductionist approach to sustainability, focusing on specific problems in its parts that can be solved using cognitive skills of knowledge, but this approach often succeeds in

disabling students who are overwhelmed by the problem's (Fletcher and Williams, 2013). Fashion education for sustainability offers a opportunity to explore affective learning from a more constructivist perspective, piecing together how we may live well in the world, based on the unchangeable principles of what it is to be human. Many courses, however, still favor traditional lecture-based delivery of fixed knowledge, and many students are preoccupied with acquiring the correct answers to the problems, how to 'get it right' (Shephard, 2008).

Fashion entails the creation of meaning (identity and belonging) and materiality (materials and 3D contents) (Williams, 2016). Under this notion, the fashion and textile design education may be improved from two perspectives, a) the creation of new design concepts such as new culture, aesthetics, society issues; and b) the transformation of design processes including the use of digital technology. While the interventions of digital technologies, there are four kinds of digital technologies (i.e., laser engraving, digital printing, 3D printing and digital embroidery) that have been applied in the fashion industry and can be taught to students to help them to develop textile/fashion designs (Table 1).

Digital Technologies	Principles
Laser engraving	Textiles produced with laser engraving process, including the concepts of patterning and direct application in textile and garment design is studied in the subjects. Laser engraving and marking are versatile applications of the laser by using a parallel beam to remove the surface layer of fabric and transfer a pattern on its surface. When a high energy laser beam is focused and targeted on the fabric, the beam will heat the sample surface and ablate part of the material out.
Digital printing	Textiles can be created by using drawing, digital printing, and transfer printing processes for coloring and patterning. The computer-generated design can be printed on a transfer paper employing disperse-dyes inks by an ink-jet printer. A color image will efficiently be received from the transfer printing method with temperature and pressure by heat transfer machine on polyester fabric.
3D printing	3D printing is the process of creating 3-dimensional objects through joining or solidifying material under computerized control. A computer-aided design is converted into a 3D object by printing the material layer by layer and joining them in the form of a cohesive object. Synthetic materials like polylactic acid are available for 3D printing even they are not flexible and comfortable enough to be used as textiles or in garments. 3D printing in textiles is still at a conceptual stage, which has a large room for research and development.
Digital embroidery	Digital embroidery textile design is related to an embroidery process whereby a sewing machine or embroidery machine is used to create patterns on textile. Embroidery software contains significant improvements in the design and layout of the graphical user interface which offer productivity benefits.

Table 1. Digital Technologies and Their Principles

2.2 Engaging Undergraduates in Research through Practitioner-research

Some challenges in textile and fashion design education should be addressed to enhance students' learning experiences and improve their creative abilities on a holistic level. The first issue in current fashion and textile design education that needs be addressed is the lack of creativity and critical thinking (Tsai et al., 2013). The present textile and fashion design subjects emphasize teaching of textile or fashion techniques to assist students in developing textile or fashion design. Students are always focus on the production process machine/equipment operation (Zhang and Du, 2013). Furthermore, students may prefer to focus on designing textiles and fashion from the standpoint of generating an appealing aesthetic look, such as the color, pattern, rather than the concerns about the creating purpose and the changes that their creations may offer. Second, undergraduate design students had fewer opportunities to engage in research (Hathaway et al., 2002, Marti and Practice, 2008). Students have limited possibilities to engage in research and research-related activities due to the current teaching approach of "teach to learn". Moreover, most students have little or no research experience and may be unsure about how to propose and carry out research. Third, because of their lack of creativity and critical thinking, students are less competitive in identifying and solving problems using appropriate techniques, which may jeopardize their long-term growth.

Course-based Research Experiences (Auchincloss et al., 2014) is a hypothesis that may be used to improve design students' research abilities and learning experiences at the undergraduate level. According to observations of course-based research in other disciplines especially in scientific research, the strategy has been found to boost the reach and impact of student research experiences (Bangera and Brownell, 2014). As a result, the subjects were designed using the theory of course-based research experiences and integrated with textile and fashion design practices. Students may gain skills in performing rigorous academic research as a result of their course-based research activities (Johnson et al., 2014). The research findings may be shared with classmates or subject instructors, with the goal of generating generalizable knowledge that others can benefit from. Practitioner-research is an emerging research that is fundamentally no different from other forms of research in that it is about generating new knowledge (Fox et al., 2007). According to Fox et al. (2007), a practitioner-researcher is someone who works in a professional capacity but is also expected to undertake research as part of their study. Practitioner research takes a unique approach to research and embeds research into practice. Students can also become practitioner-researcher by integrating research into their design process as a part of the notion. In the syllabus, evaluation method, and description, the course includes an objective that deals with the need for the students to acquire research abilities and is typically characterized as research. To mentor students' research development, evaluation criteria will be used to assess performance, which will include a quality assessment of the research. While the findings are instructional, they may be intended to reflect scholarly traditions and customary approaches in the discipline. Findings and results are rarely shared outside of the classroom or department, but they might be of high quality to be promoted through conference displays, seminar presentations, and articles.

3. Methodology

3.1 Participants

Undergraduate students ranging from Years 1 to 4 who enrolled in the fashion and textile design courses at The Hong Kong Polytechnic University, including Introduction of Thinking Style, Fashion Design, Creative Design Project, and Textile Design, completed the surveys to evaluate their learning experience. Survey 1 and survey 2 were completed by a total of 248 students and 161 respectively (Table 2). Students were informed about the project before and after implemented, and that research elements based on the concept of practitioner-research would be included to the teaching to enhance their learning experience. Subject instructors who teach the above-mentioned courses said that participation was voluntary and oversaw the consent process. The project was approved by the university's Educational Development Centre.

	Courses	Survey 1	Survey 2
A	Introduction of Thinking Style	52	54
B	Fashion Design	76	NA*
C	Creative Design Project	36	16
D	Textile Design	84	91
Total		248	161

Table 2: The demographics of students who participated in the courses and completed the surveys

(When preparing this manuscript, the course just ended, and students did not complete the survey yet.)*

3.2 Implementation Methods

To upgrade the subjects and enhance the learning experience, a theoretical framework of integrating practitioner-research in design education (Figure 1) was created. A preliminary study was conducted through the literature view and summarizing the previous teaching experience to investigate the issues that should be addressed in the current design education, such as weak creativity and critical thinking, less opportunity for design students to engage in research and weak competitiveness in the future developments. The concepts of research-led teaching and course-based research were applied in the project to add the research elements to develop courses by understanding the needs of learners, knowing what the students are interested in and what they will be able to perform. The courses focused on education from two perspectives: generic skills for personal development and professional practices should be taught in the courses, and design works should be integrated and completed in practices.

Hence, the intended learning outcomes were defined as: a) enhancing students' research abilities through design practices; b) facilitating students' educational experiences by adding research elements into teaching and learning activities; c) increasing the value of design outcomes by incorporating research methods throughout the design process, and d) providing students with more opportunities for further developments.

When the project was implemented in the courses, the subject syllabus and teaching materials were overhauled and modernized so that students could get theoretical knowledge in research and digital technologies first, then practice in practical designs subsequently. The concept of "practitioner-research" was integrated into teaching, and research methods applicable in practical designs such as dinging design inspiration, idea test, experimental design, and result in the analysis were introduced to students so that they could solve design problems on their own. Meanwhile, students were given research directions such as design culture, circular design and human-centered design to help them construct design research projects and get insights into the design difficulties. Assignments and assessment methods have also been changed to encourage students to concentrate on the learning process and participate in research activities to provide competent to design outcomes. The project's effects were designed to be evaluated in two ways, a) learning outcomes: subject instructor conducted a formative assessment and summative assessment to the ongoing work, research progress and final work and peer review conducted among the students based on their final work, and b) survey on learning experience: two surveys were conducted at the beginning and end of the class to find out the problems in students' design study and learning experience.

3.3 Evaluation and Survey

The project's impacts were evaluated based on the students' design outcomes that were reviewed by both subject instructor and peers, as described in the previous section. The subject instructor provided a formative assessment and followed up on the progress of students' design work and conducted. The summative assessment was based on the final work (e.g., individual or group design work), presentation and submitted portfolio/report. Communication, motivation, originality, and design diversity were among the primary criteria used to evaluate students' work. On the other hand, two surveys were conducted during the courses to know more about students learning needs and learning experiences with the upgraded syllabus and integrate research elements in the design study. There are 5 questions in each questionnaire. The first survey asked about students' study needs, knowledge in research and awareness of design work promotion. The purpose of Survey 2 was to investigate the impacts of adding research elements into design courses and enhancing students learning experiences.

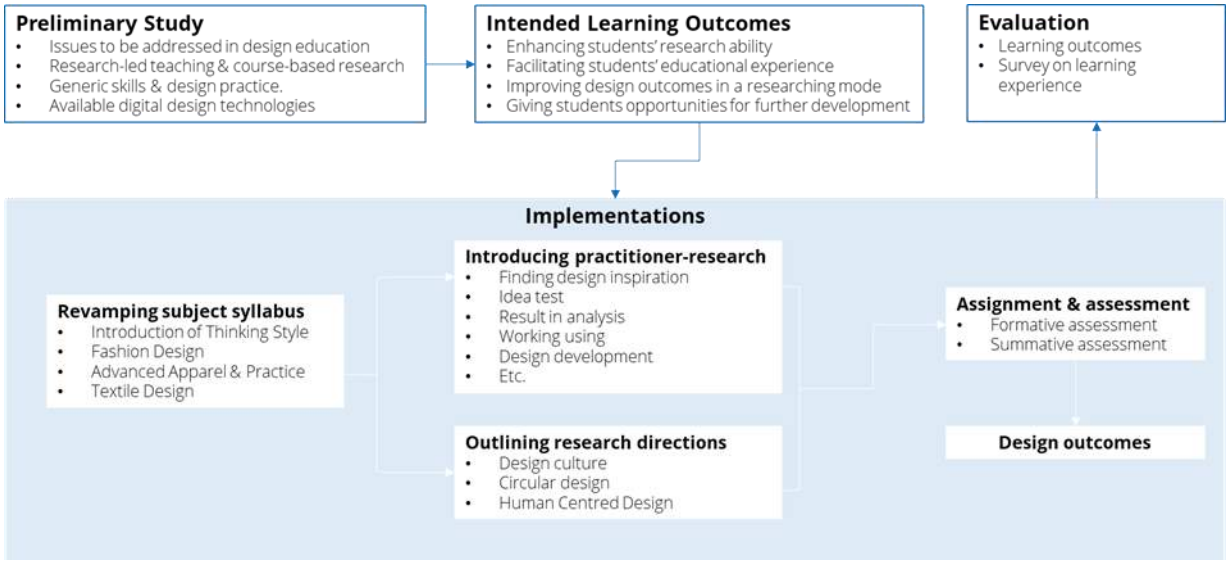

Figure 1. Implementation plan for integrating practitioner-research into undergraduate design education

4. Results and Discussion

According to the results from survey 1, approximately 70% of students believed they could solve the problem encountered throughout the design process using a variety of alternatives (Table 3). Less than 30% of students indicated they had previously participated in design research, while 34.7% said they may have a few opportunities to participate in a design research project and more than 37% claimed they had never participated in design research. When asked what research is and how to process it in a study, 37.5% of students replied they knew about research and could process it in the study, but the reminder revealed they only had a rudimentary understanding of how to process research in study or even did not know what research is. According to students' responses, nearly two thirds of students stated they used research in their design study.

Students attempted to develop a design research project and form practical design in their group-based design works after being introduced to research methods that were appropriate for design study, such as finding design inspiration, idea test, result from analysis or problem finding, facility use in lab or workshop, design development, design focus end-use, design interpretation, design promotion, and portfolio or report writing. Students created some practical designs based on the assignment criteria of several courses, which could be individual work, group work, report, or portfolio, using inspiration from the indicated study directions of design culture, circulate design, and human-centered design. In the case of Textile Design, students were taught numerous textile processes in addition to research methods in order to build a textile design that can be applied to home textiles, fashion design, accessories, and other areas. Within the course, students created a five-person group and used chemical etching and dyeing, as well as digital printing, to create group-based design work. Students should use the research methods they learned in different design stages, such as design idea development and sketching, presentation and confirmation, operation with textile technique, submission and

presentation, and taking a detailed record of the making process to prepare the portfolio and presentation later on. A virtual exhibition titled "Creative & Visibility - Towards Fashion and Home Textiles" was organized and released to assist students in promoting their design work and gaining experience presenting design work to the public (Figure 2).

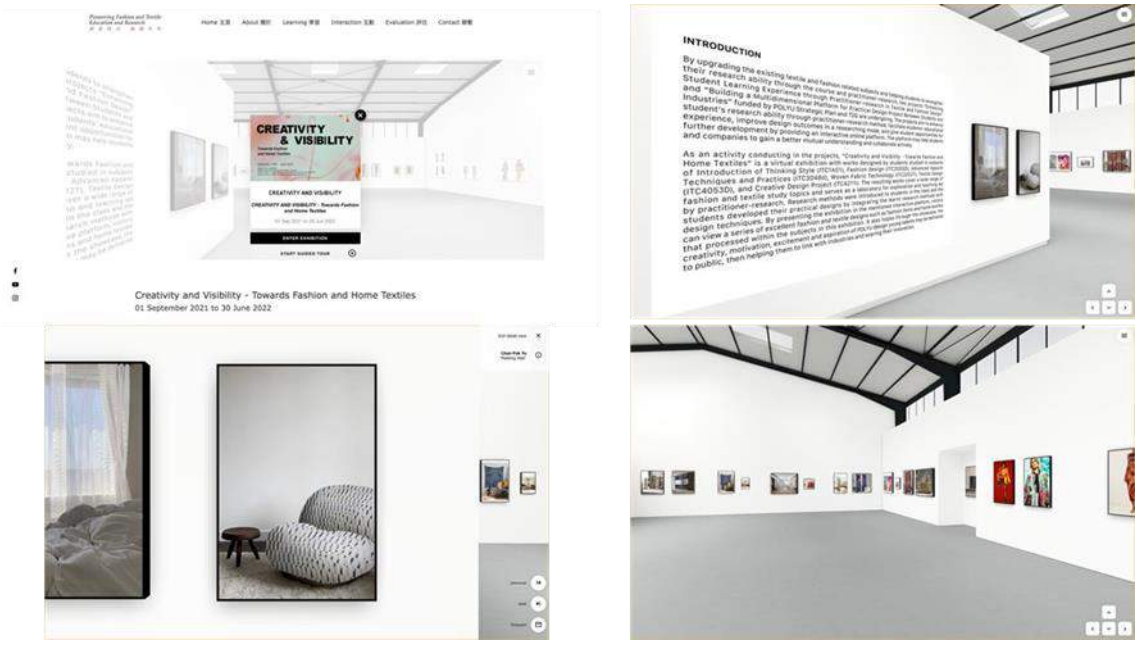

Figure 2. Virtual Exhibition: Creative & Visibility – Towards Fashion and Home Textiles

(Source: https://qs1219397321.wixsite.com/edc-polyu/creativity-and-vsibility-exhibition)

Through survey 2, the impacts of combining research aspects with the concept of practitioner-research in design courses on improving students' learning experiences were assessed. It demonstrated that students used the research methods they had learned to create experimental designs, individual design work, and group design work. Finding design inspiration (17.2 %), result analysis (13.7 %), and design development (13.6 %) are the top three research methods employed by students. Students were poor at promoting their designs (4.2 %) and had fewer thoughts for the end-use (7.6 %) application of their design efforts, according to the research. It also demonstrated that the overwhelming majority of students thought the knowledge learnt in the course helped them solve the problem (98.8 %) and would like to use it in future design research and study (99.4 %). For the format to present student's design, either online exhibition or offline exhibition are preferred format for students to present their work, and competition is another option for them to present their design talents. After the study, there was also a declining trend that some students who had no idea about how to promote their design outcomes transferred to have conscious or interest to do the promotion.

	Questions	Choices	Frequency (N)	Valid Percentage (%)
Survey 1	Q1: Do you think you could solve the design project's problem on your own?	Can	172	69.4
		Can't	76	30.6
	Q2: Have you ever had the chance to participate in a design research project?	Yes	70	28.2
		Few	86	34.7
		Never	92	37.1
	Q3: Do you understand what research is and how to use it in your research?	I know	93	37.5
		Know little	130	52.4
		Don't know	25	10.1
	Q4: Did you conduct any research as part of your design study?	Often	165	66.5
		Never	83	33.5
	Q5: Which of the following ideas do you think will help you promote your design outcomes? (Multiple choices)	Online exhibition	119	32.1
		Offline exhibition	120	32.3
		Competition	74	19.9
		No idea	58	15.6
Survey 2	Q1: During the class time, which of the following learning activities you employed research methods? (Multiple choices)	Experimental (samples)	105	27.8
		Individual design	144	38.1
		Group work	129	34.1
	Q2: Which of the following research approaches did you use in your design study? (Multiple choices)	Finding design inspiration	134	17.2
		Idea test	100	12.8
		Result analysis / Problem finding	107	13.7
		Facility use in lab / workshop	78	10.0
		Design development	106	13.6
		Design focus end-use	59	7.6
		Design interpretation	68	8.7
		Design promotion (e.g., Facebook / Instagram / YouTube / TikTok)	33	4.2

		Portfolio / Report writing	94	12.1
	Q3: Did the knowledge you gained in the subject assist you in solving a difficulty you might encounter in a future design project?	Yes	159	98.8
		No	2	1.2
	Q4: Would you like to apply the technique/process you learned in this class to a future design project?	Yes	160	99.4
		No	1	0.6
	Q5: Which of the following notions do you want to promote to promote your design outcomes? (Multiple choices)	Online exhibition	100	39.7%
		Offline exhibition	91	36.1%
		Competition	54	21.4%
		No idea	7	2.8%

Table 3. Statistics of the students who participated in the courses and completed the surveys

5. Conclusion

This study used course-based research theory and the concept of practitioner research to include research elements into fashion and textile design courses in order to improve undergraduates' design and research abilities. Four fashion and textile related courses were chosen as the experimental base to update the subject syllabus and encourage students to use research as a process for fashion and textile design development in order to integrate research elements into design courses. The students' research level was studied in the study through a survey conducted at the outset of the course to determine their learning needs and abilities.

According to the survey results, the majority of students had prior design experience and would like to tackle problems on their own. Following the previous literature review study, most students had insufficient awareness of research and did not have enough opportunity to participate in research activities. Furthermore, few students were aware of how to promote their design work, possibly because they were unsure of how to do so properly or because they lacked a suitable platform to present their work. To finish the courses, students were introduced to research methods and encouraged to construct design research projects in groups. A virtual exhibition was created to promote a variety of textile and fashion design works. Students sought to utilize research methods in the design development process to reflect their design thinking and raise design value to have more cultural aspects or meet marketing demands, according to the results of a survey that attempts to evaluate student learning experience after the course. More importantly, students were willing to apply research methods to future design

development, which would be more beneficial to their overall development. The study shows that practitioner-research can be a good strategy to include research elements into fashion and textile design instruction at the undergraduate level and can help students learn more effectively.

Acknowledgments

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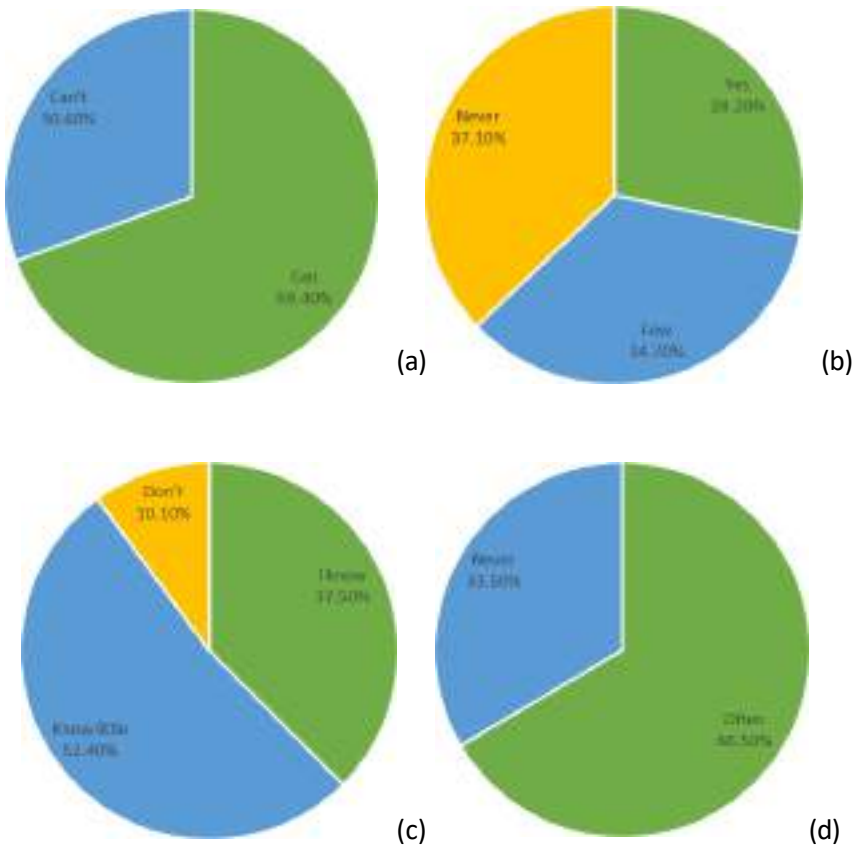
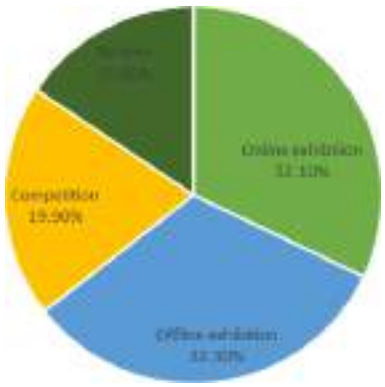
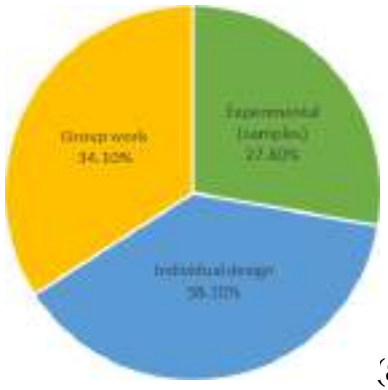
Appendices





(e)

Figure 3. Statistics of survey 1, (a) Q1, (b) Q2, (c) Q3, (d) Q4, and (e) Q5



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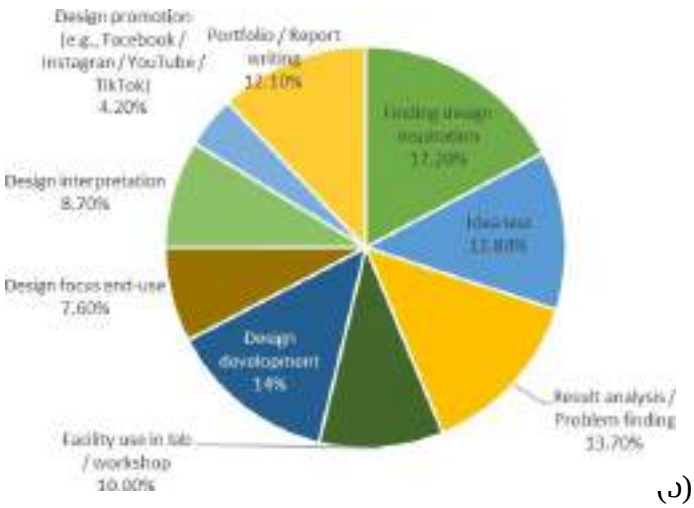

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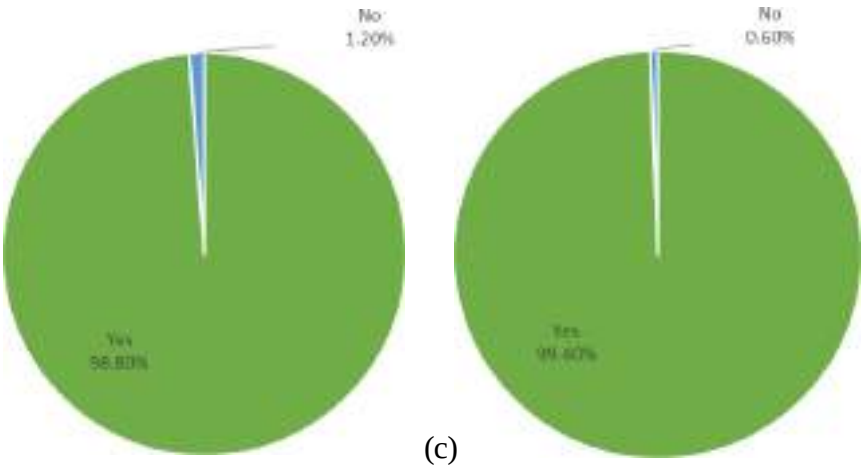
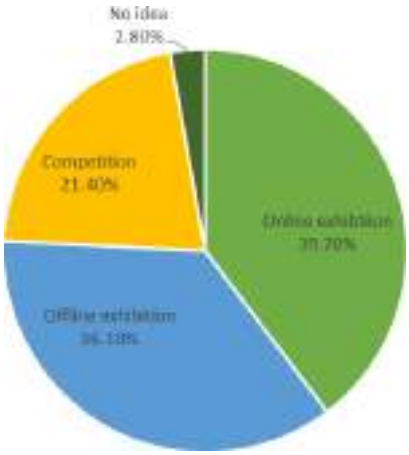


(c) (d)



(e)

Figure 4. Statistics of survey 1, (a) Q1, (b) Q2, (c) Q3, (d) Q4, and (e) Q5

PASSING THROUGH GENERATIONS WITH GRACE: the journey of a traditional silk saree in various forms and sizes before the disposal

Authors

Geetha Ranjini and Dr. Sasirekha,
Associate Professor, Department of Fashion Design, NIFT, Chennai-600113 Mobile: 9382675705

Associate Professor, Department of Fashion Management Studies, NIFT, Chennai-600113
Ph: 044 22542755/56

Corresponding Author: geetha.ranjini@nift.ac.in

Keywords

Sustainable fashion, Durability of things, Longevity, Upcycling of Kanchipuram silk, Recycling, Green fashion.

Abstract

Objective: The paper is to understand different values of second-hand Kanchipuram silk saree and to find out the effective use and lifetime of the saree before disposal by means of recycle and upcycle.

Tamil Nadu has proved its rich cultural and heritage uniqueness to the world in many ways through its elaborate Arts and Crafts. Handlooms are one of the most ancient and important livelihoods for many artisans till date. Looking back at the time, it is astonishing how the jacquard weaving was practiced with such a precise mechanism all by hand and is still being practiced to date with not much change. This paper is an effort to bring them to the limelight and cherish the exquisite beauty of one of the most admired and rich costumes in Southern part of India, 'The Kanchipuram Silk'. If beauty is admired by many, then what should stop us from recycling, upcycling and sustaining it for as long as we could?

The richness of the saree is also due to the use of real gold and silver zari, which have a high resale value at any point of time. It is quite surprising and fascinating how those days Indians were green conscious and sustainable with fashion by reusing and upcycling the old sarees. There is also a strong connect between Art, Architecture and Crafts which is evidently proved in the use of intricate motifs reflected in sarees. This handloom sector is a living example of ecosystem by where it is a team of people who are behind the making of a Silk saree with cohesive work life balance. This is also an industry where men and women are treated equal and dependent on each other with no ego. The researchers intend to discuss in detail the uniqueness of Tamil Nadu Silk Sarees with a comparative study on longevity, quality, price, and design.

The study reviews the existing market for recycled and upcycled Kanchipuram Silk Sarees in and around Chennai. The longevity of the fabric gives way to a new rebirth for a creative product each time according to the damage it undergoes, for example sometimes it is the body that wear out or it is the border and pallu of the saree that unravels. Further, the study discusses the process of zari making, types and recycling of original zari silk sarees. Both primary and secondary data were collected.

Introduction

Kanchipuram is well known for its rich culture and heritage. There are nearly 15 temples here out of 108 Hindu Vishnu temples in Tamil Nadu. The city is vital for Saivism and Vaishnavism. Almost all the rulers, from Pallavas to Cholas to British, have ruled the place. Therefore, there is a mix of cultures found. Since this was the capital for the kings, they produced expensive and exclusive fabric for the idols and the royal family. One of the most precious metals is gold, and it was a symbol of luxury to show it in the garment[1]. Those may be the reason how zari would have got introduced in the fabric made then. The durability lasted for a long due to its material. The saree made in this city is known for its strength, color combination, and designs. The saree is vital because the quality of zari is pure, which has flattened silver, wound with silk yarn, and electroplated with gold. The plys used are more than three plys, making the saree as heavy as one kilogram and above concerning the zari content. The sarees are given a name according to the use of silk and zari. Adding more zari enhances good luster and richness to the saree. When the warp and weft is woven of pure zari with silk, the saree is called a 'Tissue' saree. The uniqueness of the saree is the weaving of pallu, 'Mundanai' separately in a contrasting color and then joined to the body of the saree with the technique called 'Petni.' Another feature is weaving the contrasting border colors using a separate shuttle called the 'Korvai' technique. The original Kanchipuram saree is adorned by many Bollywood stars like Sridevi, Aishwarya Rai, Vidya Balan, Priyanka Chopra, Deepika Padukone, and others highly admired forever by all.

In the majority of the south Indian family, including celebrities, Kancheepuram sarees are the most admired and adorned attire. Almost all daughters have an eye on that particular beautifully draped saree of the grandmother or mother of the family[2]. Yes, there is a tiff between daughter and daughter-in-law of the family who is lucky to receive the Kancheepuram silk saree from the elders as a gift. To avoid such conflicts, the woman sometimes decides to replace the old saree with the new one by selling it to the old saree vendor. Here the authors bring in some knowledge and benefits of the old silk sarees.

Research Method

The detail analysis on understanding the speciality of Kanchipuram sarees. Personal interview was conducted with Retail owners, consumers, weavers, Fashion Boutique owners and old silk saree buyers. This was done in order to gain knowledge on the process of making and use of the sarees in multiple possible ways and the recycling process and value of the used sarees.

[1] History of "SALIYAR", http://saliyarsangam.blogspot.com/2014/12/history-of-saliyar.html

[2] Zeba jamal, 2018, Recycling of textiles waste for environmental protection, International journal of home science, Page-7

About Kanchipuram

Kanchipuram is known as the ‘City of 1000 temples’ and ‘The City of silk’. The city has other names such as Kancheepuram, Kanjivaram, and Concheevaram. Apart from the fame of temples and silk, Dr. Nandita Krishna, a historian, environmentalist, and the Honorary Director of CP Ramaswamy Aiyar Foundation, Chennai, states that Kanchipuram was a place of education. Princes from the Deccan region, especially the Konkan coast, were sent to the tiny town of Kanchipuram for their university-level education. She adds that “It is an extraordinary thing that all the royals were sent here for their education. But that was not it, in those days since the town could not have survived on education alone, there was a need for trade, and that was weaving.”

This city is one of the seven sacred places in India. As per Hindu mythology, the weavers consider themselves as descendants of sage Markanda. The weavers are from two communities, namely Devangas and Saligars, who originated from Andhra Pradesh. They have expertise in making intricate sarees that bear the beautiful sculptures and figurines of the temples. According to historical records, the Pallavas during the sixth century had built several temples in Kanchipuram. Two of them are Ekambareshwar Temple and Kailasanathar Temple. The weavers took inspiration from the temples' rich sculptures, paintings, and natural elements like flora and fauna. There are also traces of Buddhism, Jainism, Muslim rule, and Christianity in Kanchipuram.

Types of Kanchipuram Silk Saree

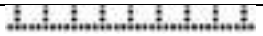
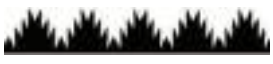
The saree is of different types in the method that they are made. For example, they are all over jacquard design, Half and Half, Partly Pallu Saree, Checks, Temple border, Veldari and Vaira Oosi design, the golden striped saree. There are hardly sarees without the buttas, small motifs arranged in various manners according to the grandeur of the saree. The local name ‘Boddi karai’ is the most uncomplicated plain saree without border, pallu with thin, tall temple design ‘seepu rekku’ and geometric motif ‘Muthu seeru’. The temple motif is one of the most preferred, and it is one of the obvious inspirations from the city. It is depicted in different sizes as required and woven into the ground fabric in the inter-locked weft technique known as ‘Korvai', which is unique to Kanchipuram saris. ‘Rekku’ refers to the design element which links the body of the sari and the border. Another distinctive feature in a Kanchipuram is the stunning contrast border –weavers create a characteristic raised effect on a ground weave.

The well-known and demanded saree is the Ganga Jamuna Border which has two different contrast color borders on either side and mainly has a pallu design on both ends to be worn in another direction. The One Side Border, Plain border, and no border saree with only pallu design is less expensive in price and weight and suits best for contemporary formal wear. The budget sarees are made with no zari at all in the saree but designed with Thread Border.

Design and Motif of Kanchipuram

The traditional motifs are Annapakshi: a mythical bird descended from the heavens has the plumage of a peacock and the body of a swan called hamsa too. Rudraksha: seeds of the Elaeocarpus ganitrus tree that used as prayer beads of Lord Shiva. In Tamil, these seeds are called "Thirukanmani" or the eyes of Lord Shiva. Kamalam: Lotus flower, Thuthiri Poo: A mixture of flowers, Lavanga poo: Clover, Sampangi poo: Magnolia champaka flower, Madhula Moggu: Pomegranate bud, Pullaiyar Moggu: Looks like a turmeric Ganesha, Mayil Kann: Peacock's eye does not have a dot in the middle, Kuyil Kann: Koel's eye has a dot in the middle, Puli nagam: tiger's claw, Bogudi Kodi: creeper or Bogudi vine, Arai bogudi: half vine or creeper, Vanki: a curved armband worn above the elbow, Golusu: anklets, Kumbam: the conical structure on top of a South Indian temple, Kalasham: A puja decoration that has a pot with a coconut on top and mango leaves, Then thuli: drops of honey, Paiadi or Paimadi: a honeycomb-like pattern of a handwoven mat, Cheepu reku: comb-like temple, Thazham poo reku: kewda flower-like border, Rettai Nelli: two vine-like creepers, Other Nelli: one vine-like creeper. Besides these, there are many other names like arumbu (rosebud), moggu (bud), pirai maadam (cresent), film pettu, charadu, chaavi, arai mangai, kathir and then koodu (honeycomb).

Table 1: Few of the famous Traditional Motifs seen in Tamil Nadu Silk Sarees

Sl.No.	Name (Vernacular)	Design / Motif	Description of the Design
1	Rudraksham		A stonefruit, the dried stones of which are used as prayer beads
2	Muthu Kattam		Checks made of Pearls
3	Arai Madam		Half of a Diamond or Half of small house triangle
4	Mayil Kann		Eyes of the Peacock
5	Kuyil Kann		Eyes of the Koel or Cuckoo
6	Paiyadi or Maimadi		Mat Design
7	Thazham poo Reku or Gopuram		Screw Pine flower or Temple Motif
8	Nelli / Veldhari		Two vine like creepers / Wavy or Curvy
9	Moggu		Flower Bud

10	Vanki		Armlet shaped Zig Zag lines

Source: Weavers Service Centre, Salem and Kanchipuram.

Making of the silk sarees and job allocation for Men and Women

The beauty of the saree gets added when humans' contribution behind is known by the manufacturing method. The time to finish one saree is approximately one week, depending on good weather conditions, because the silk threads and the woven saree need to be dried after washing with starch and use of gum or 'Gondhu' while weaving. It is lovely to see the unity within the team of the neighbors and relatives, primarily those who work early in the morning to prepare the warp threads, which are to be starched and dried. Once prepared, the warp has to be given for the roll-making to fix on the loom. The women in the family are also equally busy contributing in various ways by which they are the allied workers without whom the making of saree is impossible. The help lent by women in the family for warp, 'Paavu suttral' to winding the weft pirn, 'Thaaru suttral' or 'Udai', and finishing the final saree is not less than the weaver. When the husband takes a break in some houses, the wife takes over the weaving job and feeds the family with a good meal, snacks, and beverages. The entire family has to work to get sound output.

Table 2: Types of Original Silk Sarees named after the ways of Original Zari used

Sl. No.	Name in English	Name in Regional Language	Description of the design	Approximate Price range in Indian Rupees (as on 21.02.2022)
1	Borderless Jacquard Saree	Border Illa Koodu Mundhi Selai or Design Mundhi Selai	Motifs and Butta with only Stripes in pallu or Grand Pallu	₹10,000 - ₹13,000
2	Thin Zari Border Saree	Bodikara / Sadha / Chinna Border Kodu Mundhi Selai or Design Mundhi Selai	1or 2 Inches border on either side (With or without Butta) and Stripe or Grand Pallu	₹11,000 - ₹12,600
3	Dobby Design Saree (Plain or with Stripes)	Eightu Kattai Kuyil Kannu or Mayil Kannu or Arai Madam Kodu Mundhi Selai (Plain or Vaira Oosi)	Variations of Diamond Design for 4 to 5 Inches with plain or Striped body and striped or grand Pallu	₹8,900 - ₹9,200 (Simple) - ₹32,300 - ₹40,200 (with the combined border)
4	Jacquard Border Saree (Plain or plaid Zari body)	Jacquard Border Plain or Kattam Design Mundhi Selai (with small motifs is called Butta Ragam)	4 to 8 inches border (With or without Butta) and Grand Pallu	₹20,600 - ₹27,800 (Small Border)and ₹42,000 -

				₹48,700(Thick Border)
5	Double Border Saree (With or without Butta)	Double Petta Selai / Thandavalam Border Design Mundhi Selai	Two parallel border of 1 to 2 inches (With or without Butta) and Grand Pallu	₹13,900 - ₹17,900 and ₹20,200 - ₹26,000
6	Morning Evening Saree (With or without Butta)	Kalai Malai Design Mundhi Selai	On one side small border of 3 to 4 inches and on the other side 7 inches to 16 inches (With or without Butta) and Grand Pallu	₹24,500 - ₹55,600
7	Creepers or Flower vines Jacquard all over the body	Kodi Malar Design Mundhi Selai	Creepers and flowers stripe design combined with butta, Border and Grand Pallu	₹21,100 – ₹65,400
8	Half and Half and Partli Saree	Half and Half and Partli / Dhavani Selai	Horizontally Half the saree with Jacqurd Design and Vertically Half the saree with Jacquard Design	₹15,100 - ₹40,500
9	Jacquard Border with embossed Body Saree (With or without Butta)	All Self, Jacquard border Design Mundhi Selai	Zari Border with embossed design all over the body (With or without Butta) and Grand Pallu	₹ 32,200 – ₹1,20,500
10	Wedding / Bridal Saree	Kalyana Ponnu Selai	Grand Zari Border, embossed design all over the body with zari butta Design and Grand Pallu	₹ 90,100 - ₹1,21,800
11	Tissue Saree	Tissue Selai	Both Warp and Weft with full Zari weaving. Looks Shiny and glossy.	₹ 1,40,000 - ₹1,63,500

Photo Gallery of few exotic original silk and zari sarees of Tamil Nadu

Gandaperunda-Iruthaipakshi (Emblem in the Mysore Palace)

Contemporary Design with original Zari

Veldhari or Neli

Veldhari with light and dark color Stripes to enhance the design

Traditional motif saree

Contemporary composition of forest and animals design Saree

Image Source: www.cooptex.gov.in , www.thechennaisilks.com, www.nalli.com

Zari calculation and resue

The weavers make Kancheepuram sarees for Government cooperative society, 'Society' and for master weaver or private retail shop owners, 'Malligai'. The sourcing of Zari majorly for society is from Tamil Nadu Zari Limited, Kancheepuram and for private retailers from vendors belonging to Surat.

Raw materials: Zari Making and Value of gold, silver, copper, and silk The required raw materials for the production of the gold zari are:- Silver wire - 76 to 77%

Silk - 13 X 15 denier Gold - 24 carat.

The Zari is sold in terms of MARC. The weight of one marc is 242 grams. The composition of the marc is indicated below: -

SILVER 55 to 57%

SILK 22 to 24%

GOLD 0.59 to 0.60%

COPPER 20 to 22%

Source: Tamil Nadu Zari Limited https://www.tn.gov.in/hhtk/dht/zari/zari-home.htm

The zari is in bobbin roll natively called 'Kattai,' sold together in 4 numbers and called 'MARC'. The most uncomplicated saree with a small border, 'Chinna ragam' saree, is made with two and a half bobbin. The zari content varies according to the design, from a minimum of two up to forty bobbins to make one tissue saree.

The weavers and second-hand dealers have their way of calculating the consumption of zari in a saree. The calculation is done in the native term called 'Kuligai'. One kuligai is used for the warp for three sarees and weighs one gram because all the three are always woven together. For example, if 100 warp yarns are there for three sarees, roughly thirty grams of zari per saree. Similarly, eight 'kuligai', yarns, or strands of weft is one gram. Therefore, for a border of 6 inches, if it is two-ply, it consumes around fifty grams of zari, and if it is three-ply, it consumes approximately seventy-five grams.

Minimum is thirty grams zari saree and a maximum of nine hundred and fifty grams depending on the design.

The calculation may be made as follows,

1 marc = 4 Kattai (4 Bobbins), where one bobbin consists of nearly 4000 meters zari.

For example, a saree with five to six inches border on either side and with a heavy pallu, the zari content is calculated as 120 'kuligai', which is around 40 grams of Zari for a side (80 grams for either side) for borders and about 600 'kuligai' that is 50 grams for pallu.

The warp can only be made of both silk and zari of the exact measurement. For example, approximately 1500 silk yarns and 1500 zari strands may consist of a minimum of 240 grams of zari. The weft is calculated as per the density of the yarns as per the experience of the weaver. For example, wefts are woven with 28 picks per inch, 30 picks per inch, or 32 picks per inch and are to be calculated accordingly.

Nowadays, in the name of Kancheepuram saree, duplicates are made from pure mulberry silk and zari of many varieties known as half fine zari, fast zari, and imitation zari. The price range varies accordingly.

"Real or pure zari is made from pure silver, which is wound on a base yarn of silk and then electroplated with pure gold. Half fine zari consists of wrapping a silk yarn with copper wire that is electroplated with silver. It is then gilded to obtain a golden color. In tested zari, copper wire is electroplated with gold. Fast zari has a polyester yarn that is gilded with copper and minute amounts of silver. Imitation zari is made by coating threads with gold coloured powder."

Source: https://www.prashantisarees.in/blogs/news/here-are-5-tips-to-check-the-genuinity-of-your-kanjivarams

Secondhand silk Sari

The consumer has various reasons to buy a Kancheepuram silk saree, many times; it is for special occasions like weddings and parties where the wearer has to look special and unique. The fact is that the gain of the monetary benefit is encouraging when you buy a silk saree with zari. A second-hand saree dealer fixes the rate according to the gold and silver content as on date per saree. It also depends on the quality and quantity of zari. The chart of gold prices for the past seven years is shown below to understand the growth rate and the saree price hike of pure zari silk saree. Each year the price goes higher. The advantage of the price hike is that when a saree is purchased for rupees ten thousand before ten years, it can be exchanged for a higher price according to the present value of silver and gold.

Year 24-karats for 10-grams 2015 Rs 26,400

2016 Rs 28,700

2017 Rs 26,600

2018 Rs 31,400

2019 Rs 35,300

2020 Rs 48,800

2021 Rs 48,850

Source: https://www.goodreturns.in/personal-finance/investment/how-gold-prices-in-india- have-moved-in-the-last-10-years-1211566.html

Table: 3 – Comparative chart of gold and silver prices, as on 21.02.2022

Gold and Silver prices in Indian cities:		
CITY	GOLD (per 10 grams,22 carats)	SILVER (per kg)
NEW DELHI	Rs 48,240	Rs 66,800
CHENNAI	Rs 46,500	Rs 71,500
MUMBAI	Rs 47,920	Rs 66,800

For real zari, the basic metal used is silver while for imitation zari the basic metal used is copper.

Pure zari: This is also known as real zari. The centre core of pure zari is made up of degummed twisted red or yellow mulberry silk yarn; over which silver lametta and badla (flatten wire) is wound. The silver zari threads are electroplated with pure gold solution, to produce gold zari.

BIS (Bureau of Indian Standards) have even specified the color and denier of the silk to be used in the core. As per them, the silk core is two ply 16/18 soft twisted yarn dyed in a red or yellow color.

Secondhand markets of silk sarees

The Original silk and Zari sarees are valued according to the quality and weight of the saree. The mind-set of majority of women living in the southern part of the country are conservative and the concept of second hand are not widely acceptable is what is the statement of Mr.Farook, proprietor of the second hand saree dealer in Kancheepuram. Therefore, more than purchasing of old saree the concept of conversion into another product and selling it into a vendor are the only two options. The sarees are either carried to the shops or sold to the person who comes to collect the old used saree. In both the methods the originality is checked by scrubbing the zari yarn in a granite stone called Kadappa Kal and burning test if needed. The demand for old sarees, mostly woven 40 to 50 years ago, has gone up over the past one year. Old silk sarees with higher gold and silver content fetch anywhere between Rs 2,000 and Rs 10,000 depending on the quality of zari (Menon, 2012).

Recycle and upcycle

The Kanchipuram Sarees are recycled and upcycled in different ways and methods. It is considered old if the saree is purchased before twenty to thirty years and worn more than five times for various occasions. This is not a fixed or standard time. Some sarees last more than fifty to sixty years. There are designer boutiques in Chennai that make exciting and stylish outfits made of old sarees of the family member. When the color and design are still in trend,

the saree is ready for a transformation because of the classic combinations. Most of the time, it is the clients who prefer what they need. The designer then gives options for it to be converted into Traditional or western, simple or draped, Dress or bifurcates according to the wearer. The saree is analyzed for its strength, and design is suggested. If any damage, then measures are taken to mend it. If the silk portion is torn, then the border is taken and stitched with another new fabric. Various categories of products, including Jewellery, are created to enjoy olden memory in different forms, shapes, and sizes. The products include Anarkali, Elaborate Skirt and top, which can also be made even when the saree is stained or damaged in a small portion. Palazzos are one of the best outfits which choose the best for saree with a monochrome border design.

Pouches, potli, vest coat, cushion covers, Laptop bags, notebook covers, bangle shells, and Jewellery are a few other options using a portion or smaller portions of the treasure. Enough care is given to strengthen the fabric in terms of darning, fusing, and lining to add on the value. Here are few images of recycled products,

Figure1. Dresses stitched out of Kanchipuram silk sarees. Trims and accessories used here are to enhance the design.

Figure 2 and 3. Dress with wide border.

Figure 4. Back of the dress with trim detail.

Source: 'Varnuyathe' custom design studio.

Other sourced images of recycled products from the websites which showcases the curtains and a draped dress which is modernised and yet graceful in holding the essence of zari border (Figure:4 and 5). Notebook with soft cover (Figure: 6).

Figure 4.

Figure 5.

Source: https://www.southindiafashion.com/2019/02/7-ways-recycle-old-silk-sarees.html

Comparative study on longevity, Quality, Price and Design

There are silk sarees from Kanchipuram, Arani, Thirubuvanam, Salem, Coimbatore, Palani and Rasipuram.

Arani is a place in the Thiruvannamalai district, and the silk saree made before 1980s was authentic and heavy, whereas today, it is more known for the thread on thread work. It is lighter than Kanchipuram and more liked by women who prefer formal wear. The price range is between ₹6000 and above. Thirubuvanam is near Kumbakonam and a strong competitor for Kanchipuram Silk. Though this was the superior quality in the olden days, the fame and name gained by Kanchipuram sarees are unattainable. Thirubuvanam silk is comparatively low in weight nowadays because it is made of 2 ply warp and weft. The finishing fold and presentation is a very unique typical style with pleats called 'Visiri Madippu'. Mostly the saree is woven without the blouse, and the price range of pure zari saree is from ₹12000 and above. Sarees from Salem, Coimbatore, and Palani are soft silk sarees made using half fine zari without any resale value. The attractive color and design of these sarees have caught the market and sold like hotcakes. The price range of original silk is from ₹4000 and above. There are cheaper sarees made in power loom with polyester mix yarn for even lesser prices. Rasipuram is near Namakkal District of Tamilnadu. Rasipuram Sarees are woven by using Jacquard Machine for Temple Borders on both sides. These sarees are produced with pure silk and Half fine zari and have a blouse attached in attractive colors. The price range is between ₹5500 and above.

The real value of the Kanchipuram or Thirubuvanam saree is when it is given for the resale. The shop owner weighs the saree, and the calculation of silk and zari is made as per the design. For example, if the saree has only a border, then the quantity of zari is very less. The calculation is done by measuring the approximate number of warp and weft in a native term, 'Kuligai.'

The final stage of rebirth of silver and gold

The demolishing and extracting gold, silver, and Copper method is quite destructive, especially when you know the effort has gone into making the saree—the saree from the pawnshop to the factory, where it is processed and made with utmost care. The saree is burnt into ashes, and the iron content is removed with the help of a magnet. Once the ash is cleaned, it is ground with the stone, natively known as 'Ammi Kal'. Once the ash is powdered soft enough, it is filled in the graphite container and burnt with the help of charcoal in a traditional stove called 'Aduppu'. Slowly the liquid is cleaned by taking out the ash, and the remaining metallic liquid stays in the container. The extracting is a complex process and needs expertise in handling the molten liquid. The cleaned molten liquid is poured into the cool water by placing a wide container inside the water. After cooling, the hot liquid solidifies and gets deposited as chips in the container—the mix of gold, silver, and copper. The pieces are processed in the refinery with the help of nitric acid to separate gold from silver. Gold is separated and removed as a solid and the extract of silver and copper as a liquid. Gold is further boiled to the purest form of 99.9 %, and silver is extracted as a powder from the copper contained liquid. The silver powder is further pressed into solid and melted, purified, and taken as silver bars.

Figure 7. The old silk sarees which has come for sale.

Figure 8. Customer’s wedding saree (two similar looking sarees of two sisters visited the shop)

Figure 9. The number of ply is checked in one warp zari thread (In this there were 6 plys)

Figure10. The process of saree burnt into ashes to extract gold and silver

Figure 11. The traditional stove or Aduppu to heat the ashes which contains gold and silver

Figure 12. The refinery with 30 kg capacity


Figure 14 and 15. Silver powder ready to be solidified

Figure 16. ‘Poovu’ The solid gold

Figure 17. Gold is purified to 99.9% in the liquid form

Source: Photographs are taken by the author.

Conclusion

The intricate details of the Kanchipuram saree are meticulously done with a lot of care and love. The same saree is worn by the consumer with a lot of expectation and excitement. Without

much of it changed is either being worn by the next generation or exchanged for a good return. Therefore, the saree cannot be seen as a mere product rather is a bundle of emotion filled memory which lasts forever. The beauty of the saree never dies as it comes back in the form of a newer product or material. The strength of the gold and silver are the added advantages to sustain for long. The 6 yards to 10 yards sarees are made into Dresses, Half Sarees, Stoles, Kids wear, Home furnishings and decors and tiny little jewellery to spend more time with the consumer.

The tremendous emotional love and care given in making the saree and time and amount spent on the designs and patterns are finally burnt into ashes. This concept of becoming nothing is very spiritual, which explains that nothing is permanent other than changes.

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RIGWNAI FROM COSTUME TO PRODUCT DIVERSIFICATION: a study on revival of tribal textile of the Reang tribe of Tripura India

Authors

Paramita Sarkar, Nilanjana Bairagi and Avani Pandeya,

Dr. Paramita Sarkar,
Assistant Professor,
NIFT, Kangra, India.

Dr. Nilanjana Bairagi,
Associate Professor,
NIFT, Bengaluru, India.

Ms. Avani Pandaya,
Founder of Mothers Grace Women empowerment Trust,
Himachal Pradesh.

Corresponding Author: paramita.sarkar@nift.ac.in

Keywords

Reang, Rigwnai, Handloom, Design interven4on, Backstrap loom.

Abstract

Tripura is situated in the northeastern part of India. The population of Tripura is approximately 32 lakhs of people among which 31.1% belong to the scheduled tribe category. There are 19 tribes residing in the state - Tripuri, Reang, Jamatia, Noatia, Uchai, Chakma, Mog, Lushai, Kuki, Halam, Munda, Kaur, Orang, Santal, Bhil, Bhutia, Chaimal, Garo, Khasia, and Lepcha. Ethnographic research was conducted from the year 2011 to 2016, to study the tribal costume of the Reang tribe of Tripura, India. The Reang people are the most primitive tribe of Tripura and have the 2nd largest tribal population in the state. The uniqueness of the tribal community is expressed in hand-woven textiles. The traditional costume of the Reang women consists of two pieces of hand-woven textiles named “Rigwnai” and “Risha”. Rigwnai is wrapped on the lower abdomen and Risha is wrapped on the upper abdomen of the body. The Reang women weave their clothes on primate looms also knows as a back-strap loom, in the combination of black and white stripes, preserving their tribal identity. They weave geometrical motifs inspired by nature and their surrounding environment. With modernisation and socio-economic development, the preferences of the modern tribal women have changed from the traditional way of dressing and adorning. The traditional costume has also undergone changes in terms of yarn, colour, and motifs as well as in draping style. Young women were observed to be more experimental with clothing, than the older women who still prefer more traditional costumes.

It was observed that there was a reduction in the number of women weavers and consumption of costumes within the community. In 2021 workshop on design intervention was conducted for the preservation of tribal textiles. For research and field visits two villages were selected named Bogafa and Chakhi Kho of South Tripura Dist. Tripura. Data were collected by survey & in-depth interviews. Traditional Rigwani, was sourced from the elderly Reang women, weavers and local vendors. Further new product designs were developed with NGOs supporting tribal artisans. Contemporary products were designed and developed on the model of sustainability and slow fashion. Rigwani, woven on back-strap loom worn as the traditional costume was used for product diversification like garments, lifestyle products and souvenirs. The paper focuses on the need for design intervention for the revival of Rigwnai and the contemporary use of the traditional textile of the Reang tribe.

1. Introduction

Tripura is situated in the northeastern part of India. In northeast India, Tripura is an abode of indigenous people who have migrated to this state during an unknown period in the history of the Indian sub-continent. In Tripura, there are nineteen tribes, each with a distinct culture. Ethnically they are mainly of Mongoloid origin and have migrated between Mongolia, Tibet and Burma. Linguistically these tribes are divided into distinct groups. Bodo Group of tribes who are known as aboriginal tribes of Tripura. They are Tripuri, Reang, Jamatia, Noatia and sub-tribes as Murasingh, Koloi, Rupini and Uchai. Their language is *Kok-Borok*, which is under the *Bodo* linguistic group. Tribes like Halam, Kuki, Molsom, Darlong, Kaipeng and Lushai, speak a language of the Kuki- Chin linguistic group. Mog and Chakma tribes speak a language of the Arakanese linguistic group. Bhill, Santal, Munda, Orang, Bhutias, Lepchas and Meghalaya tribes like Khasi and Garo are also inhabiting in the state. All these tribes belong to Austroid, Austro-Asiatic, Austro and Mongoloid origin, each having distinctive ethnic features. The later tribes have entered the state of Tripura for economic reasons during the first part of the 19th century (Land of Rich Ethnic Tapestry Tripura, 2010).

The population of Tripura is approximately 32 lakhs of people among which 31.1% belong to the scheduled tribe category. Out of the 19 tribes residing in the state of Tripura. The Reang people are the most primitive tribe of Tripura and have the 2nd largest tribal population in the state. Regarding the original homeland of the Reangs, opinion differs. Its commonly believed that the Reangs migrated from somewhere in the Chittagong Hill Tract (now in Bangladesh) to Tripura during the time of the ruler Ratna Manikya in the 15^{th} century. In the opinion of Ramesh Ch. Mazumdar, the coins of Ratna Manikya belonged to the period between 1464 AD to 1467 AD, and the Reangs might have migrated to Tripura during that period. The Reangs were recruited as soldiers in the royal army during the reign of Dhanya Manikya who ruled Tripura from 1490 AD to 1515 AD.

There is limited literature on tribal textiles of Tripura and its transformation in the present. As a result, the researcher studied changes of costume in different tribes, in African, South American and South Asian countries. What any researchers reported on the costume of various tribal communities gives insight on various aspects of tribal life, issues and challenges. The very purpose of this review study is to get a comprehensive and broad knowledge of the study on background and culture of tribes, which will surely help to form a foundation for the further construction of the chapters of the study. This review was helpful to get an extensive understanding of the contributions of ideas of the previous scholars who studied on tribes in general and particularly on tribes of Tripura, which can be related to the present study on the costumes of tribes of Tripura and its transformation.The uniqueness of the tribal community is expressed in hand-woven textiles. The traditional costume of the Reang women consists of two pieces of hand-woven textiles named “Rigwnai” and “Risha”. Rigwnai is wrapped on the lower abdomen and Risha is wrapped on the upper abdomen of the body. The Reang women weave their clothes on primitive looms also knows as a back- strap loom, in the combination of black and white stripes, preserving their tribal identity. With changing times the preferences of choices of clothing has changed among the Reang women. Young women were observed to be more experimental with clothing, than the older women who still prefer more traditional

costumes. It was observed that there was a reduction in the number of women weavers and consumption of costumes within the community. The research paper focuses on the project among on revival of the costume by design intervention and contemporary use of Rigwani.

2. Methodology

This study was part of theEthnographic research as a part of Ph.D completed by the author form the year 2011 to 2019. The traditional costume of the Reang tribe was studied from the empirical data collected during the visit to the places, dominated by the Reang tribe, from the year 2011 to 2017.

Figure 1. Researcher with Reang women in remote villages in South Tripura.

As per the statistical data collected from the census office, the South Tripura district and the Dhalai district had the highest concentration of the Reang population. For research and field visits two villages were selected named Bogafa and Chakhi Kho of South Tripura Dist. Tripura. Data were collected by survey & in-depth interviews. The State Museum in Agartala was visited to study the traditional costume. During the field visits as observed and through analysis of old images, costume collections from museums and photographs of families who volunteered to support the study, the following information were derived. A survey of 100 Reang women and in-depth interviews with 20 Reang families to study the transformation in costume of the of the Reang women. After completion of the doctoral studies, the author further took various projects on design intervention using Tribal fabrics of Tripura. In the year 2019 the author was awarded the first prize in Innovation contest in International conference in Functional Clothing and Textiles, IIT, New Delhi. In 2021 workshop on design intervention was conducted for the preservation of tribal textiles. The worship was conducted with team of tailors of Mothers Grace Women empowerment trust. Rigwani was sourced from Reang

weaver and families and the tailed of the trust were guided to design and construct diversified products like bags , cushion covers. The aim of the work-shop was to design diversified products using tribal textile.

3. Finding & Discussions

3.1 Traditional costume of Reang Tribe

The traditional costume of the Reang tribe is an unstitched and draped textile.

The costume consists of mainly two parts rigwnai (draped on lower abdomen) and risha or ria (draped over the upper abdomen), as shown in Fig 2. The Reang women classified the rigwnai in two categories, based on the design worn by elderly and younger women. Younger women before and after marriage wear rigwnai with stripes in black and white colours. Women who have become mother- in- laws or grandparents wear a black colour rigwnai with motifs on the borders, in both sides of the rigwnai borders in the warp direction. Traditionally only cotton yarn (grown through shifting cultivation), was used and dyed with natural dyes. The Reang women weave specific motifs on the rigwnai, different from the motifs of other tribes of Tripura. The length of the rigwnai in olden days was from waist till mid-calf length. Weaving is practiced by the women of the Reang community. The Reang women weave the risha and rigwnai on the backstrap loom. The rigwnai is a rectangular piece of cloth woven continual in one direction of the loom. Traditionally the fabric in full width is woven on the back-strap loom.

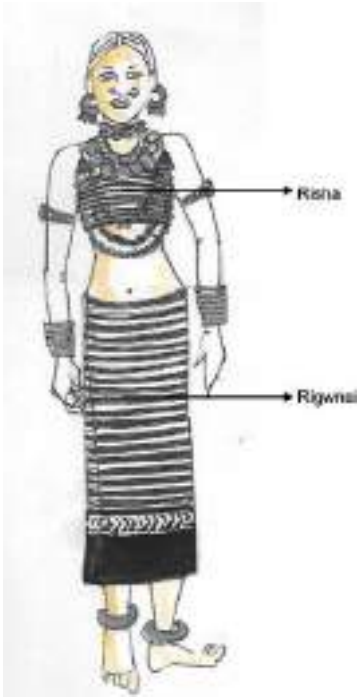

Figure 2. Illustration of Costume of a Reang women.

The researcher observed that the back-strap loom made out of local bamboos is present in every tribal house and every woman practice weaving in the rural areas. The researcher interviewed 20 families in village known as Bogafa and a primitive village known as Chakhi Kho, in South Tripura district. The researcher found that both the elderly and younger generation weave their clothes. During the field visits from 2011 to 2017, the researcher observed that the Reang women practice weaving in every household. In rural areas like Bogafa and Chai Kho in South Tripura District, it was observed that in every tribal house the Reang women practice weaving, as shown in Fig. 3. During the interviews many women said that since the modern education system, the younger generation of women gets less time to weave. But the elders of the family has made it compulsory for the younger generation to learn weaving They are encouraged to learn and practice weaving in their free time and especially during vacations and holidays.

Figure 3. Sarkar, P., 2013. Reang women weaving on back-strap loom, Bogafa, South Tripura District. [Photograph] (Photo taken by the researcher).

3.2 Elements of Tribal Costume

From the study of various textiles preserved in tribal families in different places like Bogafa and Chakhi Kho, the researcher found that the tribal fabric, woven on the back-strap loom consists of the following elements - Plain surface &Stripes, as shown in Fig. 4(a & b).

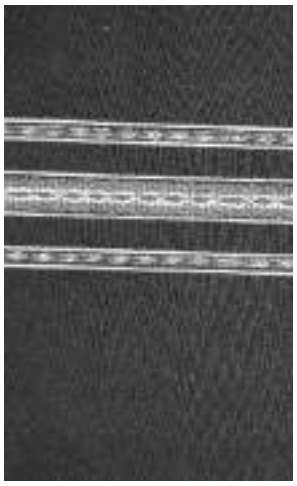

Figure 4a.

Figure 4b.

Figure 4. Sarkar, P., 2013. Study of elements of design in traditional Reang rigwnai, Bogafa, South Tripura District. [Photograph] (Photo taken by the researcher).

i. Plain surface

A plain surface is commonly seen in the traditional black colour rigwnai with three lines of motifs on the borders, usually worn by the older women of the Reang tribe. In another design of all over striped rigwnai, usually worn by the younger women, specific panels in rigwnai can be a plain surface. The researcher found that the plain surface is created with plain weave.

ii. Stripes

In the rigwnai worn by the Reang women, the stripes run in the direction of the warp. The distance between each line of the stripe can be 1/8 inches. The traditional colours used in the stripes of Tripuri rigwnai are white and black. Nowadays women create stripes with a various colour combination with white colour. The researcher observed that the women weave very thin stripes across the entire cloth in both traditional rigwnai and risha. The width of the stripes may vary from 1/8 the inches to 1⁄4 the inches or more.

3.3 Traditional Rigwnai

The Reang women weave the rigwnai on the backstrap looms, is a rectangle piece of cloth, draped in the lower part of the body like a sarong or wrap around skirt. The dimension customized according to the waist measurement of the wearer. The available dimensions of rigwnai varied 68 inches * 41. 1⁄2 inches.

The rigwnai is draped in the lower abdomen, starting from waist till mid-calf or ankle length. In the olden day, the length of the rigwnai was till the knee or mid-calf length, making the women comfortable while climbing the hilly regions. With changing time the Reang population

has moved towards plane land and has started wearing rigwnai of full length. The rigwnai with black and white stripes is the identity of the Reang tribe. The Reang women create stripes with a combination of black and white colour yarn. The women also use brown, dark blue, violet in place of black. The researcher has taken various photographs of tribal women wearing rigwnai in different places of South Tripura District. The researcher observed that there are two designs of rigwnai worn by the Reang women. Both the designs of the rigwnai have the same colour combination of black and white, as shown in table 1.

	***RIGWNAI* WITH STRIPES**	***RIGWNAI* WITH MOTIFS ON THE BORDER**
Age group wearing the *rigwnai*	Worn by teenagers and married women.	Worn by elderly women who have become mother in laws or grandmothers.
Colour Panels	 Borders on top and near the hem can be in black, brown or blue. All over stripes black and white, in the warp direction.	 The body of the *rigwnai* is black in colour. 3 lines of motifs near on the border near the hem, in white and brown colour.
Stripes	All over stripes in the warp direction.	Three line of motifs on the border, in the warp direction.

Table 1. Comparison of two types of rigwnai of the Reang Tribe

The young women of the Reang tribe wear a rigwnai with stripes in black and white colours. This rigwnai is worn daily and on special occasions. Young girls, married women and mother of the family are eligible for wearing the rigwnai with stripes. The diameter of the rigwnai of the Reang tribe, may vary from 43 inches * 66 inches and 45 inches * 55 inches. The border of the rigwnai will be woven in black/ blue/ brown. The border of the rigwnai is around 5 inches wide or more. The diameter of the rigwnai is custom made and woven according to the size of the wearer.

3.4 Traditional colours of Reang costume

The researcher found that apart from the Reang tribe, all other tribes wear colourful costume in Tripura. The Reang tribe was restricted to wear only black and white colour. During the interview the researcher came to know that it was a political decision to not allow the Reang women to wear red colour. This finding of the research is supporting the research by Dhamija (2010), where the author mentioned that a dominant tribe can punish a rebellious one by forbidding the use of colour in their dress in Tripura. It is said once the Reang tribe revolted to grab the attention of the rulers. It was as a punishment they were restricted to use colours. The

women use a combination of black and white colours to create stripes. The preferred base colour of the rigwnai is black, while the motifs are made with white colour yarns. Sometime the women also use darker shades of brown, violet or blue in combination of black.

4. Social Cultural and Economic Factors Influencing the Choice of Clothing

One community that is facing rapid changes is the Riang (Reang) tribe of Tripura, a northeastern Indian state. The Riang (Reang), is a dominant tribal community of Tripura, recognised as the most primitive tribe are now struggling to find their identity and to capture position in the cultural milieu of Tripura (Bhattacharjee, 2009). The demographic picture of Tripura undoubtedly presents the effects of a constant influx of people from across the international border, and therefore the growth of population in the State is not entirely accounted for by natural growth but also by new net immigration each year. Hence the immigration-based pattern of population growth has changed the demographic composition in the State. Tripura State is undergoing social, communal and ethnic tension resulting from the indigenous people's feeling of being cornered and the insecurity in the land of their own, due to the overwhelming presence of the immigrants. a (Debbarma, 1995). The changes is reflected in the dressing and lifestyle of the tribal people, also reflected in their dressing.

Similar research works had been carried out to study the changes in the traditional costume of different tribes and groups. The changes in traditional costume are a common factor in many cultures and regions of India and worldwide. There are many reasons for the change in the traditional costume of different tribes. For example, changes in the traditional costume of Tangkhul Naga tribe of Manipur was due to many reasons. After the advent of Christianity in Tangkhul, many rituals and festivals, no longer celebrated. Costume related to those festivals had lost their significance. Change in the costume of men and women could also be because of education, urbanisation and modernisation which have broadened the outlook of the youth. Industrialisation has revolutionised the very dimension of fabric. Media and tourism have also made its impact on the clothing pattern. The youth no longer wants to wear the costume. They want to dress like the people they encounter (Moiwunshi, 2013).

During the field visit it was observed observed that in the Reang community, with the passage of time, social, religious and economic changes are noted. The studies reveal that due to the impact of outer society, socio-cultural reasons and attraction towards the contemporary trends, the slow transformation in the traditional costume is observed. Since the Reang population is settled in rural areas, there exposure to the outer world seems to be less compared to the other tribes of Tripura, majorly settled in the Capital Agartala and West Tripura District. Similar to the Tripuri tribe, the exposure to new culture and change in surrounding environment, physical, social and economic conditions affects the change process in their cultural domain. They are now subjected to a massive cultural change due to the influence of modern society. Key change agents are impacting the state of Tripura include increased numbers of the educated tribal population, exposure to media, excess to the internet from local internet café or smartphones, availability and promotion of contemporary textiles and inexpensive western and other Indian dresses.The survey among the Reang women in the semi-urban area shows the preference for

their clothing. 90% of Tripuri women said they wear traditional costume, 100% of women said that elderly women in their still wear the traditional costume. 64% of the women said that they wear the traditional costume when they travel outside the state of Tripura. 70% of women said that they still practice weaving. 53% of the women said they wear contemporary colours. The findings of the research show that though in Reang family's women continue to wear traditional costume and weaving, the change is noticed in the choices of colours and draping style. The younger generation of Reang women is still inclined towards their traditional way of dressing as shown in Fig. 5. However, unlike their ancestors, they prefer wearing colourful costumes. Due to modernisation there is threat of decrease in the number of women weavers. To preserve the age old tradition of weaving a new design strategies are required.

Figure 5. Sarkar, P., 2013. Preference of clothes in three generation of women in same family. The grandmother (2nd left hand side) is wearing a traditional rigwnai and risha, the mother is wearing a traditional all over striped rigwnai with a western blouse (left hand side). The elder granddaughter (1st right hand side) is wearing a rigwnai of different tribe with a t-shirt and stole, Th younger granddaughter(2nd right hand side) is wearing a skirt and top, Bogafa, South Tripura District. [Photograph] (Photo taken by the researcher).

5. Design Intervention with Rigwnai

Identification & study of traditional crafts so as to incorporate the appropriate interventions maintaining the traditional elements of the crafts was the approach that was followed during these workshops. A proper design thinking process was followed for design intervention. On the basis of the focus group discussion it was found that there is need for conservation and revival of tribal textiles. There is a huge scope of creating diversified product for luxury market.

This will generate income and also encourage the younger generation to continue with the practice of weaving. Traditional Rigwani, was sourced from the elderly Reang women, weavers and local vendors. For selection of categories of products a market research was conducted online. For the first workshop different styles of bags and cushion cover were selected for designing. It was also kept in mind that the new design of products will have the essence from the culture of the tribe. As trims artificial silver coin were incorporated in the design, as the Reang women traditionally wear silver ornaments. The textile used for making the products were traditional rigwani woven in traditional stripes and motifs. Colour palate was kept as per the traditional colours used by the tribal women like black, brown, & white.

The products were developed in collaboration of Mothers Grace Women Empowerment Trust. The author has been working on various projects on design intervention with tribal fabrics of Tripura since 2019.

The organisation works on design intervention of tribal fabrics from different tribal communities of India . A group of 8 women from Jia Valley, Himachal Pradesh participated in the workshop as shown in Fig 6. The organisation works with artisans and craftsmen of defferent region of India.

Figure 6. Sarkar, P., 2022. Women working with rigwani during the workshop.

The products were designed keeping in mind the market demands as shown in Figures 7 & 8.

Figure 7. Sarkar, P., 2022. Bags designed using traditional rigwnai

Figure 8. Sarkar, P., 2022. Cushion cover designed using traditional rigwnai

The products developed will further be promoted through the social media network sites for customer feed back and collaboration with various online and offline marketing channel. This ongoing project is an attempt for revival of tribal handloom and encouraging the younger generation of tribal women to continue practice of weaving traditional textiles on back-strap loom.

Conclusion

The Reang community of Tripura were know for their conformity on clothing. Traditionally the reang women wear a costume similar to wearing know as rigwani. The tribal women weave the rigwani in a combination of black and white stripes on back strap loom. The transformation in the tribal costume is co-related with various socio-economical and socio- cultural factors. As in many other tribal areas in India, Tripura is passing through a transitional phase though the nature and pace of change are specific to this frontier state owing to its history and demographics, as well as to common policy implemented following Independence. However, change is everywhere and has had an impact on traditional social structures. With changing time it is noticed that due to modernisation, urbanisation and education the preferences of clothing among the younger generation is changing. The elderly women continue to wear their traditional costume, where as the younger generation wear the costume only on special occasions. There is also a decline in interest in weaving in the younger generation. The research paper focused on the attempts taken for revival and preservation of textiles. Design intervention will help in designing diversified products and also empowering the tribal women in continuing the ages practice of weaving. The traditional tribal costume can be customised into new designs and value addition to make it more attractive, adaptable, seeking new dimension and universal appeal, with distinct essence of Tripura. There is much scope for future study and research.

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THE AFFORDANCES OF AFFORDANCE THEORY FOR SUSTAINABLE FASHION DESIGN PEDAGOGY

Authors

Alexandra Sherlock, Tassia Joannides and Pennie Jagiello,
RMIT University

Corresponding Author: alexandra.sherlock@rmit.edu.au

Keywords

Affordances; Material-driven design; Defamiliarisation; Shoes; Creativity; Sustainability

Abstract

'Affordances' are understood to be the subjective and embodied perception of what an object or material might enable one to do, or, in the words of ecological psychologist James Jerome Gibson, 'the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill' (Gibson, 1979: 127). In a consumer culture context, the natural environment has afforded the production and use of vast amounts of materials and goods resulting in devastating amounts of waste. As a key contributor to this waste, the fashion industry - including fashion educators - are responsible for addressing and reducing this waste which constitutes an undeniably large proportion of the 'environment' in which the contemporary fashion designer now finds themself. This paper presents data collected during an introductory activity within the course *Fashion Design Body Artefacts and Accessories* in the Bachelor of Fashion (Design) program at RMIT, Melbourne (2021). Extending upon Glăveanu's research which utilises Gibson's seminal theory of affordances to re-evaluate the agentic role of material objects in the conceptualisation of creativity (2012), the activity *This is Not a Shoe* uses the material deconstruction and consequent 'defamiliarisation' of used shoes to explore how unconventional affordances can be perceived and utilised to inspire innovative fashion design outcomes. The research contributes to emerging sustainable fashion design pedagogies by developing and critically reflecting upon activities that assist a methodological shift from a design-led approach to materials, to a more sustainable material- driven approach to design. More than simply upcycling waste materials the research explores the embodied and transferable capabilities and knowledges that can be enhanced through material reuse in an educational setting.

1. Introduction

This paper reflects on the ongoing development of an introductory activity and assignment within the course *Fashion Design Body Artefacts and Accessories* in the Bachelor of Fashion (Design) at RMIT University (2020-2021) that uses fashion praxis to redress the ways we do fashion in a sustainable context. Through a theoretically-driven approach to learning design, the 'This is Not a Shoe' activity encourages students to 'unmake' a pair of used shoes and use the resulting components to inspire new accessory outcomes. In doing so, we join others in introducing a methodological shift from conventional and often unsustainable design-led approaches to materials, to a 'material-driven' (Karana et. al., 2015) approach to design. In this context and in line with established and evolving practices of upcycling, rather than sourcing materials to realise an accessory design, students are encouraged to utilise and collaborate with existing and available materials, often resulting in unexpected encounters, discoveries and design ideas. Eponymously named and developed from the lead researcher's doctoral study (Sherlock, 2014, 2017) the activity and course within which it sits uses Gibson's theory of affordances in conjunction with practices of defamiliarisation as a framework to effect this shift in design thinking and reflect on outcomes. In doing so the activity goes beyond establishing methods for upcycling - a practice often criticised for its limitations for scaled reproduction - to explore the embodied and transferable capabilities and knowledges that may be enhanced through the practice of material reuse. The co-researchers, themselves practitioners, bring further theoretical and embodied perspectives to the development and delivery of the course activities and interpretation of data (Joannides, 2017; Jagiello, 2017), discussion of which explores the conditions necessary to perceive and utilise unconventional affordances and enhance a perception of matter - increasingly important in these digital times. These data also present an opportunity to identify barriers and challenges faced when adopting a material-driven approach within design education and the research proposes specific methodological parameters that could enhance the meaningful, scalable and sustainable use or reuse of materials. By also positioning this research firmly within fashion design practice, we contribute across discipline fields and propose speculative future approaches to the way we teach design more broadly.

2. Literature:

2.1 Affordance theory, creativity and material-driven design

In 1979 ecological psychologist James Jerome Gibson wrote his seminal text *The Ecological Approach to Visual Perception* from which the theory of affordances has evolved. In an oft-cited quote, Gibson defines 'the affordances of the environment [to be] what it offers the animal, what it provides or furnishes, either for good or ill' (1979: 127). According to Gibson, what we see when we look at objects or materials is not an objective set of features or values, but their affordances - people only perceive and notice elements of the environment that might provide or furnish them with something (ibid.). Affordances therefore cut across the subjective-objective dichotomy, '[they are] equally a fact of the environment and a fact of behaviour'

(ibid: 128). Used for its simplicity, his theory has been described as an 'elegant and practical tool' (Davis, 2020) to counter persistent Cartesian perspectives in philosophy and cognitive science by 'relocating mental processes from "inside" the brain to "in between" mind and body, person and the surrounding environment' (Glăveanu, 2012: 193). Consequently, Gibson's theory has been developed by numerous scholars (Heft, 1989; Costall, 1995; Ingold, 2000, 2011; Chemero, 2003; Knappett, 2004, 2005) and its transition into design studies to consider how technologies encourage or discourage particular types of use (Norman, 1988, 1998) heralded the affordances of affordance theory for multiple disciplines such as science and technology studies, communication studies, education, anthropology, sociology and engineering (Davis, 2020: 25).

In contrast to its largely scientific use and in conjunction with a material turn in the social sciences and humanities over recent years, notable scholars such as Ingold (2010b, 2013) and Malafouris (2008, 2013) have adopted Gibson's theory of affordances to understand relationships between bodies and materials through practices of craft and making. This has had significant impact for reconceptualising notions of creativity (Glăveanu, 2012, Withagen and van der Kamp, 2018). Here, materials are understood to have agency (Knappett and Malafouris, 2008) becoming active 'collaborators' in the creative process (Ingold, 2013: 31), participating in and inspiring the generation of design ideas rather than being used as a solution (Barati and Karana, 2019:105). Creativity is therefore understood to be 'distributed' between the designer and the material world (Glăveanu, 2014).

Creativity is further defined by the *unconventional use* of an object's affordances (Withagen and van der Kamp, 2018: 4; Glăveanu, 2012), a process that is only accessible through practical interactions with materials such as 'tinkering, experimenting and making' (Barati and Karana, 2019: 118). In this context, conventional or 'canonical affordances' (Costall, 2012, 2015) can be overcome to perceive 'novel affordances' (Glăveanu, 2012), resulting in spontaneous discovery, invention of techniques and transgression of norms (Barati and Karana, 2019: 116-117). Furthermore, it is argued that affordances are not only *revealed* through sustained collaborative experimentation, but also 'generated' by this process (Barati and Karana, 2019), as the unconventional affordance did not exist prior and is therefore collaboratively 'invented' by the body/environment. Fisher asserts therefore that affordances cannot 'simply be "built into" or "read out of" artefacts, but are discovered by users through interaction with them' (2004: 26).

Withagen and van der Kamp explain that the unconventional use of affordances on its own however is an insufficient criteria for creativity; a sense of meaning and purpose is also required (2018: 4). The drive towards sustainable design, whether by reducing material use or reusing materials, provides purpose to enhance a perception of novel affordances, a point seldom recognised within current literature. Choice and availability of materials, tools and technology abounds students in higher education today, but it is the denial of choice that enables innovation and economical use of materials, and forces a focus on considered, sustainable over traditional design. As Fry, Dilnot and Stewart provocatively state in their analysis of design history, by continuing to follow conventional design methodologies students are 'educated in error', they are 'educated in defuturing actions' (2015: 16-20). The increasingly institutionalised

prioritisation of form over materials continues to be afforded by new technologies such as computer aided design (Pantazis, 2013 in Barati and Karana, 2019: 109). This of course is not to deny the affordances of CAD for a more sustainable future but as Pizzocaro highlights, 'matter still matters', perhaps *especially* in the education of design for an immaterial age (2018).[3] Despite this, a consideration of the potential of a material- driven approach for sustainable design is still in its infancy.[4] Frequent terminology referring to the 'exploitation' rather than 'utilisation' of materials, and 'invention' rather than 'generation' of 'novel' rather than 'unconventional' affordances suggests a continued anthropocentric approach and pursuit of a mastery over materials and the environment.

2.2 Rematerialising fashion design

While the theorisation of affordances in relation to creativity and material-driven design gains momentum, according to Barati and Karana there is currently no framework for the identification and discussion of the creative contribution of designers at 'design time' (2019:108). Furthermore, with the exception of Glăveanu's important study of traditional egg decoration activities in rural Romania (2012), there is a dearth of empirical research investigating the contexts in which designers and makers are able to perceive, generate and utilise unconventional affordances (Barati and Karana, 2019:112). This is of particular interest from our own perspective as fashion design lecturers educating a digitally native and largely materially illiterate generation of students. We suggest that the field of fashion design is ideally situated to both benefit from and contribute to the evolution of affordance theory within design in an ecological context, yet work in this area is difficult, if impossible to find.[5] This is perhaps because the ecological approach to visual perception has tended to emphasise direct perception and 'functional meanings at the possible expense of symbolic meaning' (Knappett, 2005: 85).[6] While clothing can be understood as highly functional, 'fashion' (from which no item of clothing is immune) is one of the most symbolic, culturally and socially mediated forms of consumer culture. Indeed, as Sampson eloquently states, 'the symbolic dematerializes things' (2020: 57) and it is the cultural dematerialisation of fashion that perpetuates its environmental impact. We suggest that the theory of affordances, when applied through material-driven design, has the potential to re-materialise fashion by overcoming conventional and unsustainable design practices and perceptions of materials.

[3] For example, Pinski, Kane and Evans (2018) discuss the value of a craft-based logic for ensuring sustainable approaches to CAD-based footwear design.

[4] Burgeoning research includes Bak-Andersen's *Reintroducing Materials for Sustainable Design: Design Process and Educational Practice* (2021).

[5] With the exception of Sherlock (2014) Gibson's theory of affordances is seldom, if ever, employed in studies of fashion and its value for sustainable fashion design practice is not yet recognised. See Ribul, Goldsworthy and Collet (2021) for a proposed material-driven approach to textiles design.

[6] While the affordances of affordance theory within the field of product design is becoming established, a move to fashion design warrants a greater consideration of 'semiotic affordances' (Windsor, 2004; Michael, 2000; Keane, 2003 & 2005; Jensen, 1995; Sherlock, 2014)

In summary, while the use of Gibson's theory of affordances to evolve and understand creativity and material-driven design is not a new proposition, the contribution of the present research explores what these developments look like in the context of fashion (a symbolically potent form of materiality) and, following Barati and Karana, how 'novel material potentials actually come about in practice' (2019: 112).

3. Methodology:

3.1 Defamiliarising fashion with footwear

When it comes to the dematerialisation and environmental impact of fashion, perhaps no item is more pertinent than shoes. In his book *Fewer Better Things* Adamson argues that '[s]hoes are among the many things contemporary society produces badly - not in the sense they are technologically unsophisticated (Nike, Adidas, and other brands spend a fortune on R & D) but in the sense that they are disastrous for the planet' (2018: 207). Similarly, Hoskins highlights the diverse materials, components and adhesives that render most shoes impossible to disassemble and recycle to scale (2020), yet the environmental impact of footwear remains largely unrecognised. When applied to footwear, material culture theory suggests that the symbolic status of shoes as metaphor, metonymy or synecdoche and their often ordinary and everyday use, renders them invisible (Sherlock, 2017, Sampson, 2020). From a design and production perspective, Bell et. al. argue that practices of 'making strange' or 'defamiliarization' are an important tool to enable designers to see beyond these naturalising devices and experiences; create space for critical reflection; open up new possibilities for design and challenge or rethink existing design legacies or habits (2005: 150). Indeed, Glăveanu explains that 'affordances are of little use if they are not perceivable to the user' (2012: 197), therefore, we propose that making matter visible requires a process of 'making strange'. An activity to 'unmake' a pair of shoes is helpful on numerous levels as a strategy to encourage fashion students to 'unlearn' ways of knowing, 'see' matter, perceive material affordances and critique conventional and unsustainable uses of materials.[7]

3.2 Learning design:

The activity providing the focus of this study was the deconstruction and reconstruction of used shoes. Practices of deconstruction are of course not unusual in fashion design (see Gill, 1998, 2016, and Granata, 2017), however the application of an affordances framework in conjunction with a material-driven approach to design, re-conceptualises the value of deconstruction for sustainable fashion design pedagogies, assisting students to develop strategies for the

[7] This research does not claim the deconstruction of shoes as an original pedagogical method, indeed one of the researchers had conducted a similar activity previously within RMIT's School of Art, designed by lecturer Natalia Milosz-Piekarska. The originality of this research is in its endeavour to articulate *why* shoes are so useful in an educational context and what we can learn from this activity to develop sustainable design methodologies.

sustainable use and reuse of materials. Inspired by Glăveanu (2012) and Sherlock (2017) the activity design, choice of artefact and assessment criteria aimed to prevent students from taking a normative course of action and access '"unperceived," "uninvented" and "unexploited" affordances' (Glăveanu, 2012). The outcomes of the activity were analysed to determine the success of the learning design and in what conditions unconventional affordances could or could not be perceived, generated and utilised. In the context of the twelve-week course, the activity was designed to activate a perception of matter to be further developed through two further assignments finishing with refined accessories or wearable artefacts. The materials used for these further assignments were disposable household items and packaging - much of which, like the used shoes, is conventionally perceived as unusable waste and rendered abject, ugly, insignificant or even invisible.[8]

The activity was designed in three parts: analysis, deconstruction and reconstruction, taking place across two classes over two weeks early in the course. Students were required to find a pair of shoes ready for disposal. We found the choice of shoes was directed by the kind of accessories students wanted to make, leading to pre-determined outcomes that undermined the intended material-driven approach. Pairs were therefore separated and mixed together for selection using a blindfold and sense of touch alone. Selected shoes were then reunited with their pairs. The swapping of shoes between students was an intentional (if unpopular) strategy to disable these preconceived ideas, marking the first of a set of requirements designed to open them up to perceiving new material affordances.[9]

Following this initial process of defamiliarisation, the physical deconstruction and reconstruction of the shoes commenced. Students were encouraged to use tools they had to hand - for fashion students this included scissors, a craft knife, 'quick-unpicker' and needle and thread (fig. 1). In addition, they were introduced to the affordances of a tailor's awl for driving holes through tough materials and pliers for material manipulation. In recognising the role of material agency in relation to affordances and material-driven design, students were encouraged to consider what interventions the shoes 'invited', 'permitted' or 'resisted'. This kind of language along with questions such as 'what do the shoes want you to do with them?' were used intentionally to nurture a sense of collaboration and communication with, rather than dominance over materials (an approach shared by Nimkulrat [2009] and Franinovic [2013] in Barati and Karana, 2019:115). Following deconstruction, a flat-lay photograph of the component parts was taken (fig. 2 & 3) before proceeding to a making phase where they were asked to consider how the component parts might want to be reformed, joined or adapted. Through interaction with the materials, students speculated on what these new forms might be used for or where they might be placed on the body. Importantly, the assessment criteria

[8] In a previous iteration of the course in 2020, fashion production waste was used for assignments two and three. Donated leather off-cuts by German footwear manufacturer Trippen provided a challenging assortment of colours, shapes and qualities of leather.

[9] In 2021 (the period of data collection for this paper), the course was shifted online due to Covid-19. Students were therefore able to use their own shoes, however a blind sensory analysis encouraged them to perceive the materiality of the shoes beyond the brand, style and colour that may have initially attracted them.

discouraged (although did not ban) students from using virgin materials such as adhesives, embellishments or jewellery findings and required them to utilise as many of their materials as possible. During the activity they were asked to visually record and reflect on their process and account for any leftovers.

Figure 1. Commonly used tools. Image: Ella Harris

Figure 2. Pre-deconstruction sneakers. Image: Ella Harris

Figure 3. Flat-lay deconstruction. Image: Ella Harris

3.3 Data collection and analysis

Data was collected over two semesters during 2020 and 2021 involving 72 students in total. Data presented in this paper focuses on the experiences of 27 students undertaking the most recent iteration of the course in July 2021, 14 of whom agreed to be identified. The activity in question was assessed through a five-minute visual-verbal online presentation. All data, including the recordings and transcripts of the presentations were uploaded to NVIVO where they were thematically coded in relation to the aims of the research. Emerging themes were regularly discussed in analysis meetings with teaching staff for verification purposes and cross-referenced with field notes taken during and after classes.

4. Findings and Analysis

4.1 Commonly perceived affordances

To understand how unconventional affordances can be perceived, we must first identify commonly perceived affordances. Data was therefore analysed for the repeated selection and use of particular shoes, materials, techniques and strategies. The most common styles of shoes selected were sneakers and slippers due to their 'interesting' appearance, 'promise' of diverse materials and a (sometimes incorrect) perception that they would be easier to deconstruct due to their fabric and stitched construction. Unlacing and unpicking were a common starting point, with the discovery that the removal of the sole made this process easier - soles and adhesives were a frequent area of difficulty. Commonly identified affordances included laces and eyelets (used during reconstruction to connect, secure and create an adjustable fit, for example figs. 4 & 5), and heel counters and toe caps (identified for their capacity to cup, protect and emphasise parts of the body such as breasts, elbows, wrists, knees and shoulders (figs. 6 & 7). The lacing and cupping, combined with the sparse materials provided by the shoes were identified by several students as affording a 'festival' or 'rave look'. For this reason, perhaps the most common outcomes were variations on corsets, bodices and harnesses, followed by bags and purses. Brooches and earrings were perceived as a way to use small pieces, as were belts comprised of multiple parts. It was the more unconventional outcomes, described here as *wearables* or *wearable sculptures* that indicated a more material-driven approach, influenced less by conventional archetypal forms and more through experimentation with materials on the body. The questions arising here were: what enabled or prevented students from going beyond commonly perceived affordances? In what ways might the learning design and assessment criteria have affected perception of unconventional affordances? And, what can be learnt from students' own strategies and responses to the activity and criteria?

Figure 4. Front view. Laces and eyelets used to afford an adjustable fit. Image: Ella Harris
Figure 5. Back view. Image: Ella Harris

Figure 6. Heel counter, toe cap and canvas upper. Image: Madsy McInnes-Smith

Figure 7. Heel counter and toe cap affording elbow protection. Image: Madsy McInnes-Smith

Importantly, in presenting these data it is of note that none of the students' submissions or practices were deemed incorrect. Far from critiquing work, the intention is merely to determine ways to enhance a shift from a legitimate and established design-led approach to materials to a

more sustainable material-driven approach to design. Here, an emphasis on material affordances is proposed as a way to facilitate and understand this shift which was evidenced to varying degrees by the students' responses to the activity.

4.2 More than just upcycling

During analysis, it proved useful to loosely divide students into three categories: those who exhibited or embraced a material-driven approach to making; those who continued to use traditional design-driven approaches (such as sketching, 'brainstorming', patternmaking and the use of research for visual inspiration and design precedents), and those who sat somewhere in-between, using a mixture of both. These in-between students provided the best initial insights to the strengths and weaknesses of the activity design. One such student who converted a sneaker into a bag (fig. 8 & 9) explained her process:

> "I was kind of brainstorming what the sole would be useful for, and I decided it would be probably best for something off the body, as the base of a little bag because it's, like, sturdy and quite bulky. So for the final one, I started with the base of the shoe and then I kind of, I got, like, some bigger pieces and I just kind of glued them onto the bottom to make the base of the handbag. And I found that the superglue was working very well because I was planning on, like, sewing the fabric pieces together. But the superglue was just really easy and quick and actually really strong. So I just kind of collaged all the pieces using the super glue around the shoe. And yeah, I just tried to make it like roughly the shape of a bag. And then I used - I didn't want to create any waste - so I used the shoelace as the strap here. And I threaded it through the original holes that the shoelaces were on in the shoe. So yeah, that's the final artefact, there it is on the body."

The student clearly demonstrated a perception of the affordances of the sturdy and bulky rubber soles for use as the base of the bag and her aim to use all the materials ensured an effective use of the laces as straps and holes or eyelets for connecting. In contrast, her approach to design through 'brainstorming' and sketching, along with her efforts using glue to 'make' the materials take the shape of a bag, demonstrated a tendency to be guided by conventional accessory archetypes, precedents and practices. The outcome however was extremely effective and entirely legitimate in relation to established fashion design practices, indeed it was the kind of bag one might see from deconstructionists like Martin Margeila or, with respect to shoes more recently, Paolina Russo - a postmodern collage of materials bearing an almost humorous reference to the object's past life. The bag was however more the kind of 'upcycled' artefact one might typically associate with material reuse than a demonstration of a genuinely sustainable, material-driven shift in design thinking. Indeed, this more postmodern approach to upcycling had meant that rather than deconstructing and remaking the shoes beyond all recognition, the identity of the components had been intentionally retained for novel effect. She explained: "I could have taken apart the tongue fully and taken off the label. But then I would have just had really small pieces and I kind of liked having the effect of the full tongue in the final artifact."

Furthermore, part of the appeal of the bag was the recognisable sole resulting in a familiar, yet unfamiliar uncanny affect.

Figure 8. Pre-deconstruction sneaker. Image: Sophie Watt

Figure 9. Reconstructed bag. Image: Sophie Watt

In relation to this particular example, two key observations can be made. Firstly, the partial deconstruction and consequent references to the original shoe potentially denied the student the opportunity to move beyond its original function and meaning to perceive, generate and utilise the materials' more unconventional affordances. The second issue to disadvantage this and other submissions was the use of virgin materials. In this case, it was glue but for many others it was materials such as staples, eyelets, press-studs, jewellery findings and paint, which enabled them to 'stick' safely to convention, control their materials and realise their preconceived ideas. Those who resisted the use of virgin materials were required to adapt by joining components in different ways that afforded the discovery of entirely new and often unexpected objects, forms and techniques.

4.3 "Too hard"

It was the process of discovery that provided a sense of enjoyment and motivated many students throughout the activity, yet this did not come easily. Glăveanu suggests that a cultural tendency

to respect the integrity of an object, especially in the case of precious things can prevent the perception and generation of unconventional affordances (2012: 198).

Deconstructing a shoe - an iconic, symbolic, even sacred object - can feel intuitively wrong. Under instruction however students often found this to be quite a liberating and rewarding process where concealed materials were discovered and a surprising quantity and variety of components revealed themselves. When decontextualised, many were indeed able to shed themselves of any preconceived ideas and the previously unperceived affordances of the shoes' components became apparent. Yet while many enjoyed the opportunity to overcome the integrity of the shoes, the hard rubber outsoles proved to be a common point of contention. Deemed 'too hard' they often featured in leftover piles and those who did use them tended to do so in their whole form (as previously demonstrated). A small number of students however did deconstruct them, going on to produce innovative outcomes.

One of these students articulated her process during the assignment presentations, explaining: "I became more absorbed by the materiality of what I was touching and what else these materials could rather be, than think about the actual end product and work backwards." To enable this to happen she identified the need for an almost "robotic" approach to deconstruction where "you have to just really sort of mentally keep going, [...] like you're a breaker, and that's it [laughs]".[10] She described that where previously she may have looked at the rubber outsole and thought, "oh I can just cut it in half and turn it into like bad looking coasters or something", as she deconstructed, she reflected "I could really start to see newer things that came into my mind, what I could actually make out of it, rather than when it was left as one solid thing, [...] things that I probably would never have seen, like mentally, had I not cut things up into smaller components." Indeed, close attention to the outsoles' construction and the pattern of the tread provided her with guidance about how they might be cut (fig. 10); its removal from the midsole revealed a grid structure that afforded a cube-like division into smaller parts that, with addition of a hole, were used like beads to make a bracelet and earrings (fig. 11).

[10] To successfully deconstruct the shoes, others described an 'auto-pilot' approach.

Figure 10. 'Robotically' deconstructing the sole. Image: Aysh Balakumar

Figure 11. Reconstructing the sole. Image: Aysh Balakumar

Aligning with this ‘robotic’ approach, another student described a process where she just kept cutting the soft rubber soles of her slippers (fig. 12) in concentric circles, becoming increasingly “intrigued by the shapes that appeared” (fig. 13). She reflected: “I think this abstraction process allowed me to make something that no longer had any connection to this original form.” Throughout the deconstruction, both students took an almost mindful approach, consciously resisting a tendency to want to predict what the materials could be made into, instead letting the materials reveal themselves. As Glăveanu asserts, acts of discovery of unperceived affordances stand at the core of creative practice (2012: 202) and both of these students produced unique final outcomes.

Figure 12. Deconstructed slipper soles. Image: Indigo Stuart

Figure 13. Slipper sole 'earrings'. Image: Indigo Stuart

One reason many of the soles were abandoned was the glue used to bond the layers together and to the shoe's upper, a production process that made deconstruction extremely challenging. Described by students as "sticky and gross" this residual glue rendered many of the materials functionally and aesthetically unappealing. Those committed to using all their materials persevered with strategies to either eliminate the glue or go as far as trying to make use of it. One student explained:

> "…so I tried first to remove the glue, a stickiness from this blue piece but it just didn't work. I used nail polish remover, it just didn't really work. Then I took advantage of that stickiness and just folded it on itself to make this lovely sort of flowery, I guess, looking thing? And I made a brooch out of it, with the parts that I got from the insole." (fig. 14)

Figure 14. Utilising the affordances of residual glue. Image: Aysh Balakumar

Interestingly, while a minority were able to generate affordances from the glue, the frustration of encountering the glue during deconstruction didn't stop many from using new glue during reconstruction. In contrast, some students who didn't encounter any glue during deconstruction clearly appreciated the ease with which the shoes just 'fell apart' using only an unpicker to reveal the soles' inner layers. One of these students insightfully speculated that perhaps it may

have been purposely designed for disassembly. In hindsight, further guided discussion at the time, encouraging students to recognise the significance of each other's discoveries may have led to more sustainably conscious reconstructions.

4.4 Too "gross" and too "ugly"

For many students, the stickiness of the glue, while inconvenient, was also considered abject, as were the dirty soles - the insole bearing the residual traces of the wearer (often unknown) and the outsole, the residue of the environment. According to Fisher, materials have different registers of meaning, in many cases the cultural, structural and sensorial mix. When it comes to used objects, he suggests, the usefulness of tacky or sticky materials is generally trumped by their cultural and sensorial associations with dirt and contamination (2004: 24). This was evidenced by students either avoiding components (compare, for example fig. 3 with figs. 4 & 5) or searching for sanitisation strategies, such as cleaning, sanding, scraping and discarding layers to ensure acceptable reuse. Others had no problem using dirty and abject parts of the shoes, but these tended to be those using them away from the body (as with the shoe-bag example). Those tending to develop their experiments on a mannequin didn't seem to perceive these components abject at all, yet transition from the mannequin to the body often presented a number of issues, including the realisation of some materials' abject status. Indeed, Glăveanu cites Costall (1995:472) to highlight that while objects 'can be used in other ways, […] even when these alternative uses occur to us, there may be sanctions against such deviation' (2012: 198).

In addition to the 'abject', another barrier to the perception and utilisation of affordances often (although not exclusively) was 'ugliness'. A general need to produce 'aesthetically pleasing' outcomes manifested in various ways, for example decorating and embellishing with things like paint, beads, sequins and ribbons, while for others it was the ability to produce symmetrical, repetitive and refined forms. One student who produced a highly successful "festival-ready" collar from his shoes (fig. 15 & 16), became frustrated when using discarded electrical wires for the subsequent assignments. The wires wouldn't conform to his desired aesthetic due to their cumbersome plastic insulation, which would cause them to spring back into form (fig. 17). This prevented him from being able to achieve the neat, repetitive forms he had prototyped with more compliant embroidery thread (fig. 18). He eventually found ways to work with the wires and his techniques became enhanced. The journey required to successfully collaborate with these materials resulted in a significant final sense of achievement for the student. On reflection, we realised that the symmetry and repetition afforded by the *matching* shoes in the first task did little to challenge conventional perceptions of beauty, and some students leaned safely towards these qualities to achieve their desired outcomes. We reflected that in addition to a subsequent lecture highlighting the often culturally constructed and highly subjective nature of beauty and ugliness, swapping and mismatching shoes at the beginning of this first activity could have been a more practical early strategy to overcome these norms and discover unconventional affordances.

Figure 15. Pre-deconstruction Toms canvas shoes. Image: Phillip Toole

Figure 16. Reconstructed 'festival-ready' collar. Image: Phillip Toole

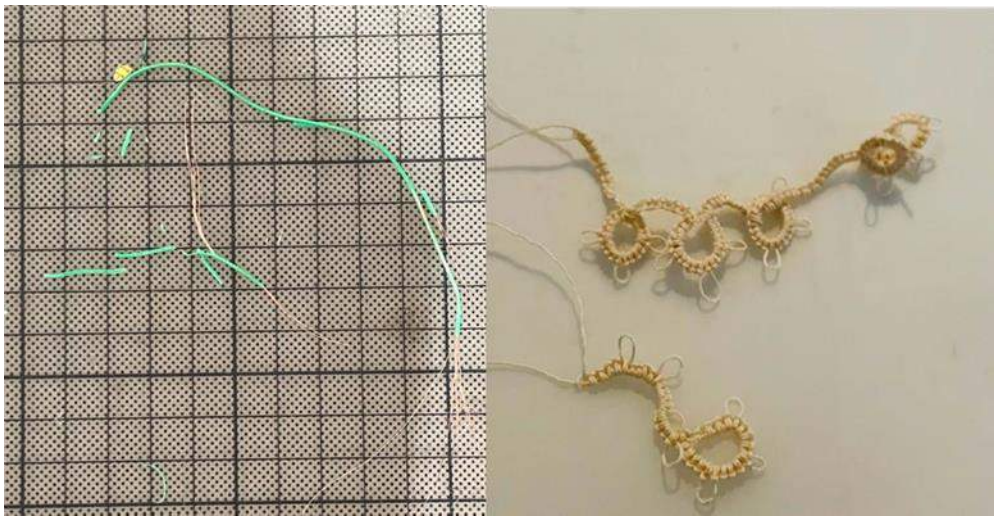

Figure 17. Attempts at extracting electrical wires from plastic insulation. Image: Phillip Toole

Figure 18. Intricate picot tatting afforded by cotton embroidery thread. Image: Phillip Toole

5. Discussion:

On reflection, examples such as those above emphasise the value of more explicit assessment criteria that go beyond merely discouraging the use of virgin materials to banning them entirely. This was highlighted later in the course when, due to the further relaxation of these rules, even those who had done well with the shoes found it too easy to slip back into old habits, producing upcycled final accessories stuck together with glue and tape. As explained at the outset of this paper, the use of glue was ‘easy’, a reliance on these materials early in the course and throughout the development of their material experiments set the students on an unsustainable

trajectory that could not be undone; the aesthetics produced could rarely be replicated in more sustainable ways. One student who resisted the use of virgin materials explained:

> "I think the outcomes would have been different as I know that I would have just bought more to achieve the outcome that I wanted […] It has not been until the end of this assignment that I have realised the value of the found/gifted supplies. When you are faced with limited supplies you have to strategise your experiments and working within constraints is a skill that I would like to continue to develop."

On reflection, the requirement to use all materials could also have been further emphasised through the assessment criteria. The effort and time required to use everything often resulted in a deeper respect and emotional attachment with the original artefact, its materials and the resulting outcomes. Often a sense of frustration with one's materials resulted in a love-hate relationship; the student who had struggled with the wires exclaiming in his folio: "ULTIMATELY I had to accept the wires as they were and try something else". For these students, there was often a recognition that while the materials had tested them, the skills they acquired made it all worthwhile. Indeed, another student commented that the hard work meant she didn't think she'd ever throw her accessories away. The intentionality of the materials was also something many reflected upon, particularly when the materials weren't doing what they wanted. The same student speculated that she felt the shoes were grateful to have been used: "It's almost like as if the shoes had some sort of a life form or an emotion, they were sort of 'thank you' because once you like deconstruct it [you] make it into something a bit more special'. Although beyond the scope of this paper, the notion of material agency (or even animism) as a motivating factor in sustainable design practice certainly warrants further discussion.

6. Conclusion

Barati and Karana argue that 'designers settle for low-hanging material potentials if the conditions for discovering novel affordances do not present themselves' (2019: 115). The 'This is Not a Shoe' activity and the adjustments proposed through analysis of its successes and shortcomings outline the conditions necessary within a pedagogical context to enhance a perception of unconventional affordances during the creative process. Shoes were discovered to be particularly useful for this activity due to their sociocultural significance and complex and varied material composition, providing students with an often challenging but rewarding opportunity to *un-make*, *defamiliarise* and *unlearn* fashion, and to *discover* how fashion might be done differently - more sustainably. For some participants, a sense of respect and emotional attachment arose through the reciprocal interactions occurring between body, artefact and materials. This was particularly true for those who pushed through the 'too hard' barrier during reconstruction to use every part of their shoes and resist the use of conventional (often unsustainable) virgin materials. In this respect, the application and enforcement of a more rigorous set of assessment criteria would have assisted *all* students to further develop these creative skills and values.

While the activity was conducted in a fashion accessories context it is proposed that the ubiquitous yet complex and underestimated 'shoe' would prove equally successful in multiple other creative disciplines as an introductory activity to encourage 'early material understanding' (Barati and Karana, 2019:119) and an enhanced ability to perceive matter, identify unconventional affordances and engender a more collaborative approach to making and 'design'. Furthermore, a material-driven approach to the making of fashion raises epistemological questions around 'design' as a concept based upon the use of materials to realise preconceived ideas. It is argued here that rethinking design traditions such as the use of sketching, mind-mapping, visual inspiration, design precedents and even the use of mannequins could help to overcome continued distinctions between bodies and materials and the desire for a mastery over, rather than collaboration with, environments. Aside from shoes therefore, the research argues for the importance of activities involving upcycling or reuse for developing embodied and transferable material capabilities and knowledges.

Moving beyond the field of design to consumption, one unexpected observation to emerge following the shoe activity and throughout the remaining course has been a potential correlation between the increased ability to perceive 'materials potential' and the practice of 'thinking twice' before disposing of artefacts that have outlived their conventional or intended function. It is suggested that a return to making and a consequential increased ability to perceive the opportunities these artefacts could provide the user, along with the psychological and emotional burden of wasting these opportunities, merits further investigation for an increased understanding of motivations to reduce consumption and re-use waste.

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We invite design educators to implement and adapt the activity and methodology presented in this paper, asking only that the authors are credited and outcomes are shared with the hashtag **#thisisnotashoe**

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WEARING DIGITAL BODIES: designing and experiencing dress as poly-body objects at the intersection of the physical and the digital

Author

Jan Tepe,
Swedish School of Textiles – University of Borås

Corresponding Author: jan.tepe@hb.se

Keywords

Augmented fashion, digital body, digital dress, fashion technology, hybrid dress.

Abstract

Advances in digital and augmented reality (AR) technology create opportunities for more body-diverse methods of designing dress. However, while the clothing industry uses such technologies to explore digital venues in promoting its designs, most designs are made to resemble physical garments for the same body types. This research aimed to investigate alternative morphological relations between the physical human body and digital dress to enable more body-diverse design practices within the field of fashion. A three-day workshop was conducted with undergraduate fashion design students to critically examine the hypotheses of this research. The students were tasked with using three-dimensional scanning, computer-aided design (CAD), and AR technology to design digital dress-related designs for different body shapes and sizes. The performative act of projecting digital dress onto a physical body created wearable poly-body dress expressions, the morphological qualities of which were experienced by the participants simultaneously physically and digitally. The participants described their experiences as turning the body and dress into designable poly- body expressions, and changed their perception of the body in relation to dress. In addition to walking around 'inside' the designed items, i.e. using them as pieces of clothing to cover the body, the participants were also able to walk around 'inside' of and interact with designed items as they would an architectural space. The fashion system can benefit from artistic investigations of digital and AR technology for creating dress alternatives that may contribute to a more diverse and inclusive appreciation of body-dress expressions.

1. Introduction

The digitisation of design methods of academia and industry for creating dress has changed how designers experience and interact with the body and dress. More specifically, the integration of three-dimensional scanning technology (Daanen & Psikuta, 2018: 245–248), three-dimensional computer-aided design (CAD) software (Jhanji, 2018: 279–284), and Augmented Reality (AR) editors (Rhee & Lee, 2021: 6–10) have contributed to a shift in designing, constructing, and experiencing dress away from the physical and towards the digital.

It is argued by both academia and the clothing and fashion industry that the inclusion of digital technology in the design of dress is desirable, partly because it would facilitate a more sustainable production and distribution processes for dress and dress-related products (McQuillan, 2020: 90–92). Brands are increasingly offering production-on-demand services by advertising their designs through digital twins (Atacac, 2021), producing garments that are made-to-measure based on three-dimensional body scans (Unspun, 2021), and promoting an alternative vision of fashion that exclusively takes place in the digital (The Fabricant, 2021). These developments in digitisation are needed for sustainability reasons and to expand clothing and fashion-related experiences towards new venues such as virtual worlds. However, dress and dress-related products are still designed, constructed, and promoted based on traditional methods and techniques and physical production processes, which regard the body as an unchanging and loosely involved factor in the design process. Moreover, translating physical design processes for creating dress into the digital has led to similar representations of body types and body expressions (Atkinson, 2017: 148). Designing dress by combining technologies such as three-dimensional scanners, CAD software, and AR editors has the potential to break with common traditions that regard the human body as an object that remains unchanged throughout the design process. Artistic explorations with these technologies could lead to the emergence of alternative body-dress expressions that may regard the human body in its morphological qualities as a transitional design material. The presented research follows Koles and Nagy's definition of 'transitional materials' as ones that bridge digital and physical spaces, which in turn allow the boundaries of one's body in relation to the outer world to be redefined (2016: 283, 290). Exploring the body as a transitional material from an artistic perspective using AR technology may be relevant to designers working in the clothing and fashion industry as it may facilitate a more diverse representation and appreciation of body types and shapes.

The artistic design research presented in this article was intended to contribute to this discourse by challenging the prevalent design practices and methods of designing body-dress expressions that are commonly seen in the fashion industry and academia. In particular, this research investigated alternative morphological relations between the physical human body and digital dress within a workshop, engaging with digital and AR technology to examine the idea of more body-diverse design practices.

2. Related Studies

The usage of digital innovations in fashion has led to idealised body types that mitigate the limitations of the physical and real (de Perthuis, 2008: 169–170; Reaves et al., 2004: 141– 142).

Especially digital-born models and computer-generated influencers are designed to express idealised fantasies of body-types and beauty standards (Baumgarten et al., 2021: 153–161). This has resulted in increasing dissatisfaction with regard to body perception among young people (Gurrieri & Drenten, 2019: 104).

The design of digital bodies for digital spaces has been investigated from a user perspective with regard to its effects on self-expression. It has been argued that digital bodies are as designable as digital garments when avatar-creation editors are used (Freeman et al., 2020: 3–6; Taylor & Unver, 2007: 368–370). In this context, researchers have investigated the implications of designing digital body alternatives for self-expression that deviate from human morphology (Cooper, 2007: 129–130). Despite the possibilities they offer, avatar- creation editors for digital gaming environments often facilitate the creation of idealised body stereotypes, instead of providing a more diverse range of body shapes and sizes for self-expression (Yee, 2014: 104–106).

Researchers who focus on the limited and potentially harmful aspects of modifying the human body through digital technology suggest alternative ways of using technology to engage with and design for the human body (Smitheram, 2015: 242–252). Further examples are Kat Thiel (2015: 165–171), who three-dimensionally scanned a fully dressed human body and developed physical clothing items based on alternative body measurements; similarly, Tepe and Saleem (2022: 4–9) challenge the prevalent body-textile paradigm in fashion by using motion-capturing technology to generate alternative body shapes to design dress for.

3. Method

In this section, the initial explorations and observations are discussed; the purpose and development of the workshop are then presented, and this is followed by analysis and evaluation of the findings of the research.

3.1 Experimental process

The experimental framework of this research was based on initial explorations using three-dimensional scanning, CAD, and AR technology (Fig. 1). The intention was to disrupt established understandings of the human body, and to design dress by exploring the body in terms of its morphological qualities as a transitional material for design at the intersection of the physical and the digital.

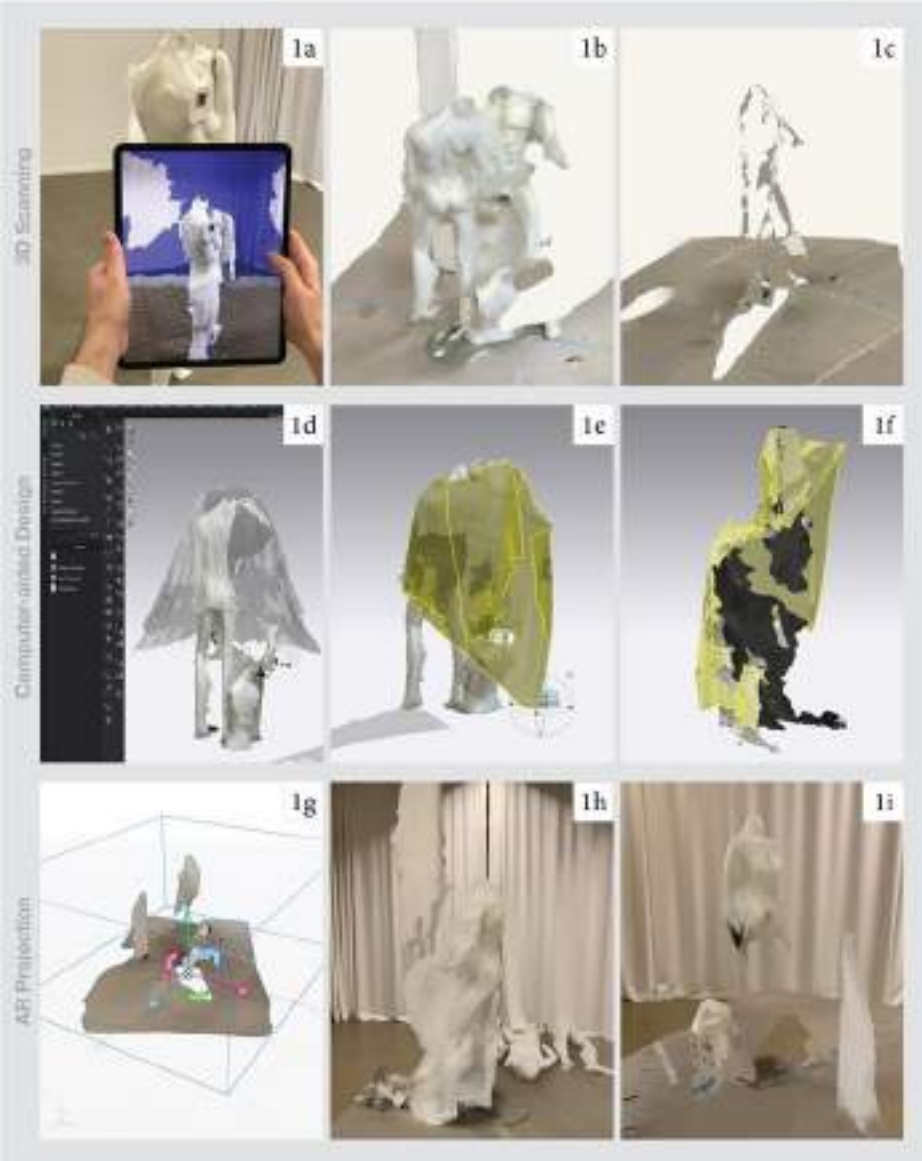

Figure 1: Images 1a–c show the three-dimensional scanning process, Images 1d-f show the digital draping process, and Images 1g-i show the body scans projected in the physical space

Three-dimensional scans of draping mannequins were made by either arranging multiple mannequins such that they were merged during the scanning process or scanning them from one side, which resulted in fragmented scans. As can be seen in Figure 1, the draping mannequins partly merged with walls, pillars, and other draping mannequins in unforeseen ways (see Fig. 1b) or appeared to be hollow, or even invisible, when looked at from certain angles (see Fig. 1c). In the next step, selected three-dimensional scans were imported into the CLO3D software package to explore the idea of designing dress based on these alternative digital bodies. As shown in Fig. 1e-f, it was possible to drape textiles on the digital bodies and create patterns in a manner similar to how one would normally work with the software. However, it was necessary to rethink how to construct or drape on those as they deviated significantly from regular human body shapes. Projecting the body scans into physical space

using AR technology suggested potentials for alternative functions and expressions of dress, which were worthy of further investigation (see Fig. 1h-i).

The observations raised the following questions: What alternative expressions and functions can be derived from and with body shapes when designing dress with digital and AR technology? How can these alternative expressions promote a more diverse representation of body types when creating dress?

3.2 Workshop

The initial explorations and research questions guided the development of a three-day workshop that was conducted with undergraduate fashion design students.

For the duration of the workshop, all of the participants had access to digital and AR technology such as an iPad Pro equipped with the three-dimensional scanning app Polycam; this allowed them to three-dimensionally scan each other's bodies. They also had access to computers and laptops with the CLO3D software package, which they used to design and digitally construct dress, as well as AR editor software such as Adobe Aero and Spark AR, with which they created digital content that could be experienced in the physical space.

The overall procedure of the workshop was guided by the initial explorations as discussed above. Three activities were planned that correlated in terms of the order and execution of and technology used during the initial explorations. On Day 1, the participants were tasked with scanning the bodies of those who voluntarily agreed to be scanned using the iPad Pro. On Day 2, all of the participants imported the scanned bodies into the CLO3D software package and designed dress using them. On Day 3, the participants converted their designs into AR content using the Adobe Aero or SparkAR software packages, allowing smartphone users to experience their designs in relation to their own bodies by projecting the designs in the physical space.

3.3 Data analysis

Images and digital three-dimensional objects were used to reconstruct the participants' design processes. This allowed analysis of how the scanned bodies influenced the participants' design processes when they were used to design dress and dress-related expressions. More specifically, it allowed various morphological qualities of the scanned bodies to be identified, supporting the emergence of alternative dress designs by visually suggesting different relations to the body.

The participants' behaviour when interacting with the digital designs in the physical space were recorded using photography and videography. This facilitated analysis of the alternative functions and expressions of dress from a body-related perspective.

Cross-sectional comparisons between the participants' design processes and behaviour when engaging with the digital designs through their physical bodies facilitated identification of disruptive patterns in terms of the design process, which led to the emergence of dress-related expressions for alternative bodies.

4. Findings

The findings of this study suggest expression and interaction possibilities in relation to alternative bodies for the design of digital dress. This chapter is structured in three sections, which align with those of the workshop (see Section 3.2). The first section focuses on the artistic potential of digitising the physical human body. The second focuses on the inherent potential of the scanned bodies as materials for design, and how they could be used to design dress. The third focuses on the interaction possibilities between the physical body and the digital dress-related designs that emerged as a result of the use of bodies as materials for design.

4.1 Creating bodies to digitally design dress

The participants created 53 body scans during Day 1 of the workshop that featured alternative morphological body qualities. These were the results of four identified scanning techniques: *One-Body-Scanning* was similar to traditional three-dimensional body-scanning techniques, and digitised the physical body in the most precise way (see Fig. 2a-c), while with *Poly- Body-Scanning*, multiple human and non-human bodies were placed close to each other or intertwined with each other (see Fig. 2d-f). For the *Fragmented-Body-Scanning* technique, the physical bodies of the participants were scanned from one angle (rather than the scanner moving around the body to create a full-body scan), which resulted in hollow-seeming

shapes that only showed a fragment of the actual body (see Fig. 2g-i). The *Moving-Body-Scanning* technique involved the participants moving their bodies during the scanning process, which resulted in multiplied and morphed bodies that fragmented the body and partially repositioned body parts such as the head and hands (see Fig. 2j-l).

By comparing the scanning techniques, the following morphological alterations were identified: bodily movement during the scanning process was identified as altering the bodies to the greatest extent during scanning. This was particularly evident when the results of the One-Body-Scanning and Moving-Body-Scanning techniques were compared. Requiring the scanned person to remain still resulted in morphological expressions that appeared to be relatively static and solid, with smooth surfaces. In contrast, three-dimensional body scans that involved two people moving their bodies independently of each other created digital bodies that seemed to be hollow and split in unusual ways, with fragmented surfaces and textures. Body scans that did not scan the entire body, as was most obvious in the case of the Fragmented-Body-Scanning technique, created alternative morphological expressions by making bodies that were only visible from one perspective seem hollow (see Fig. 2g-i). Some of the scanning techniques resulted in larger-than-life digitised bodies, as in the case of the Fragmented-Body-Scanning and Moving-Body-Scanning techniques. In the case of the former, three-dimensionally scanning the body using mirrors fragmented the body and merged it with the surrounding walls (see Fig. 2g-i) and, in the case of the latter, multiplied and morphed body parts due to unanticipated spatial alignments (see Fig. 2j-l).

Figure 2: Examples made using the One-Body-Scanning technique (2a-c), Poly-Body-Scanning technique (2d-f), Fragmented-Body-Scanning technique (2g-i), and Moving-Body-Scanning technique (2j-l).

4.2 Digitally altering body shapes to design dress

The scanning techniques discussed above revealed visual and morphological expressions of the human body that suggested alternative ways of approaching the body in the following design processes. This resulted in two approaches to using the digitised bodies to design dress: *using body scans as digital dress* and *using body scans as alternative bodies for designing dress*. The structure for displaying the Design Examples 1-4 as seen in Fig. 2 a-c, d-f, g-i, and j-l respectively, was also applied in Fig. 3-6 since the same designs were used throughout the design process.

4.2.1 Using body scans as digital dress

This section presents the designs made by the participants who approached the scanned bodies as design materials for creating dress that did not require digital textile materials (see Fig. 3). The scans were either placed on the body of an avatar in the CLO3D software package or separated into pieces which were then placed on an avatar. In all of the examples, the bodies were used to cover the avatar in a manner similar to how various types of dress are generally used. This approach worked better with body scans consisting of full bodies (see Fig. 3a-c) or that provided three-dimensional material that could be easily related to the scale of the human body (see Fig. 3j-l). In spite of this similarity, the digitised bodies also exposed the digital body in that they revealed parts of the wearing body as a result of their morphological expressions (see Fig. 3a-l). This was particularly the case for the examples shown in Fig. 3a-c. In contrast, the body scans that altered the morphological expressions of the physical body by fragmenting it (see Fig. 3d-f), making it seem hollow (see Fig. 3g-i), or moving body parts (see Fig. 3j-l) had less resemblance to the wearing body, making it easier to regard them as dress-related designs.

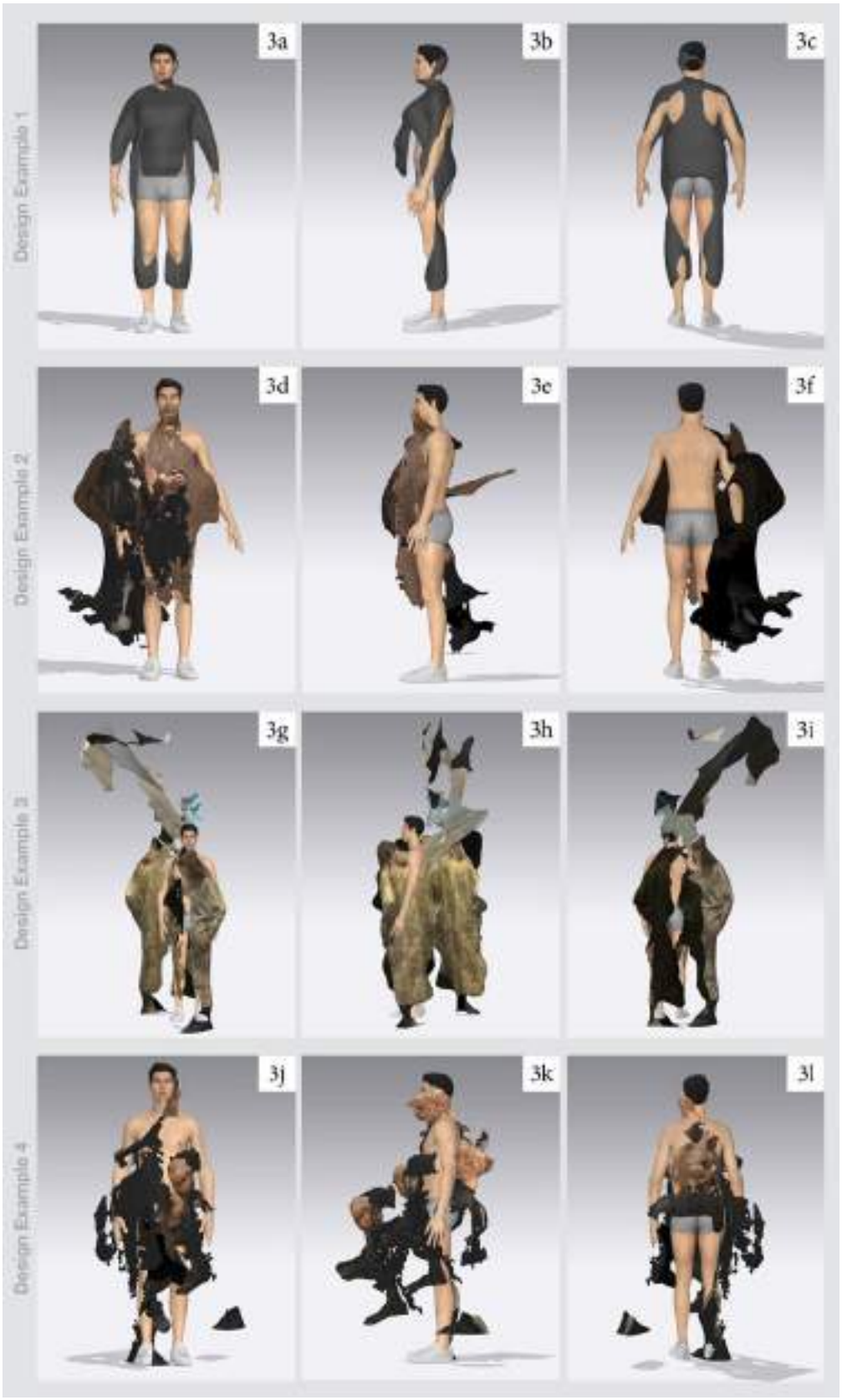

Figure 3: Four design examples that were created by placing scanned human bodies on a digital avatar.

4.2.2 Using body scans as alternative bodies for designing dress

This section presents the design examples made by the participants who interpreted the digitised versions of the body as reference objects for designing dress by draping digital textiles on them (see Fig. 4). All of the design examples shown in Figure 4 were created using a digital design process for dress that was similar to industrial design processes in the sense that digital textiles were used as materials for draping and designing dress on an avatar. However, the morphological qualities of the digital bodies chosen for Fig. 4d-f, Fig. 4g-i, and Fig. j-l required that the participants find alternative starting points for constructing and draping dress. Some of the chosen alternative bodies consisted of more than one head (see Fig. 4d-f and Fig. 4j-l), had heads that were located on different parts of the body than is normal (see Fig. 4g-i and Fig. 4j-l), or had shoulder and arm positions that merged with other body or non-body parts (see Fig. 4d till Fig. 4l). Furthermore, unlike most types of dress, some of the inherent morphological expressions of the bodies suggested that openings be aligned vertically instead of horizontally. This is particularly evident in Fig. 4d-f and Fig. 4g-i. In the case of the former, the back of the dress was left open due to the fact that the digital body used was concave, resulting in a digital dress that a wearer would walk into from behind to put on, rather than putting it on from above, as with a T-shirt, or from below, as with trousers (see Fig. 4d-f). The design example in Fig. 4g-i suggests a similar approach in that it had an opening at the back that a wearer would walk into. However, this design decision was influenced by the size of the body that it was draped on, which resembled more an architectural space than a human body.

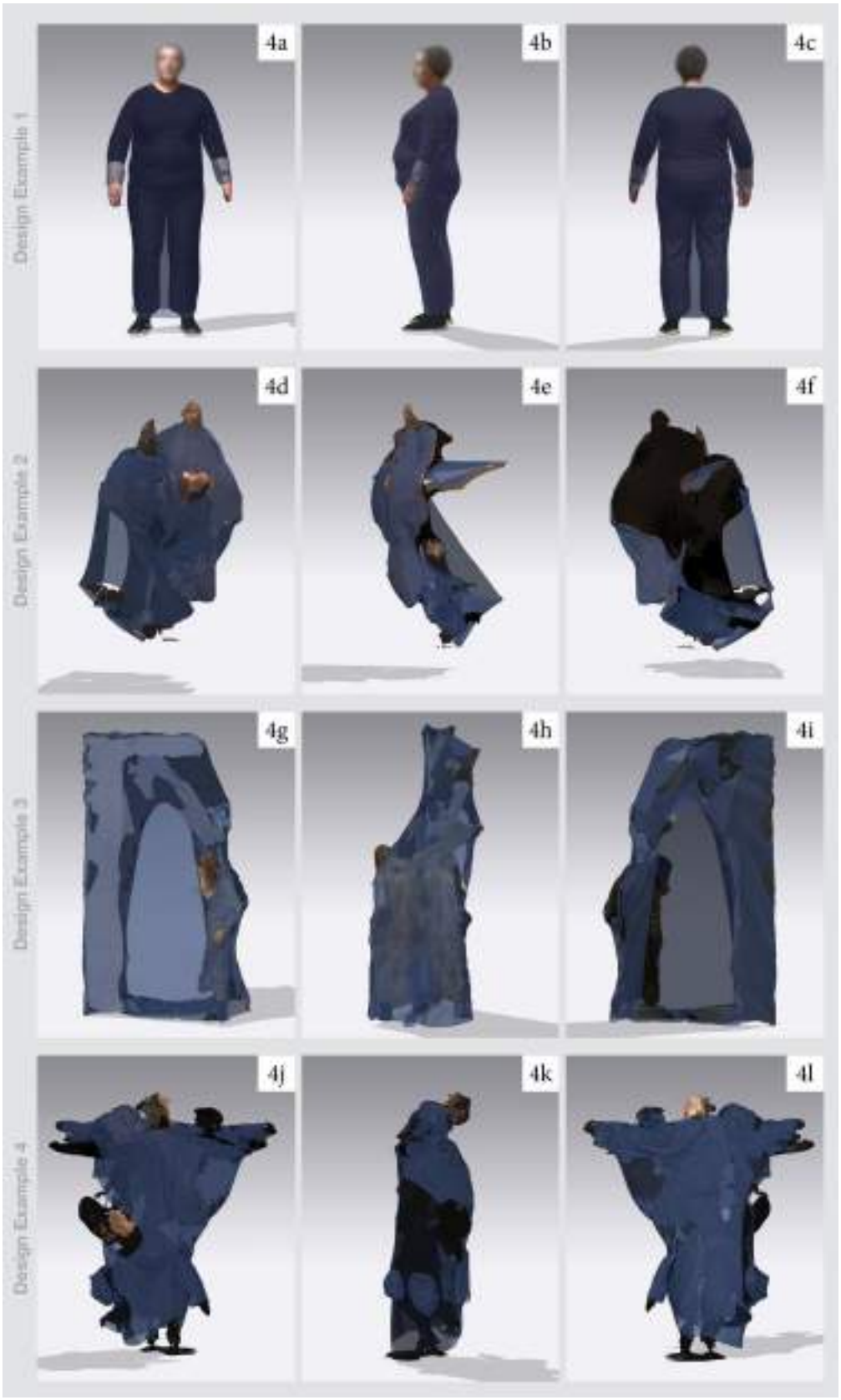

Figure 4: Four design examples that were created by using the scanned bodies as a body on which textiles were draped.

4.3 Projecting body-shape-related dress onto the physical body

The design outcomes of Section 4.2, which were developed by following one of two design approaches, suggested how the participants might interact with them once they were projected on their bodies in the physical space. *Wearing digital bodies as dress* focuses on the emerging interaction potentials of the designs presented in Section 4.2.1, and *Wearing digital textiles that were formed using alternative bodies* does so with regard to Section 4.2.2.

4.3.1 Wearing digital bodies as dress

As can be seen in Figure 5, the digitised bodies described in Section 4.2.1 were projected onto the bodies of some of the participants, creating the experience of wearing dress to varying degrees. The bodies shown in Fig. 5d-f and Fig. 5j-l created the most relatable experiences of wearing dress for the participants from a visual perspective, due to the fact that they resembled common types of dress to a greater degree than the other designs. The bodies projected onto the participants' bodies of Fig. 5a-c were not altered enough in terms of their morphological expressions, which led to the experience of wearing body-objects rather than dress-related expressions. Furthermore, the visually apparent morphological differences between the digital body and the physical body created a tension for the participants that was difficult to relate to experiences of dressing. Some of the participants described looking at themselves from the front or back and feeling that they had two bodies at the same time (see Fig. 5a and Fig. 5c). However, seeing themselves from the side, as in the case of Fig. 5b, changed the perception of the projected body and made it seem more like a designable object, as the space or gap at waist height separated the physical and digital bodies visually. As compared to the other designs, the design shown in Fig. 4g-i had the least impact on the participants' perception of wearing dress. Here, the spatial relation between the physical body and the digital body was too loose to create an immersive experience. The participants described the relation between the design projected on their body and the body itself as fragmented.

Figure 5: The designs that were created by using bodies as dress were projected onto the participants' bodies.

4.3.2 Wearing digital textiles that were formed using alternative bodies

In a manner similar to that described in Section 4.3.1, projecting the digital designs onto physical bodies influenced how the participants perceived their own bodies in relation to the designs, albeit for different reasons. The designs described in Section 4.2.2, which consisted of digital textile layers that remained in the shapes of the bodies they were draped on, were used during this iteration. Observation of how the participants interacted with these designs helped in identifying four alternative body-dress relations, which led to an understanding of the potential functions of digital dress in relation to a physical body. Body-Dress Relation 1 was observed as a result of Design Example 1, and involved participants with smaller bodies than those that were scanned; this resulted in the participants experiencing the digital dress as a layer that surrounded their body and as a space to move in to equal degrees shown in (see Fig. 6a-c). The space between the digital textile layer and the physical body was not felt to break the sense of immersion of wearing the dress, provided it moved in accordance with the body. Instead, the digital layer allowed the participants to explore the body shape of somebody else from within the dress by moving inside it (although this was only possible to a limited extent in order for the two bodies to be lined up). In connection with this, Body-Dress Relation 2 was discovered through the observation that the emerging interaction between physical body and digital dress transformed the dress into a garment or architectural space, as seen in Fig. 6g-i and Fig. 6j-l. In the case of the design example shown in Fig. 6g-i in particular, the participants 'wore' the textile layer, which visually expressed the body it was shaped by, as a dress and as an architectural space, depending on where and how they stood inside the dress and whether the dress moved in relation to their bodily movement. Body- Dress Relation 3 was directly connected to Design Example 4, as it was observed that the design influenced how the participants decided to wear the digital dress, requiring them to change their body posture in accordance with the openings for the head and arms in the textile (see Fig. 6j-l). The result was that some of the participants knelt down to use the opening at hip height for their head, or held their arms perpendicular to their heads when standing upright. While a similar logic accounts for Fig. 6d-f, this example also led to Body- Dress Relation 4, in that the design changed how the participants experienced and engaged in the process of dressing and undressing. The wide opening in the back of the design motivated the participants to step inside it from behind rather than walking through the digital textile layers, allowing the participants to 'dress' in a manner more similar to entering a room than wrapping an object around one's body.

Figure 6: The designs created by shaping digital textiles after the alternative bodies were projected onto the participants' bodies.

5. Discussion

Explorations of the human body in both the physical and digital worlds revealed alternative approaches to the morphology of the human body that are relevant to the process of designing dress. The findings suggest that digitising the human body changed the participants' understanding of both the morphology of the body and its use as a material in the design of dress. Informed by this change in understanding, one of two distinctive directions were taken by the participants: a focus on the digitised body as a design material, and on the digitised body as a reference body for draping digital textiles on. Consequently, alternative qualities of the physical body were considered in relation to the design of digital dress. Understanding the morphological qualities of the digital body as a material with which to dress the body, as discussed in Sections 4.2.1 and 4.3.1, changed how the participants perceived their own bodies through the shapes and expressions that were projected onto theirs. Due to the inherent qualities of the digital bodies, which were projected onto the participants' bodies as dress- related designs, the participants' bodies were exposed rather than covered. This led to a disruption of the commonly perceived distinction between body and dress. In contrast, draping digital textiles on the digital body, as discussed in Sections 4.2.2 and 4.3.2, provided the potential for alternative body-dress interactions. The participants explored the body shapes of others through the digital textile layers, which became spaces that they existed in and were surrounded by, similar to architectural spaces. This led to experiences of walking inside dress, and to alternative experiences of dressing and undressing by walking inside and outside dress.

Digital and AR technology enabled alternative body-dress expressions, but also constrained the physical body in various ways due to its limitations. This was particularly evident with the AR devices, as the participants had to constantly hold their smartphones in order to see the designs projected on their bodies or ask somebody else to hold these while looking at the screen. This dependency on smartphones in order to experience digital dress in relation to the physical body felt unnatural and restrained the participants in their movements. Future research could include AR headset devices that combine digital content and physical space without limiting or strongly influencing body position and movements.

By placing this research in a wider context, the human body can be regarded as a transitional design material when it is experienced via digital and AR technology. Following Koles and Nagy's definition of the body as a transitional material, this would allow the boundaries of one's body to be redefined in relation to the outer world (2016: 283, 290). Considering this from a designer's perspective may contribute to an appreciation of a more diverse range of bodies in terms of shapes and sizes, and lead to a different understanding of the body during design processes. In this context, technology – which is primarily developed for industrial purposes – has the potential to disrupt the norm by facilitating the design of alternative body-dress expressions at the intersection of the physical and the digital (Daanen & Psikuta, 2018: 245–248; Jhanji, 2018: 279–284; Rhee & Lee, 2021: 6–10; Atkinson, 2017: 148). Exploring the intersection of the physical and the digital in terms of body-related design disciplines such as fashion may improve our understanding of the role and importance of the body with regard to design, particularly when it is present and engaged with in multiple realities simultaneously.

Conclusion

The morphological qualities of the human body were investigated as transitional materials for designing dress using digital and AR technology. The findings suggest that using the digitised human body as a material for design can contribute to an appreciation of a more diverse range of bodies in terms of shapes and sizes, and inclusive representation of these when designing at the intersection of the physical and the digital.

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PRODUCT DIVERSIFICATION AND DESIGN DEVELOPMENT IN HANDICRAFTS: a study of artisans at Khetikhan and Logaghat (Uttarakhand, India)

Authors

Shagun Tewari and A. Srinivasa Rao,
Department of Fashion Management Studies, NIFT, Hyderabad (India)

Corresponding Author: shaguntewari12@gmail.com

Keywords

Artisans; Clusters; Training program; Marketing; Khetikhan & Lohaghat.

Abstract

Introduction

In India, the arts and handicraft sector is the second largest employer (Roshni Balaji, 2019) and stretches from towns to remote areas in the country in the form of craft clusters dominated by poor income earning options and a near-absence of innovativeness (Das, 2015). Uttarakhand, just like other Indian states, houses numerous forms of crafts. An interaction with the Uttarakhand Handloom and Handicraft Development Council (UHHDC) officials highlighted that the artisans of Khetikhan and Lohaghat of District Champawat (Uttarakhand, India) needed exposure to new designs and products to redefine their craft as per market demands. The artisans here have been practicing the craft of knitting and crochet and have ancestral roots but are restricted to primitive products and materials.

Upon a pilot study among the artisans, it was observed that they have willingness to learn and work on newer designs and materials. It was observed that they needed guidance to bring out diversification in their work. Thus, the present study was carried out through a training program for the artisans in these clusters under UHHDC. The objectives of the study were to develop new products, to make artisans good in making these products and to make them learn various social media channels.

Methodology

The research was done as observational study by being with the artisans throughout the training program and by helping them to develop the designs. A semi-structured interview of the stakeholders and Focus Group Discussion among the artisans were also conducted. The responses from the interview and the discussion were used to analyse the study objectives.

Findings and Analysis

During the research study, it was observed that the artisans were enthusiastic to bring diversification in their craft practices and participated willingly in the training. The designs and product categories taught were decided based on the market survey and regular demand based. It covered categories from men, women and kids apparels and accessories. Initially, the artisans were made to practice new designs on wool as it is familiar to them and later, were made to develop them on cotton yarns. Moreover, getting exposure to various social media channels like Instagram, Facebook and Email Marketing made the learning more interesting for them.

Majority of the artisans were very comfortable with the new designs and materials while a few had to put extra effort. While learning about social media channels was of major interest to them, they showed willingness to learn more about them. They tried using these channels by using their own devices and even clarified their doubts wherever needed.

Conclusion

From the impact analysis of the training and from the research study carried out, it can be concluded that the artisans in the regions are open to development of their craft in terms of designs and products. The analysis shows interest of artisans to pursue craft making in new forms. Not only are they ready to present new products to the market, the introduction to social media marketing has opened channels to reach a larger audience.

Introduction

In India, the arts and handicraft sector is the second largest employer (Roshni Balaji, 2019) and stretches from towns to remote areas in the country in the form of craft clusters dominated by poor income earning options and a near-absence of innovativeness (Das, 2015). Uttarakhand, just like other Indian states, houses numerous forms of crafts. Uttarakhand Handloom and Handicraft Development Council (UHHDC) officials under their study of Khetikhan and Lohaghat (District Champawat, Uttarakahnd) region highlighted that the artisans here needed exposure to their craft practices to redefine it as per market demands. The artisans here have been practicing the craft of knitting and crochet and have ancestral roots but are restricted to primitive products and materials.

UHHDC observed the willingness of the artisans to learn and work on newer designs and materials. They showed need for guidance to bring out diversification in their work. This need of the two regions to explore new designs and products led to the study i.e. development of training program for product development and diversification and its implementation. The objectives of the study were were to develop new products, to make artisans good in making these products and to make them learn various social media channels.

The research was conducted by being with the artisans throughout the training program and by helping them to develop the designs. It utilizes analysis of the training and observational study to derive outcomes. A semi-structured interview of the stakeholders and Focus Group Discussion among the artisans were also conducted. The responses from the interview and the discussion were used to analyse the study.

The designs and product categories taught were decided based on the market survey and trend analysis of various fashion brands. It covered categories from men, women and kids apparels and accessories. The training brought out diversification in materials used, designs made and tools used. Moreover, the artisans were exposed to various social media channels like Instagram, Facebook and Email Marketing.

From the impact analysis of the training and from the research study carried out, it can be concluded that the artisans in the regions are open to development of their craft in terms of designs and products. The analysis shows encouragement in artisans to pursue craft making in new forms. Not only are they ready to present new products to the market, the introduction to social media marketing has opened channels to reach a larger audience.

A major limitation under the study was language barrier as all the artisans spoke their regional language and the other limitations were less understanding about the area and unpredictable communication gap with the target artisan.

Literature Review

Millions of people in India make their living by producing traditional handicrafts using traditional skills and knowledge (Ghosh, 2012). This industry has been one of the major parts of India’s economic development strategy since independence (Sheikh & Tiwari, 2014). Today,

the handicraft industry occupies a position of strategic importance in the economic structure due to its significant contribution in terms of generating employment, revenue and exports (Sheikh & Tiwari, 2014). Handicrafts made through pottery, weaving, knitting, woodwork, etc. have low energy and infrastructure requirements. According to an IMARC group report, handicrafts are blooming in India due to low capital investments. The sector is one of the largest employment generators in Indian and accounts for a significant share of the country's exports (Masur & Agarwal, 2021). Finance Minister Nirmala Sitharaman in the union budget 2021 proposed the exemption on import of duty-free items as an incentive to exporters of handicraft items to give a boost to the sector. Mega cluster scheme and Marketing support and service scheme are two of the schemes developed for empowering handicrafts.

Customarily, craft businesses are family-owned, so artisans work with their relatives in all stages of the craft work and share the income. These crafts are as a rule sold locally where they are created or in encompassing districts as artisans don't offer their items overseas (Ratten and Tajeddini, 2017). Some of the studies (Ghosh, 2012; Marques et al, 2018) conclude that the diversification and development in handicrafts are responsible for development in the sector, moreover aiding entrepreneurial development.

Talking about the training artisans, Craft Training Institutes through providing courses on crafts are indirectly preserving, practicing and promoting the traditional crafts. These institutes are not only encouraging the youth to take up and pursue the crafts education but are also supporting the local crafts and helping in the revival of the local economy. Craft training institutes are also playing a crucial role in promoting entrepreneurship and self-employment in crafts (Karra, 2020).

Studies like Sheikh and Tiwari (2014) show that the skill development and training programmes which are organised by the government or any other private organisation are very helpful in the generation of employment, production and economic growth, and provide very large amounts of sales and exports to India, as well as the state’s economy. They also recommended that before introducing the new product it is essential to first go for test marketing in order to discover faults and omissions therein. Thus, training and developing new and existing skill, semi-skilled and unskilled man force in order to update them for flexible business environment becomes necessary (Sheikh & Tiwari, 2014).

Methodology

The study was conducted to prepare a training program for artisans of Khetikhan and Lohaghat (District Champawat, Uttarakhand) looking into current market trends, developing new products based on these trends and making artisans practice these products till they become saleable. It also makes them learn various social media channels.

The research methods adopted were exploratory research, descriptive research and observational study. The research techniques adopted was survey method, focus group discussion and the tools used for the research were depth interviews and discussion guide. The process was divided into four parts:

1. Stakeholders interview
   A semi-structured interview was conducted among the stakeholders of the region to understand the condition or status of the cluster. The interview was done with a set of open-ended questions.

2. Developing the training program
   The training program was developed by the designer at Uttarakhand Handloom and Handicraft Development Council (UHHDC). The inspiration was taken from the study of ongoing trend and market survey done by UHHDC. Senior designer at UHHDC looked into the condition of the region and the craft, compared it with the outcomes of the market survey and developed look board, color palette and designs for the artisans to learn during the training program.

3. Implementing the training program
   The training program was implemented with the help of Development Commissioner (Handicrafts) and District Industries Center (DIC), Champawat with the team of UHHDC. The duration of the training was two months. The implementation followed the time and action plan as prepared by the senior designer and the designer in-charge from UHHDC. During the course of the training, the artisans were taught about various social media platforms. Furthermore, a focus group discussion was also conducted to understand their mindset regarding product development and diversification.

4. Analysing the training program and other research techniques
   It was done by undertaking the stakeholders' interview, focus group discussion among the artisans and the observational study done during the training program by being with the artisans for the duration of two months.

Data Analysis and Findings

Data analysis

From the stakeholders interview, it was observed that the region of Khetikhan and Lohaghat have been practicing knitting and crochet from several generations. A few non-governmental organizations and independent businesses have commercialized the products prepared but the craft still lacks accessibility to raw material and markets. The major reason for this as observed in the interview was lack of knowledge of market trends, new materials and promotional tools.

With the motive to develop and diversify the products and to teach social media tools to the artisans, UHHDC organized the training program for the duration of two months simultaneously in these two regions. The program was guided by Development Commissioner (Handicrafts) and District Industries Centre (DIC), Champawat. The senior designer at

UHHDC was responsible was designing the whole training program while the program was implemented by designer in-charge by living with the artisans in their region for the duration.

Initially, the senior designer conducted a market survey for understanding the market demands and studied various fashion brands for upcoming trends. In addition, various journals and books were considered for understanding design and color forecasts. As the outcome of the above, the material type for training, color pallets (Figure 1 and 2), the look board (Figure 3), training schedule (Table 1), tool kit (Table 2) and designs (Figure 4) were decided. As the training focused on preparing products ranging from garments to accessories for kids and adults, both wool and cotton yarns were chosen as the raw materials for initial phase of the program. It was also planned to use another material if the artisans get equipped with using these two yarns.

Figure 1. Wool yarn color pallet

Figure 2. Cotton yarn color pallet

Figure 3: Look board for the training program

Phase	Task
Phase one (First two weeks program)	• Basic knitting practice with design no. 1,2,3 • Bags and accessory design 1,2,3
Phase two (From week third to sixth week)	• Practice of design no.4,5,6,7,8 • Bags and accessory design 4,5,6,,7,8
Phase three (Last two weeks)	• Practice on design no. 9 with leftover raw material • Mix match colour combinations on left over raw material by exploring small knitting designs of hand gloves , socks, and other accessories + fishing /packaging /tagging /coding of the prototypes

Table 1: Schedule of the training program

Figure 4: Designs for the training program

Tool Kit	
Aluminium Knitting needle with 6 to 12 Flat Knob (25cm)	Notepad
Crochet set	Pen
Fabric scissor	Tool box
Thread cutter	Thimble Finger cap for sewing protection
Measuring tape	Face mask and sanitizer
Sewing needle set	Thread ripper

Table 2: Tool kit for the training program

The training program was implemented with the help of the master artisans assisting the session. Meanwhile discussion guide was prepared for focus group discussion for which four groups of artisans were made with each group having 11 artisans. The discussion was completed in two days lasting for forty-five minutes and one hour for each group. The time and action plan (Table 3) for the program can be seen in the following table:

Week	Task
1	• Making artisans practice basic designs 1 and 2 • Lecturing artisans on personality development
2	• Practicing crochet and knitting with artisans design 3 • Conducted activity and lecture for artisans on Personality Development - Team work
3	• Practicing crochet and knitting techniques with artisans design 4 and 5 • Preparing products and focusing on their finishing from wool yarns • Conducted activity and lecture for artisans on Personality Development – Extempore
4	• Practicing crochet and knitting techniques with artisans design 6 • Preparing products and focusing on their finishing from wool yarns • Practice session for artisans on Personality Development - Introduction oneself
5	• Practicing crochet and knitting techniques with artisans design 7 • Conducted activity and lecture for artisans on Dimensions of Personality Development • Conducting Focus group discussion for two groups
6	• Practicing crochet and knitting techniques with artisans design 8 • Lecture on Social Media Handling (Facebook and Instagram) and use of Email
7	• Practicing crochet and knitting techniques with artisans design 9 • Conducting Focus group discussion for remaining two groups
8	• Practicing crochet and knitting techniques with artisans with left over material

Table 3: Time and action plan

The product making process during the training program always begun with discussion between the master artisans and the designer for deciding the product type, the age group for which it will be prepared, measurements for the age group are confirmed and suitable material type and quantity is decided. The measurements are based on the size chart prepared during preparation of training program by the senior designer at UHHDC. The first piece of every design was prepared by the master artisans to check the accuracy of decided parameters.

After the accessories at attached to the product, quality check is carried out initially by the master artisans for improvements to be made by the artisans. While the final inspection was done by the appointed designer and improvements were conveyed to the master artisans for implementation. Any raw material requirements, designs changes, process of making products, check for defects and quality or any other instant modifications were the responsibilities for the designer.

Figure 5: Few processes undertaken by artisans during product making

There were various changes brought to the existing designs and product categories of the craft. The specifications that were considered while formulating and conducting the training program are summarized (Table 4) in the table below, while some products prepared during the training can be seen in Figure 6:

S. No.	Specifications	Before Training Program	After Training Program
1	Technique of craft making	Mostly knitting	• Knitting • Crochet
2	Yarn type	Wool	• Wool and Cotton
3	Kids category	Cardigans	• Cardigans • Baby frocks
4	Teenage	Poncho	• Tops • Poncho

5	Adults category	• Cardigans • Sweaters • Poncho	• Tops • Shrug • Sweaters • Cardigan
6	Accessories	• Socks • Caps • Scarf • Stoles	• Baby headbands • Baby blankets • Kids toys • Kids pillow • Socks • Caps • Sling bag • Stoles • Scarf • Unisex collar (casual and formal)
7	Designs		
	Fit	• Straight	• Straight • Flare • Rectangular
	Neckline	• V-neck • Round	• V-neck • Round • Turtle • Round • Square
	Collar	• Chinese	• Johnny • Cowl
	Sleeves	• Full • Half • Raglan	• Full • Half • Balloon • Flare
	Placket	• Front • Shoulder	• Front • Shoulder • Open

Table 4: Summarization of various specifications before and after the training program

Figure 6: Products prepared during the training program

The artisans were also given guest lecture sessions on personality development. This included explanation on dimensions of personality and activities for building teamwork, introducing oneself, extempore and other individual and group level activities for personality development of artisans by practical means. Institution like RSETI (Rural Self Employment Training Institutes) were part of undertaking personality development section of the training program.

Focus group discussions were also carried out during the program, the responses to which show that the artisans do not feel difficulty in asking for clarifications while learning new tools. They are dependent on contracts and bulk orders for income generation. Very few artisans have exposure of markets through their respective organisations. They enjoy trying new things and can be more creative as they have good imagination.

The artisans also show interest towards entrepreneurship. They state that they lack moral and financial support when it comes to starting their own venture. They become emotional when it comes to their families not supporting them. They wish the government could help them and guide them through applying for loans, getting trained and becoming capable to be entrepreneurs.

From the observational study, it was observed that the artisans are professional when there is work involved. They are persistent to work in schedule. They showed willingness to learn new designs and readily accepted product diversification and development. They sought excitement and were interested to learn new things. They kept calm in stressful situations, are optimistic, and have stable mood.

The artisans were also tutored regarding various social media channels for marketing purpose. They were also taught about mailing address and its uses. This section of the training program was not a part of planning but was incorporated by DIC, Champawat in order to open market opportunities for the artisans. It sessions were carried out using presentation method while demonstration was done using an actual smartphone. The major features undertaken for

practice were mentions, tagging, writing a caption, open/private accounts, messaging, increasing reach, etc. The presentation was done using images from Home, Phonebook, Search, Profile, Privacy and other segments of the platform. The artisans were made to try these features on their personal devices as well. As a result to this, several artisans showed their social media presence after the training program concluded. Most of them used them as a platform to display their products while a few made them a private account. A few social media accounts of the artisans can be seen in Figure 7 to know the level of understanding of artisans.

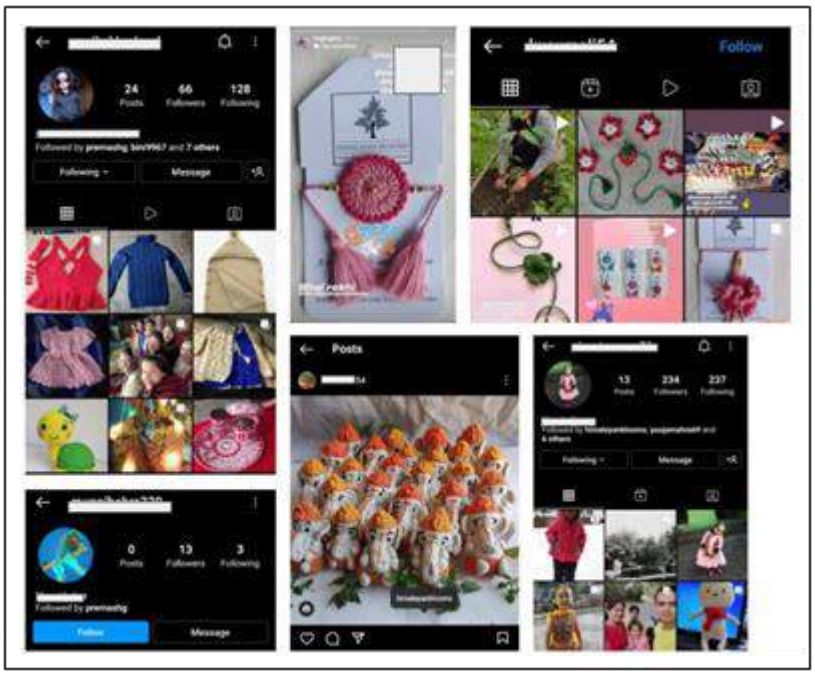

Figure 7: Some public/private accounts of artisans of the training program showing use of tagging and mentions in their feed

Thus, the overall findings of the study including the assessments and activities can be summarized as the following points:

- The artisans accepted product development and diversification
- The training program suited them in all ways
- They felt enthusiastic while modifying the craft
- The raw materials when looked locally, were not available as desired
- The market near the region is under-developed
- The training could have gone advanced if the artisans could quickly learn new designs
- Changes were made to the decided designs and colour palates if and where required mid-way to the training depending on the expertise of the artisans
- Initially, the artisans were made to practice new designs on wool as it is familiar to them and later, were made to develop them on cotton yarns
- Getting exposure to various social media channels like Instagram, Facebook and

Email Marketing made the learning more interesting for them.

- The artisans tried using these channels by using their own devices and even clarified their doubts wherever needed
- The artisans showed inclination towards entrepreneurship
- They state that they lack economic and moral support from their own families
- They wish to seek help from the government regarding the same

Discussion and Conclusion

This research project was aimed at bringing out the product diversification and development aspect of the artisans and their understanding on related objectives. As observed, the artisans can aid in diversifying products as they showed interest in the same. There pace of learning could be enhanced with regular practice and their related skills could be developed via training programs. Given the opportunity to work with these artisans in their surroundings helped to empathize with them and derive observational conclusions. The training program as observed came out as a very efficient way to develop the craft. The acceptance of the designs and materials by the artisans showed their willingness to compete in the changing market trends.

As artisans are the only people, who could sustain the craft, it becomes essential for them to understand what is changing, why there is change and what can be done further. Entrepreneurship, as observed in the discussion, can aid in widening the reach of the craft to several markets both online and offline. Knowing various social media handling tools thus, further enhances the effort.

As few such programs have been carried out for crafts and clusters in the state of Uttarakhand, other agencies working in this sector can definitely develop similar other projects that focus on the life of artisans in the interior villages of Uttarakhand to promote them, look into their needs and then act in a planned manner. Hence, it is needed that the state and central governments work together in developing and implementing crafts and cluster-based schemes effectively. In this manner, two-dimensional development - the craft and the artisan - of the clusters in Uttarakhand can be achieved.

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MOVING BEYOND THE INNOVATIVE: an experiment in demystifying deconstructed fashion

Authors

Nithya Venkataraman and N. Elangovan,

Nithya Venkataraman, Associate professor, National Institute of Fashion Technology, Bengaluru
Elangovan N, Associate Professor, School of Business and Management Christ (Deemed to be) University, Bengaluru

Corresponding Author: nithya.venkataraman@nift.ac.in

Keywords

Deconstruction, Fashion adoption, Consumer Innovativeness, Purchase Intention, Perceived value

Abstract

"The creation of a thousand forests is in one acorn." says Ralph Waldo Emerson. It is often one individual who paves way for the others to follow, and this holds especially true for fashion and lifestyle products. Theories of fashion adoption have outlined the existence of the more innovative fashion consumer. However, with changing times, consumers have become more adaptive, making fashion brands rethink their strategy on such exclusive positioning. This paper seeks to explore the relationship between Consumer Innovativeness and the acceptance of Deconstructed fashion, usually positioned as new or innovative fashion. The study uses a controlled experiment to map the difference in Perceived Value, Perceived Monetary Sacrifice, Perceived Quality, and the Purchase Intention of Deconstructed fashion between two groups of consumers varying in their level of Innovativeness. The garments used for the experiment are obsolete merchandise from the seasonal offerings of a popular fashion brand, which have been disassembled and reconstructed to give them a new, deconstructed look. The experimental study used statistical tools to map the difference in perception, and also categorise the innovative consumers into two distinct categories- Consumer Awareness and Consumer Adaptiveness. It also arrives at regression equations to predict the strength of this relationship. The study demonstrates that Consumer Innovativeness may not impact the purchase intention of Deconstructed fashion. While areas such as Perceived quality and Perceived Monetary sacrifice maybe influenced by innovativeness, the value perception of such products seem to be not influenced by the innovativeness of the consumer. With increasing focus on building sustainable fashion practices and the emergence of upcycled fashion, the findings of the study demonstrate encouraging signs of a larger consumer base for Deconstructed garments.

Introduction

The concept of change forms the essence of marketing. It leads to the movement of merchandise and services through a value chain and brings about innovation in products and services. For the fashion business, obsoleting is a necessary evil. It is said that "all must be made obsolete according to capital's logic, and new needs are created to be satisfied in the same way" (Maycroft, 2009. This obsolescence leaves retailers to frequently deal with unsold stock or inventory, often leading to cost of holding inventory-a major deterrent in realization of planned margins for retail business. This merchandise remains unsold over the period of accounting, contributing to costs that go beyond just the procurement and manufacturing of these goods. They take up retail shelf space, blocking opportunity for fresher and more relevant merchandise to make margins. Traditional practices for liquidation of such merchandise are practiced across all channels of distribution. However, fashion products also have the capacity to undergo modification or redesign. Changes in the aesthetic appearance of such products may actually be able to position them as new SKUs (Stock-Keeping-Units); making them no longer an "obsolete" product.

Will deconstruction or redesign of such obsolete merchandise provide better benefits to the consumer in terms of value? Will fashion-forward consumers perceive them differently than the others? Is this perception different when these products are presented online or in- store to fashion consumers, keeping in mind the Omni channel mode of distribution practiced for fashion and other lifestyle products? These questions are the base on which this study has been conducted.

Review of Literature

Close-out Inventory or Unsold merchandise has been recognized as a key determinant affecting product margins in the retail business. While the concept of remanufacturing has been explored for automobile, machine parts and electronic equipment businesses, the implications of breaking down a fashion product and reconstituting it to configure a new product has not been explored. This assumes additional significance in cases such as premium or sub-premium brands, where deep discounts not only affect product margins but also lower the perceived value of the product. Many studies have been devoted towards developing economic and stochastic models to address the issue of EOLC products leading to unsold merchandise. For instance, Jones, Erik, Farnham and Tim present an efficient ratio to determine when a Just-in-Time (JIT) supply chain is favourable to a multi-echelon inventory system where obsolete inventory is present (Jones et.al 2006). Pince presents dynamic models in inventory management, focusing on developing a practical policy for slow movers taking into account obsolescence and give insights about the interplay between backordering costs and obsolescence related holding costs (Pince, 2010). Usanmaz presents an exploratory study of business practices in the management of products in the decline phase and the eventual decision of product abandonment from Fortune 500 companies, focusing mainly on food, networking equipment, medical devices, consumer electronics and retail industries (Usanmaz, 2000). Hazen, Overstreet, Jones-Farmer and Field explore the role of ambiguity tolerance in consumer perception of remanufactured products, and suggest that ambiguity surrounding the

remanufacturing process might result in reduced levels of consumers' perceived quality and willingness to pay for remanufactured products (Hazen et. al, 2012). Wang, Wiegerinck, Krikke and Zhang explore the reasons underlying the key assumption in the Closed-loop-Supply-Chain (CLSC) literature that consumers' purchase intention is lower for remanufactured products than for new products (Wang et al, 2013). However, while these delve on the economic models of EOLC merchandise, the consumer perspective towards their revised value proposition, specifically in the wake of newer models of consumer behavior still needs to be explored. The foundation to the product lifecycle concept was laid by Rogers in his seminal work on the Diffusion of Innovations (Rogers, 1983). The adoption curve proposed by Rogers was modified to capture the cyclic nature specific to fashion merchandise. However, the PLC concept has been challenged time and again due to the many factors that this rather simple theory failed to address. The fashion consumer, in reverence to Everett's model of diffusion, also adopts fashion differently, making them higher or lesser on "innovativeness"–a measure for their acceptance and adoption for newer fashion. In lieu of the fact that remanufacturing of unsold merchandise leads to products which are necessarily "Avant-Garde", a term used for fashion-forward merchandise, the study also seeks to explore the relationship between the Innovativeness of the consumer and his acceptance of such products.

End of Lifecycle (EOLC) Merchandise

End of lifecycle merchandise has been the focus of study across multiple domains. The term also gains ground when identified on the end-stage of a fashion product, where the PLC goes through a distinct "inverted bell-shaped curve" to trace the path of products in the season-governed business. Levinthal and Purohit postulate that consumers' expectation for a forthcoming product lowers the price that they are willing to pay for the current product (Levinthal & Purohit, 1989). Steffens argues that the PLC concept ignores consumers, apart from areas concerning sales growth (Steffens, 2002). He rues on the lacuna in PLC which essentially bases strategy guidelines on the current and expected sales growth, together with the expected competitive intensity. Birou, Fawcett and Magnan propose an integrative strategic framework utilizing the PLC as a "common strategic denominator", integrating functional strategies such as production, logistics and purchasing with the PLC to arrive at a holistic business strategy (Birou et al, 1998).

Re-manufacture of EOLC Products-Deconstructed Fashion Garments

With growing concerns on environmental hazards and increasing focus on lifecycle management of products, the concepts of remanufacture and recycle are repeatedly arriving center-stage. Durable goods like consumer electronics and automobile spare-parts have been increasingly studied with respect to their possibility of remanufacture.

Mangold, Cristobal, Mars and Dornfelda conducted an assessment survey to arrive at a material flow analysis to develop a representative set of end-of-life pathways to better understand the flow of e-waste within the end-of-life management industry in the United States (Mangold et al, 2013). Fonseca, Nunes, Arlindo and Gomes conducted a field- experiment study to conclude

that the proposed additional dismantling of automobiles not only brings environmental benefits but also meets the European recovery and recycling targets (Fonesca et al, 2013). Interestingly, MIT Sloan predicts that reconstruction of products can actually help organizations in "reaping the profit" (Pearce, 2009). It identifies Recycling, Refurbishing and Remanufacturing as three possible methods of reconstruction and argues that such products "are considerably less expensive than their new counterparts". With specific focus on fashion merchandise, studies have focused extensively on the reuse of clothing and on the remanufacture of used clothing to create a "second-life". Ruoh-Nan, Su Yun and Xu document the psychographic characteristics of consumers who purchase such clothing, referred to as "Second-hand" clothing (Xu, 2015).

Studies have extensively focused on Closed-loop-supply-chains (CLSC) for used and discarded clothing and mapping the determinants for the consumers to choose recycling of used clothes over disposal. O'Reilly and Kumar explore the recycling approach at household level by apparel consumers, by employing the Theory of Planned behavior (TPB) model (O'Reilly & Kumar, 2016)**.** Value creation in such business models have also been explored, with old and used clothes going through a redesign process that may possibly add value to the redesigned apparel.

The fashion industry uses the term "Deconstruction" to refer to this process of redesign and remanufacture. Significantly, awareness about deconstructed garments and the role of key fashion houses in propagating the same differs from person to person. As a term that is specific to the fashion enthusiast, it is a matter of concern that a consumer who is aware about the term, might perceive the value for EOLC fashion products differently, as compared to a consumer who is not aware. The dimensions of Perceived value hence assumes significance in understanding the implications of this relationship.

Consumer Innovativeness

The term Consumer innovativeness is defined as the desire for consumers to seek excitement and novelty from new product adoption. Rogers defines innovativeness as "the degree to which an individual is relatively earlier in adopting new ideas than other members of his/her social system". Innovativeness, consequently, has been measured using the time of adoption method, which segments adopters into groups ranging from innovators, early adopters, early and late majority to laggards (Rogers & Shoemaker, 1971). Many studies have been devoted to understand the characteristics of such innovators; with an effort to arrive at attributes that can define him/her, as against a follower, on more absolute terms than measuring the time of adoption. Studies by Goldsmith et al and Chang clearly define that highly innovative people tend to take more risks, show greater social participation, have higher opinion leadership scores, be more knowledgeable about new products are more involved in the product category, have greater media exposure, and be heavier users of the product category (Goldsmith & Hofacker, 1991; Chang & Chen, 2008).

These consumers not only readily accept newer fashion products, but also, due to their nature as opinion leaders and strong social influencers, may be able to persuade the fashion followers to accept deconstructed garments. Hur, Yoo and Chung research the moderating effect of

consumer innovativeness on convergence products (home robots) in South Korea (Hur et al, 2011). The success of introducing a new and innovative product can be connected to the presence of innovative consumers. McCarthy et al indicate that the success of new product introduction is directly influenced by "the ability of marketers to identify innovators" (Mc Carthy et al, 1999).

However, does the measure of innovativeness affect the way a consumer perceives a new product? Hur, Jeong-Ju and Te-Lin feel that "consumers innovativeness shows a moderating effect on the relationship between emotional value and purchase intentions" and that the "effect of emotional value has a greater influence on purchase intentions for the high consumer innovativeness group than for the low consumer innovativeness group" (Hur et al, 2012).

H01- Consumer Awareness does not influence the Perceived Transaction value of the consumer.

H02- Consumer Adoption does not influence the Perceived Transaction value of the consumer.

H03- Consumer Awareness does not influence the Perceived Acquisition value of the consumer.

H04 Consumer Adoption does not influence the Perceived Acquisition value of the consumer.

Goldsmith uses a well-defined scale to measure the price sensitivity to fashion products and the innovativeness of the consumer, and infer that there is a negative co-relation between these two factors (Goldsmith, Daekwan & Wan-Min, 2005) This leads us to propose that there is a co-relation between the Perceived value of a fashion product, and the innovativeness of the consumer. The following hypotheses are framed to test this relationship.

H05 Consumer Awareness does not influence the Perceived Monetary Sacrifice (Absolute value) of the consumer.

H06 Consumer Awareness does not influence the Perceived Monetary Sacrifice (Absolute value) of the consumer.

H07- Consumer Adoption does not influence the Perceived Monetary Sacrifice (Relative value) of the consumer.

H08- - Consumer Adoption does not influence the Perceived Monetary Sacrifice (Relative value) of the consumer.

Perceived quality is an important attribute that may affect the value perception, the intent to buy and the internal fair price judgement for the consumer. This is largely a subjective parameter, with studies clearly differentiating it from Objective or Actual quality. Zeithaml's study on its interaction with Value and price defines it as "The consumer's judgement about a product's overall Excellence" (Zeithaml, 1988). Needless to say, this perception maybe influenced by a variety of Intrinsic and Extrinsic cues, and differs in its complexity from product to product. Does the innovativeness of the consumer influence this perception of quality for deconstructed merchandise? The following hypotheses are framed to test this relationship

H09- Consumer Awareness does not influence the Perceived Quality of Deconstructed garments.

H010- Consumer Adoption does not influence the Perceived Quality of Deconstructed garments.

Purchase intention has been seen as positively associated with Perceived value (Dodds, Monroe & Grewal 1991; Grewal, Monroe & Krishnan, 1998).

Since deconstruction of unsold garments is a relatively new concept, there have been very few documented studies on if the method of presentation of these products infleunces a consumer's Purchase intention. Hence, the following hypothesis is framed to test this relationship.

H011- Consumer Awareness does not influence the Willingness to buy Deconstructed garments.

H012 - Consumer Adoption does not influence the Willingness to buy Deconstructed garments.

Research Question

While studies address the areas of lifecycle stage, the perceived value of discounted products for EOLC merchandise and models for remanufacturing and re-engineering as effective modes of product liquidation, there are certain gaps in existing literature that lead us to explore the relationship between an consumer innovativeness and the acceptance of such products- What is the relationship between Consumer Innovativeness and Internal reference price, consumer innovativeness, Perceived quality and Perceived Monetary sacrifice and the perceived value of Deconstructed fashion products?

Objectives

The objectives hence framed for this study are: -

a) To study the influence of consumer innovativeness on the perceived value, quality, monetary sacrifice and Willingness to Buy deconstructed products.

b) To infer implication for fashion marketers on the method of selling for the value perceived for deconstructed fashion.

Research Methodology

This study involves the application of Consumer Innovativeness and two product attributes (Deconstruction and the Interaction method with the product) which are expected to **affect** the dependent variables of Perceived value, Perceived monetary sacrifice, Perceived quality, Internal price reference and Purchase intention. Since it seeks to measure the **intervention on an outcome**, the study focuses on an **experimental design** to arrive at its outcomes. The participants for this study reflect the demographic profile of fashion-conscious consumers who

are used to both online as well as offline buying. They can be aged between 18 to 65 years, and reside in tier-1 cities. The study was hence conducted on a mixed group of students, faculty, administrative staff and parents, in the premises of the National Institute of Fashion Technology, Bengaluru. Considering that these sample frame for the study are consumers for fashion, residing in a tier-1 city (Bengaluru) and that the groups needed to be matched with respect to their profiles and awareness, this study needs a convenience sample with a naturally formed group. Hence this study will involve a quasi-experiment, post test only design.

There were a total of 98 participants who undertook the study. A group of 49 students were approached after the class and were asked if they were ready to be a part of this experiment . Upon their agreement they were asked to fill up a short questionnaire capturing their age, gender, education and their awareness about the deconstruction concept. The questionnaire consisted of close-ended questions and served as a tool for the researcher to undertake a matching exercise by equating the participants such that each variables that can influence the outcome can be systematically controlled (Creswel, 2014). The participants were divided into two groups, each group consisting of an equal number of consumers who were aware of deconstructed garments. Hence the experiment was conducted on two groups of 49 participants each.

Instrumentation

Scale identification- Each of the variables identified is explored for arriving at clear and measurable dimensions. These dimensions are arrived at after extensive literature survey, based on the established reliability and validity scores outlined by the authors. Table 1.1 gives the details of the scale identified, the reference for the same, the reliability scores by the authors and the measures that they describe.

S.No	Variable	Scale Identified	Author	α
1	Product type	Deconstructed or Original		
2a	Internal Reference price	Liechtenstein and O'Hara's scale for fashion innovativeness	Donald R Lichenstein, Scort Burton and Bradley 'O'Hara	
2b	Internal Reference price	Grewal et al's scale for Internal Ref Price	Grewal.D, Monroe, Kent.B, Krishnan, R	0.79

3	Consumer Innovative-ness	Goldsmith and Hofacker (1991) domain specific innovativeness scale (DSI)	Goldsmith, Ronald.E, Kim Daekwan, Flynn, Leisa.R, Wan-Min Kim	0.89
4	Consumer Perceived value	Dodd's scale (Market cue- Product evaluation model)	William B Dodds	0.95
5	Purchase Intention/ WTB	Grewal, Monroe and Krishnan	Grewal, Dhruv; Monroe, Kent B; Krishnan ,R	0.92
6	Perceived Monetary Sacrifice	Dodd's scale (Market cue- Product evaluation model)	William B Dodds	0.80
7	Perceived quality	Dodd's scale (Market cue- Product evaluation model)	William B Dodds	0.94

Table 1.1– Scale identification

The identification of EOLC products

There are many criteria to determine whether a fashion product has reached the end of its shelf-life. Ferguson and Koenigsberg identify obsolete fashion products as "Type 3" where "functionality does not degrade, but the customers' perceived utility of the product deteriorates over time" the reasons for which may be the fast changing fashion preferences experienced by the consumer (Ferguson, 2007). The identification of EOLC products from the unsold merchandise required the identification of fashion brands who could provide their unsold merchandise for this exercise.. The products hence identified as EOLC and open to deconstruction are shown below.

Figure1.1. P1-Mens Corduroy trouser Figure1.2. P2- Mens Denim Jeans

Figure1.3. P3- Mens Polo t-shirt Figure.1.4. P4- Mens Woven shorts

Out of the above garments, the products numbered as P2 (Fig 1.2) and P4 (Fig 1.4) were selected for the deconstruction exercise, due to the complexity of the garments, and also since they provided more number of panels or structural elements in the clothing which could be manipulated to create newer products.

Design and construction of Deconstructed products

The process of deconstruction for these garments involved a careful analysis of the structure of the garment, and an identification of how they were put together using seams and stitches. To see if the garments can be redesigned into newer products, they were draped on to dress forms after a minimal amount of "opening up" or breaking apart the garments from certain areas. Once these garments were opened up, it was realised that they could be engineered by working around with different placements of the separated panels. However, since this also entailed some loss of fabric at the seam level, the garments were engineered around female dress forms, effectively looking at creating deconstructed womenswear from the original menswear garments. The process of deconstruction for P2 is explained below in Fig 1.5.

Fig 3.5a- Original Garment

Fig 3.5 b- Opening the seams and placement of panels

Fig 3.5c -Draping on a standard women's dress form

Fig.1.5 – Deconstruction process for P2- Mens denim jean

The deconstructed garment hence constructed was a Ladies jacket, full length at back and waist-length at the front, with a button closure in the front. All the panels in the new garment were sourced from the old garment, i.e, there was no additional material involved, except the stitching thread for construction. Likewise, the buttons and the rivettes from the old garment were used to create closures in the new garment. Figure 1.6 explains the appearance of the deconstructed garment.

Fig 1.6 – Deconstructed garment – Ladies Jacket from a Men's denim trouser

Likewise, the deconstution process for P2 (Men's shorts) is outlined below.

Fig.1.7 – Deconstruction process for P4- Mens Shorts

The deconstructed garment thus constructed is a shrug worn as an outer garment. The garment required very little intervention, with just the opening up of one seam and removing the zipper, before finishing the garment.

Fig 1.8 – Deconstructed garment – Ladies Shrug from a Men's shorts

The garments were labelled as Product 1 (Men's jeans, original), Product 2 (Women's jacket, deconstructed) Product 3 (Men's shorts, original) and Product 4 (Women's shrug, deconstructed).

Findings

This study was done as a controlled experiment, and the quasi-experiment format demanded that the number of respondents were equally distributed between the two groups. To minimize the occurrence of internal threats to validity, the respondents in both the groups were equally distributed for age-groups and gender.

Measurement of Consumer Innovativeness

Innovative consumers are an important part of fashion acceptance. These consumers not only readily accept newer fashion products, but also, due to their nature as opinion leaders and strong social influencers, may be able to persuade the fashion followers to accept deconstructed garments. The measures that define Consumer innovativeness are Consumer awareness to new fashion (which indicates the level of awareness that the consumer has for innovative products) and Consumer Adoption to new fashion (which indicates how quickly he is likely to adopt such new fashions). The concern that the consumers may be aware, but reluctant to adopt new fashion makes these two measures mutually exclusive.

Consumer Innovativeness on the Perceived Value of Deconstructed Products

The proposition for the relationship between these two variables is that there is no influence of Consumer Innovativeness on the Perceived value of deconstructed products on the consumer. Hypotheses H01 to H04 are tested for this relationship. The summary of findings is presented in Table 1.3 below. Regression co-efficients are measured since the nature and strength of this relationship needs to be measured. The findings indicates that there is a significant relationship

only between Perceived Acquisition value (AV) and that too, only for a "fashion-aware" consumer interacting with the product physically ($p=0.029$, $p<0.05$).

Nature of Interaction	Dependent variable	Independent variable	p-value	R Squared	B-Value
Control Group- Visual Only	Perceived Transaction Value	Consumer awareness to fashion	0.818	0.043	-0.165
		Consumer adoption to fashion	0.455		-0.051
	Perceived Acquisition Value	Consumer awareness to fashion	0.417	0.048	0.179
		Consumer adoption to fashion	0.144		-0.325
Experiment Group- Visual and Physical	Perceived Transaction Value	Consumer awareness to fashion	0.673	0.075	0.326
		Consumer adoption to fashion	0.098		-0.082
	Perceived Acquisition Value	Consumer awareness to fashion	0.029	0.094	0.429
		Consumer adoption to fashion	0.168		-0.268

Table 1.3- Regression co-efficients for Consumer Innovativeness and Perceived Value

The B-value is positive at 0.429, indicating that a more aware consumer is likely to get a higher perception of a "Good deal" from a Deconstructed garment. It is interesting to note that faster "adopters" or fashion forward individuals do not perceive a better value from Deconstructed garments, both in case of online and offline purchases.

Consumer Innovativeness on the Perceived Monetary Sacrifice for Deconstructed Products

Perceived Monetary Sacrifice measures the monetary value that the consumer thinks that he may not be able to achieve in return by the product attributes. Both the statements that measure this construct are hence indicative of the consumer's apprehension that it is 'too much money' to spend on this. Hypotheses H05 to H08 are tested for this relationship.

Nature of Interaction	Dependent variable	Independent variable	p-value	R Squared	B-Value
Control Group- Visual Only	Perceived Monetary Sacrifice- absolute	Consumer awareness to fashion	0.000	0.351	0.902
		Consumer adoption to fashion	0.004		-0.550
	Perceived Monetary Sacrifice-	Consumer awareness to fashion	0.024	0.076	-0.492
Nature of Interaction	**Dependent variable**	**Independent variable**	**p-value**	**R Squared**	**B-Value**
	Relative	Consumer adoption to fashion	0.223		0.261
Experiment Group- Visual and Physical	Perceived Monetary Sacrifice- absolute	Consumer awareness to fashion	0.001	0.189	0.610
		Consumer adoption to fashion	0.014		-0.463
	Perceived Monetary Sacrifice- Relative	Consumer awareness to fashion	0.001	0.207	0.631
		Consumer adoption to fashion	0.045		-0.369

Table 1.4 Regression co-efficients for Consumer Innovativeness and Perceived Monetary Sacrifice

Perceived Monetary Sacrifice seems to be strongly influenced by the Innovativeness of the consumer both when measured for visual engagement as an absolute value, for awareness and adoption ($p=0.004$, $p=0.024$, $p<0.05$) and for physical engagement ($p=0.001$, $p=0.014$, $p<0.05$). In effect, consumers across online and offline purchase environments feel the same sense of monetary sacrifice when measured as an "expensive" product. In both cases, the B-Values indicate that the relationship between Fashion-aware consumer and PMS (Absolute) is positive, i.e., higher the awareness of the consumer, more does he feel that he has forsaken money on the purchase ($B=0.902$, $B=0.610$) However, the relationship is negative when measured for Consumer adoption ($B= -0.550$, $B= -0.463$); indicating that Fashion adopters, in both methods of purchase, feel a lower sense of monetary sacrifice.

Consumer Innovativeness on the Perceived Quality of Deconstructed Products

The proposition for the relationship between these two variables is that there is no influence of Consumer Innovativeness on the Perceived Quality of deconstructed products on the consumer. The Hypotheses framed are H09 and H010

The results as in Table 1.5 indicate that Irrespective of Online or Offline purchases, Consumer innovativeness does not influence Perceived quality of Deconstructed garments($p=0.16$, 0.74, 0.11, 0.23, $p>0.05$). An innovative consumer, hence, perceives Deconstructed fashion equally as a fashion laggard would perceive.

Nature of Interaction	Dependent variable	Independent variable	p-value	R Squared	B-Value
Control Group- Visual Only	Perceived Quality	Consumer awareness to fashion	0.163	0.066	-0.308
		Consumer adoption to fashion	0.742		0.072
Experiment Group- Visual and Physical	Perceived Quality	Consumer awareness to fashion	0.112	0.051	0.317
		Consumer adoption to fashion	0.234		-0.236

Table 1.5 Regression co-efficients for Consumer Innovativeness and Perceived Quality

Consumer Innovativeness on the Willingness to Buy Deconstructed Products

The proposition for the relationship between these two variables is that there is no influence of Consumer Innovativeness on the Willingness to buy Deconstructed fashion. The Hypotheses framed are H011 and H012

Nature of Interaction	**Dependent variable**	**Independent variable**	**p-value**	**R Squared**	**B-Value**
Control Group-Visual Only	Willingness to Buy	Consumer awareness to fashion	0.021	0.236	-0.470
		Consumer adoption to fashion	0.922		0.019
Experiment Group-Visual and Physical	Willingness to Buy	Consumer awareness to fashion	0.002	0.186	-0.596
		Consumer adoption to fashion	0.068		0.339

Table 1.6 Regression co-efficients for Consumer Innovativeness and Willingness to Buy

Table 1.6 indicates that there is a significant relationship between Consumer awareness to fashion and his WTB deconstructed garments, both for visual or online purchase ($p=0.021$, $p<0.05$) and offline or in-store purchase ($p=0.002$, $p<0.05$). However, Consumer adoption does not influence the Intent to purchase deconstructed garments ($p=0.922$, $p=0.068$, $p>0.05$). In other words, consumers across all levels of readiness to adoption are open to buy deconstructed fashion. A summarized table for the relationship between Consumer Innovativeness and the variables measured is presented in Table 1.18 below.

Hypothesis	Independent variables	Dependent Variables	Method of Product Presentation	Nature of relationship
$H_0$1 $H_0$2 $H_0$3 $H_0$4	Consumer Awareness	PV-Transaction Value	Visual	Not Significant
			Physical	Not Significant
		PV-Acquisition Value	Visual	Not Significant
			Physical	Not Significant
	Consumer Adoption	PV-Transaction Value	Visual	Not Significant
			Physical	Not Significant
		PV-Acquisition Value	Visual	Not Significant
			Physical	Significant, Positive
$H_0$5 $H_0$6 $H_0$7 $H_0$8	Consumer Awareness	PMS-Absolute	Visual	Significant, positive
			Physical	Significant, positive
		PMS-Relative	Visual	Significant, negative
			Physical	Significant, positive
	Consumer Adoption	PMS-Absolute	Visual	Significant, negative
			Physical	Significant, negative
		PMS-Relative	Visual	Not Significant
			Physical	Significant, negative
$H_0$9 $H_0$10	Consumer Awareness	PQ	Visual	Not Significant
			Physical	Not Significant
	Consumer Adoption	PQ	Visual	Not Significant
			Physical	Not Significant
$H_0$11 $H_0$12	Consumer Awareness	WTB	Visual	Significant, negative
			Physical	Significant, negative
	Consumer Adoption	WTB	Visual	Not Significant,
			Physical	Not Significant,

Table 1.7 Summary of Findings for Consumer Innovativeness

Discussion

Innovative consumers have been clearly identified as “opinion-leaders”, likely to influence other consumers, and studies have indicated that for fashion, it is imperative for marketers to identify and target them for success of their products (McCarthy, 1999).

However, the Perceived value for Deconstructed fashion seems to be not influenced by the level of innovativeness of the consumer. This opens out the opportunity for marketers to target consumers of all categories of fashion adoption for the presentation of deconstructed garments. The study, however, validates Goldsmith’s (2005) findings that there is a negative co-relation between price sensitivity and innovativeness, as evidenced by the significance and negative co-relation evidenced for PMS and awareness/ adoption of the consumer. Likewise, consumers who are “faster adopters” do not show any correlation with intent to purchase, deviating from findings evidenced by Hur et al (2012) for remanufactured products. Clearly, consumers across levels for readiness to adopt new fashion exhibit similar willingness to buy, indicating that these garments can be presented to a wider target audience in stores and across E-commerce

Consumers of all levels in the innovation spectrum perceive these products to be of good quality. In line with the higher PQ evidenced by physical interaction with these products, deconstructed garments, when showcased well, have the ability to influence good quality perception amongst all consumers, irrespective of their previous awareness or readiness for fashion adoption.

Conclusion

With the advent of techniques to manage reverse-logistics and circular fashion, it is high time that fashion brands leverage deconstruction as an effective method for merchandise liquidation. Consumers clearly exhibit readiness for such products. However, marketers would require carefully planning price-points, framing their offerings and appealing to the intrinsic value perception of consumers in accordance with their level of innovativeness and awareness to deconstruction. Marketers would also need to differentiate selling and pricing strategies for deconstructed products on-line and off-line tapping consumers who probably are not aware about deconstruction through focused in-store experiences with such products.

While deconstruction at brand level definitely implies additional costs, market price and fair price estimates indicate that consumers would be ready to pay higher price-points for these products, leaving scope for margin realization with this category. Again, framing and display of these price points may well be the way ahead for carving out a market for deconstructed fashion.

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LOOKING FOR THE TV SOUND: music video as fashion object

Author

Ailsa Weaver,
Doctoral researcher and sessional academic, Fashion and Textiles
School of Design, Faculty of Design, Architecture and Building, University of Technology, Sydney (UTS)

Corresponding author: Ailsa.Weaver@uts.edu.au

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Non-material fashion, music video, postfashion; fashion theory and pedagogy, performance of identity

Abstract

Increasingly, fashion exists as postfashion: in the virtual realm and in curated spaces, intersecting with art, media and other forms of cultural production. In the context of postfashion, theoretical concerns and critical approaches to practice deliberately oscillate between forms of media that are understood as both fashion phenomena and fashion object. As the definition of fashion as a field of practice and inquiry continues to expand, so too does our understanding of how the discipline's supporting theories are realised. This paper proceeds from research being currently conducted that links fashion theory with the study of visual cultures by contending that music videos can exceed their function in popular culture as promotional representations of fashioned identity, and behave instead as fashion objects in and of themselves. It applies a new focus to the constituent parts of a music video such as performer/character, costume and filmic techniques, as well as their complex social, historical and aesthetic references in order to conceptually reassemble them as fashion objects. The paper also reflects upon the usefulness of music video as a pedagogical tool to introduce key fashion theory concepts to undergraduate students of fashion and textiles. This approach will be explored through the example of the 2013 music video for David Bowie's *The Stars (Are Out Tonight).*

1. Introduction

At the present historic global juncture in which existential threats must be combatted with agile reasoning, fashion scholarship and fashion education are obliged to answer a crucial question: how can critical theories of fashion continue to explain and defend an expanding definition of the practice and products of fashion? Yuniya Kawamura proposes that: "fashion is a concept that separates itself from other words which are often used as synonyms of fashion, such as clothing, garments and apparel. Those words refer to tangible objects while fashion is an intangible object." (2005, p. 2). Proceeding from a similar understanding of 'what is fashion', this paper speaks to current doctoral research being conducted at the University of Technology, Sydney (UTS), where I am also a teacher of fashion theory to students who are predominantly practice-based.

The research aims to contribute to an evolving definition of the fashion object by reflecting critically on typologies relating to material and non-material fashion forms, through a reinterpretation of music video. This hybrid moving image form, so culturally dominant in the Anglophone world upon its spectacular emergence at the turn of the 1980s, remains significantly influential to global image-making industries and their practices today. It has, however, previously been largely overlooked in scholarship. This gap allows for exciting possibilities in creating new knowledge by viewing music video through the lens of fashion theory.

The project contends that certain music videos can exceed their alternative function in popular culture as promotional representations of fashioned identity, and behave as fashion objects in and of themselves. This position is distinct from finding creative equivalence between moving image works and embodied outcomes of fashion practice, or from evaluating the clothed body in music video as evidence of cultural codependency between the music, media and fashion systems (Calefato, 2004; McNeil et al, 2009; McRobbie, 2009; Idacavage, 2010; Miller, 2011; Church Gibson, 2012; Geczy & Karaminas, 2015; Baron, 2016; Radner, 2019). My research focus is instead on how the constituent parts of a music video, such as narrative, character, costume, filmic techniques and — crucially — embedded contextual references can be conceptually reassembled so that their sum is assessed as being an agent of critical fashion practice.

Many concerns of critical fashion practice are threads woven into the fabric of music video. Key themes and methods here include collaborative practice, cultural critique, presentation of gender identities, be they conforming or non-conforming, and posthumanism (Geczy & Karaminas, 2018). If, as Kawamura states, "fashion is not visual clothing but is the invisible elements included in clothing" (2005, p.5), then, my research contends, these elements can be made visible in music video just as they may be in dress.

This paper will outline the research context for the project, being a nexus between theoretical understandings of postfashion and existing writing on the topic of music video. It will then analyse the 2013 David Bowie video *The Stars (Are Out Tonight)* as a case study of 'music video as fashion object', and finally will offer a brief reflection upon the use of music video as a pedagogical tool in fashion education.

2. Literature Review

2.1 Postfashion

Increasingly, fashion exists as postfashion: in the virtual realm and in curated spaces, intersecting with art, media and other forms of cultural production (Steele, 2019). While advancements in textiles technology and innovative material practices will of course continue to be closely connected to the future of fashion, fashion's intersections with other critical domains and fields of practice are flourishing as sites of creativity and commerce (Steele, 2019); for example, an established acceptance of films and curatorial projects as valid methods of expression for fashion designers (Khan, 2012; Uhlirova, 2013; Rees-Roberts, 2018; Clark, 2019) explains much of fashion's nimble response to COVID's 'new normal'.

Postfashion as a conceptual identification to an extent parallels critical theories of postmodernism: as with Arthur Danto's diagnosis of art "after the end of art" (1997), the end of fashion does not mean that fashion is at an end. Rather, it recognises that systemic challenge to historically-bound conventions of medium specificity in the domain of fashion is no longer a matter of mere speculation, but can be observed to have *already occurred,* thus necessitating a reconfiguration of the category's internal logic. This is analogous to art historian Rosalind Krauss's persuasive case for category redefinition of postmodern sculptural practice in the germinal 1979 essay *Sculpture in the Expanded Field.*

Reflective of the term's frequent contemporary usage and understanding, wherein 'field' relates to its partial definition as an area of operation or activity — rather than Krauss's specific Piaget group of logical expansion — Lara Torres makes the argument in her article *Fashion in the Expanded Field: Strategies for Critical Fashion Practices* that:

> … engagement with the notion of 'the expanded field' is not necessarily to prolong Krauss's systematic analytical grid, indebted to structuralism, but to operate where the legacies of Krauss's concept enable new points of departures and the understanding of what an expanded field of fashion can be.
>
> (2017. p. 168)

Fashion analysis has connected with the notion of postfashion in different ways. In *Fashion Zeitgeist: Trends and cycles in the fashion system* (2005), Barbara Vinken declared fashion's century to be over while simultaneously naming its successor: a set of situations termed "postfashion" or "fashion after Fashion", with the lowercase "fashion" being an ongoing reflective, creative process, and "Fashion" identified as the capitalist fashion system's myths and constructs. Fashion business journalist Teri Agin's 1999 diagnosis of the fashion system in the late twentieth- century, *The End of Fashion,* foretells the negative impact of mass-marketing and the demise of mystique. Trend forecaster Lidewij Edelkoort's *Anti-Fashion Manifesto* published in 2015 decries the decline of fashion knowledge at the expense of the individualism characteristic of late-capitalism.

Common to these perspectives is a recognition of the globally significant consequences of a fashion system based upon material over-production and over-consumption, with a lack of criticality in its motivation. My research draws upon this literature to argue for the imperative of an expanded field of fashion that recognises both material and non-material fashion forms, supporting this through redefinitions of the fashion object in both theory *and* practice. An arising positive implication here is a de-emphasis of uncritical mass production, enabling contemporary practitioners to explore the fashion's eternal concerns in novel ways.

2.1 Music Video

Just as fashion theory has been synthesised from dominant concepts drawn from domains including art history and theory, sociology, gender studies and economics, so too does the emerging study of music video arise from perspectives initially focussed elsewhere. Although this influential media form of the late twentieth century has continued to develop over the early twenty-first, music video as an interdisciplinary creative practice remains largely undefined in scholarship. While it has been identified as a hybrid production culture (Jirsa & Bonde Korsgaard, 2019), drawing upon and extending the disciplines of graphic design, photography, fine art and performance, emphasis in existing writing tends to value music video more often as a form of cultural artefact (Caston & Smith, 2017). Early academic analysis of the form in the 1980s and early 1990s responded to the cultural phenomena of music television, being the dedicated cable channel *MTV* in the United States and genre-defining weekly programmes such as Britain's *Top of the Pops* and Australia's *Countdown* (Straw, 1993; Austerlitz, 2007; Ryan, 2010). While more recent scholarship has addressed issues of aesthetics and authorship, music video largely continues to be evaluated as an adjunct to either cinematic or televisual filmmaking, or marketing, and wants for critical appreciation (Cave, 2017).

American media scholar Carol Vernallis has published a number of articles and interviews with video directors on aspects of music video production, for example filmic techniques such as editing schema, and provides a most useful explanation of music video in the introduction to her 2004 book *Experiencing Music Video: Aesthetics and Cultural Context*:

> music video [is] a distinct genre, one different from its predecessors — film, television, photography — a medium with its own ways of organising materials, exploring themes, and dealing with time, all of which can be studied through close analysis.
>
> (p. x)

Nicholas Chambers explains that music video "came to infiltrate our lives — showing us what to wear and how to dance" (2004, p. 44), highlighting a frequent indivisibility between fashion and music video in late twentieth century popular culture. Robert Walser and Marcus Desmond Harmon offer an extended entry on music video in the *Encyclopedia of Sex and Gender* (2007), wherein the authors state that: "as marketing tools and artistic products, music videos are a fertile site for depicting and contesting popular images of gender and sexuality" (p. 1049). With in mind that the same can equally be said of fashion practice when it is underpinned by fashion

theory, close analysis of select music videos reveals a vibrant intersection between these creative areas.

3. Case study: *The Stars (Are Out Tonight)*

The catalysing observation leading to this research occurred at the delivery of a lecture to second year Bachelor of Fashion and Textiles students at UTS in April 2018, the aim of which being to introduce perspectives of gender performativity in broad strokes, by encouraging students to make their own connections between this complex topic and a range of scholarly references and popular cultural examples, including music videos. Observing the capacity of music video to convey the lecture's key theoretical concerns proved thought provoking. The presentation concluded with *The Stars (Are Out Tonight),* a video made to accompany David Bowie's twenty-fourth — and penultimate — studio album, *The Next Day,* directed by Italian-Canadian artist, filmmaker and fashion photographer Floria Sigismondi, whose body of work includes the 2010 feature biopic *The Runaways* and several music videos with Bowie.

David Bowie's culturally influential multi-disciplinary creative practice lends itself easily to theoretical as well as popular investigation. Lisa Perrott makes the observation that Bowie prefigured Judith Butler's 1988 theorisation of the gender performativity by several years, in his identification that characteristics drawn from Drag — such as costume, make-up, reworking of lyrics, vocal mimicry, musical quotation, bodily gesture and pose — can challenge, rather than reinforce, gender norms through acts of subversive imitation (2017). Close structural analysis of Sigismondi's self-reflective representation of what 'Bowie' means speaks clearly to this, and also to Bowie's career-spanning dedication to creative inquiry. It is also instructive in understanding the way in which fashion theory and music video can intersect to create a 'fashion object'.

The video opens with a series of daytime establishing shots of an apartment building dating from the early twentieth century, in a semi-urban area of the United States that has undergone a declining process of 'reverse gentrification'. Accompanied by live-sounding, anticipatory instrumental music, the camera voyeuristically pans and tilts around the exterior of the once-grand building, showing its stately architectural features including balconies, arches and a grand staircase, but also exposing peeling paintwork, broken window panes and unkempt rose bushes. We see the interior of one dwelling, frozen in time with a mid-century aspirational aesthetic, with deep-pile carpet and a large television cabinet as the focal point of its claustrophobically neat living room.

Moving furtively across this space is a thin, white woman of middle age who wears a stiff, peroxide-blonde, shampoo-and-set hairstyle, pastel pink capri pants and swing coat. This is 'the wife'. Peering with paranoia through the curtained window, she retreats when her gaze is returned by a young, louche white person with an androgynous gender presentation. This is 'the rockstar'.

Their hair is worn in a floppy-fringed, two-toned orange and blond short romantic style, and they are dressed in a 1940s/1970s vintage-look menswear ensemble of white high-waisted

tailored trousers, light red slim fitting shirt, pullover and tie. Carrying a guitar case, they are one of a racially-mixed group of bohemian musicians who are taking up residence in the building, possibly without permission. The sequence is overlaid with titles as in a feature film, naming the production's lead actors, David Bowie and Tilda Swinton, and its director, Floria Sigismondi.

Next, we enter a run-down but well-stocked local grocery store with a white man of late middle to older age. This is 'Bowie'. He sports longish-fringed, short natural sel et poivre coloured hair, and wears an open-necked pastel green collared shirt under a light trench coat or mackintosh. 'Bowie' picks up a glossy gossip magazine called *PANTHEON Weekly*. Its cover story, titled *Celebrity Couple's Twisted Antics,* features a paparazzi-style photograph of a young, white, blonde femme fatale type and white, masculine-presenting brunette in glamorous evening wear. Other stories featured in the magazine are *Alien Lives Next Door,* accompanied by a photograph of a bald humanoid (posed by Bowie) and *Woman Goes to Oscars Without MakeUp,* with a snap of a woman with slicked-back, short red hair (Swinton).

In the grocery store, 'Bowie' is joined by 'the wife'. She is overdressed in this setting, her ensemble now augmented with gloves, handbag and a structured pastel pink neckerchief. Her grooming features pale blue eyeshadow in a late 1960s to early 1970s style. "We have a nice life," she says to him, kissing his cheek (Fig. 1). 'Bowie' repeats this line, as if it were a mantra. The couple speak with British accents. They complete their modest shopping expedition unaware that they are being observed from another aisle by 'the celebrity couple' of the magazine article, model- thin in contemporary red carpet attire with the masculine character wearing sunglasses, and move jerkily, as though outside real-time.

In the next sequence of the prologue, 'Bowie' pulls along a wheeled shopping trolley as he and 'the wife' make pleasantries on their walk home via an empty, postindustrial laneway. 'The wife' wears sunglasses. Incongruously, they are overtaken by a limousine with darkened windows. This confuses and displeases them.

We transition with a wipe-pan to a shot of the musicians, who are rehearsing in a dimly-lit, eclectically under-furnished room in the shabbier neighbouring apartment. Simultaneously, the musical soundtrack to the production, David Bowie's song *The Stars (Are Out Tonight)* begins. 'The rockstar' shrugs their thinly shouldered and small breasted upper body as they prepare to perform (Fig. 2). We cut to 'the wife' in a heavily wood-panelled kitchen, wearing a light yellow and silver-white boucle top. She is unpacking a bag of groceries. In it, she finds *PANTHEON Weekly* and disapproving of the magazine, throws it in the bin, which is filled with empty plastic packaging and a single leaf of kale.

Seen from point of view of 'the wife', the mysterious limousine pulls up outside the building. Its tinted electric window lowers and we see 'the celebrity couple' inside (Fig. 3). They have found where 'Bowie' and 'the wife' live. The femme has an exaggerated manicure resembling dark crystal talons. Their movements continue to be stilted and their facial expressions indicate predation. 'The wife' recoils from the window in a private panic. We cut to an extreme close up of the 'the rockstar' which features their eyes. One pupil is significantly more dilated than the other, giving an impression of the eyes being in fact different colours. Through their own

window, ‘the rockstar’ has also seen ‘the celebrity couple’, and is also affected by their presence.

The action shifts to night. ‘Bowie’, who wears a blue open necked shirt and dark yellow cardigan, and ‘the wife’ watch television, affectionate in each other’s company (Fig. 4). Their domestic contentment is disturbed by the sound of the musicians in the adjoining apartment, where ‘the rockstar’ now wears a high-fashion white tuxedo jacket, shirtless but with a detachable pointed shirt collar. They perform with emotion, lip synching to the video’s soundtrack:

They watch us from behind their shades

Brigitte, Jack and Kate and Brad

From behind their tinted window stretch Gleaming like blackened sunshine.

We cut back to ‘Bowie’ and ‘the wife’’s apartment. He is indignant and moves to complain, she remains on the couch. A censorial ‘Bowie’ approaches the wall that separates the apartments and bangs upon it. The wall is shown in cross-section, visually dividing the screen in half. ‘The rockstar’ is drawn into the frame from the opposing side. The two performer/characters’ each sense another presence. Separately but in unison, they perform a series of gestures that mirror each other. They first turn their ears to the wall (Fig. 5), then press their open palms against it (Fig. 6), then raise their eyes skywards. Intercut with this sequence, we see that the ‘celebrity couple’ have infiltrated ‘Bowie’ and ‘the wife’’s apartment. She is unaware that they mockingly perform a marionette-like dance behind her.

In the next scene, ‘Bowie’ and ‘the wife’ are asleep in their bed. They are visited by the femme of the ‘celebrity couple’, whose semi-naked body is revealed to have an alien or posthuman form with protruding vertebrae. This character squats over the sleeping ‘Bowie’ in sinister domination, using their even-further-exaggerated ‘claws’ and mouth in an occultish, non-consensual encounter that involves the ‘sucking out’ of something essential to ‘Bowie’ (Fig. 7). This is clandestinely observed by ‘the rockstar’, who wears an expression of horrified fascination. ‘Bowie’ awakes shaken from his ‘dream’.

We return to daylight. ‘The wife’ wears a shiny, light chartreuse shell suit and a perspex visor as she follows an aerobic exercise routine being broadcast on television. The living room wall is decorated with a print of Vladimir Tretchikoff’s 1952 Orientalist painting *Chinese Girl*, also known as *The Green Lady*. Suddenly, the television screen reveals something uncanny. ‘The wife’ sees not only her own reflection in its glass, but also an image of ‘Bowie’ and herself from the night before. She turns around but more surprisingly still, finds ‘the celebrity couple’ on the couch instead. They once again mock her, disdainful of her shock and her fear of seduction. ‘The celebrity couple’ slap their own faces and like psychic puppetry, this causes ‘the wife’ to do the same, and to move in their jerky, otherworldly-timed way (Fig. 8). This is intercut with the set-up of ‘Bowie’ and ‘the rockstar’, still separated by the apartment wall but now both singing, as if in duet:

And they know just what we do

That we toss and turn at night

They're waiting to make their moves

For the stars are out tonight.

In an alternate reality, this is observed by 'Bowie' through 'the rockstar''s window.

Returning to the bedroom, we see that 'the wife' is now sexualised, manipulated remotely by 'the celebrity couple'. Witnessed by 'Bowie', she writhes on the bed, possessed. An erotic tussle takes place between the performer/characters that have thus far been recognisable as 'the celebrity couple'. They have become indistinct in their performances of identity, with their bodies, revealed and concealed by high-fashion undergarments, presenting as differently-gendered to when 'costumed'. In a complementary sequence, 'the wife''s appearance is dramatically altered, with her hair now a slicked back, androgynous blonde crop and wearing fashion-forward lingerie in nude tones. This is intercut with a 360 degree tracking shot of 'Bowie' and 'the wife' in her new presentation, wherein she applies lipstick and marks the passive face of an anorak-wearing 'Bowie' with smeared, proprietary kisses (Fig. 9).

In the next sequence, 'the wife' hosts 'Bowie', who is attired in smart casual checks, at a macabre private dinner. She wears a lavender coloured full-skirted dress with nipped waist, puffed sleeves, collar and buttons. This is accessorised with pearls, with her short blonde hair wildly unkempt and her make up principally in the form of heavily drawn eyebrows. 'The celebrity couple', wearing fashionable underwear-as-outerwear, control 'the wife' as she mimes the use of a mobile internet device and then attacks an uncooked chicken with an electric carving knife (Fig.10). 'Bowie' seeks to flee this horror and the three pursue him to the stairwell. The pace of the video escalates with a series of rapid intercuts between this set of action, the lipstick surround-shot and the fluidly-erotic set-ups, into which 'Bowie' is now drawn.

In the final scene, 'the celebrity couple' are seated on the couch in the positions once taken by 'Bowie' and 'the wife'. The femme wears 'the wife''s original wig, blue eyeshadow and boucle top, the masculine character wears 'Bowie''s collared shirt and cardigan. Drawn to the television, 'Bowie' and 'the wife' (in her transformed state), dressed in identical silver lamé and black shawl- lapelled dinner jackets with open-necked white collared shirts, approach from behind, both moving in the jerky time of 'the celebrity couple''s reality. All four are mesmerised by the screen. One-by- one they turn to the camera, breaking the conceptual fourth wall by returning its gaze (Fig. 11). We end with the title, *FIN*.

This late-period Bowie video is, as Karen de Perthuis explains, "a cross-dressing, transgender, role-switching, time-twisting narrative that, in its clear display of designer clothes, bears all the hallmarks of Sigismondi's fashion film roots" (2018, p. 12). Designer fashion is indeed used as costume throughout the video, with McQueen, Lanvin, Raf Simons for both Jil Sander and Dior, Rick Owens, and Hedi Slimane for Saint Laurent for example worn by its performer/ characters as 'everyday' garments. However, the video does not exist in the realm of fashion due to its costuming alone. Rather, it exhibits many of the thematic hallmarks of critical fashion practice.

The collaborative nature of the production is established through Sigismondi's use of cinematic titles. While not introduced here alongside David Bowie and British actress and artistic collaborator Tilda Swinton, the video's supporting players bring with them cultural information that instantly places the work in the realm of critique, being exemplars of a twenty-first century shift in conceptions of gender, beauty and fame: Bosnian-Australian transgender model Andreja Pejić and Dutch artist and model Saskia de Brauw as the disruptive, youthful couple who personify celebrity, and Norwegian model Iselin Steiro as a Thin White Duke-era David Bowie avatar. In contrast to Bowie's own performance here of conservative masculinity, these androgynous 'stars' stand for the transgressive flamboyance of Bowie's previous personae, forcing the older performer/characters to confront their fears, desires, self-concepts and mortality.

While it is outside the scope of this paper to consider fully, it is also notable that while the cast is diverse in its range of ages and gender identities, it conforms entirely to fashion's ideal of thinness and whiteness, inviting the question: does Sigismondi's video challenge Fashion's norms or reinforce them?

The Stars (Are Out Tonight) is a text dense in the language of popular culture. 'The wife', portrayed by Swinton, could be seen as a descendent of Annie Lennox's tormented housewife persona in the Sophie Muller directed Eurythmics video *Beethoven (I Love to Listen To)* (1987). Further connections may be made, as George Piggford has noted that Annie Lennox's performances as a Camp androgyne offer parallels to the "serially dual-sexed" titular character of Virginia Woolf's 1928 novel *Orlando: A Biography* (1997, p. 43). Swinton, famously, inhabited the titular character in Sally Potter's 1998 film adaptation of the story.

Links made by Caroline Evans in *Fashion at the Edge: Spectacle, Modernity and Deathliness* (2003) between hysteria, vampirism and non-reproductive sexuality are present in the video not only through what is depicted, but what is implied, with Bowie and Swinton each having portrayed other worldly beings, including vampires and aliens, across creative practices in frequent negotiation with conceptions of posthumanism. What their characters' call a "nice life" is dominated and validated by consumer culture and appearances, aligning entirely with Thorsten Veblen's notion of 'conspicuous consumption'. Indeed, these characters embody Veblen's conception of the 'Leisure Class', explained by Michael Carter as "an amalgam of the rich, the hyper-rich, the owning class, the ruling class, the upper class, the business class, the aristocracy, the *nouveau riche*, and high society" (2003, p. 44). Yet, their appetite for affluent domesticity, reinforced through the repetitive performance of heteronormative gender roles (Butler, 1990) is questioned and ultimately, overturned. This resolution to the video's narrative is proposed entirely through transformative use of clothing and fashion-adjacent adornments such as hairstyling and make-up, emphasising costume's privileged position amongst the *mise en scène* of music video as a moving image form.

Across the canon of fashion scholarship, it is commonly agreed that fashion is made not only *of* things (that is, a commodity or object produced within a fashion system) but also *about* and *because* of things (a phenomena or representation, either chronologically coinciding with or nostalgic in its relationship to historical time, and very often a cultural or subcultural cipher).

Variously — and sometimes simultaneously — fashion is about bodies, about identity, and about consumption itself, and in being so, is frequently and meaningfully self-referential. That this can be said equally of music videos of the complexity of *The Stars (Are Out Tonight)* is informative to understanding an expanding field of fashion and its objects.

Figure 1. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 2. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 3. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 4. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 5. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 6. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 7. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 8. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 9. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 10. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

Figure 11. Sigismondi, F. (dir.) (2013). The Stars (Are Out Tonight) [music video] (still).

4. Reflection: music video as fashion pedagogy

As colleagues in fashion education may attest, the development of novel pedagogical strategies to assist students in assembling a critical 'toolkit' for building their practice is both a challenge and privilege of the role. While film and video resources are frequently used in teaching programs across primary and secondary education, their usefulness in tertiary settings outside the fields of film and media studies can be underestimated. In particular, I note its potential as a device in the teaching of an emerging generation of critical fashion practitioners.

Music video appeals as a potential approach to the teaching of theoretical perspectives to culturally literate visual learners. Visual learners are characteristically imaginative and use their natural ability to picture events and remember information. They gain pleasure from the act of learning through visual and creative activities and are frequently able to conceptualise the components of a concept or task as a whole image (Reid, 2005). These qualities are frequently possessed by contemporary students of fashion: this is a cohort that learns in a formal academic context, yet at the same time uses atomised access to popular cultural information to inform their creative practice.

Proceedingly, these students of fashion frequently do not see themselves as being confined to 'Fashion' (to apply Vinken's distinction); multi- and inter-disciplinarity are features of the

careers of those they admire and commonplace terms of self-description. Fashion films and photography are frequently produced by students not only for assessment, but as self-directed expansions of their engagement with the creative world. Easy access to digital moving image technology through smartphones means that students are uninhibited by the language of film and video, and constantly take part in its evolving conversation. My research identifies how music videos of the 1980s and 1990s contributed significantly to the vocabulary of moving image, partly owing to their short determined lengths. In having a native understanding of how short-form videos, such as those on TikTok, are constructed and what makes them effective as methods of communication and visual appeal, contemporary students are able to immediately discern themes and meanings in both historical and contemporary music videos. This existing skill can enable the use of music video to encourage dynamic class conversations on both fashion-related topics and to broaden students' general knowledge; to provide stimulus for briefs; or for deep diving into fashion research. This is because at their best — that is, most conceptually rich and creatively resolved — music videos and fashion collections have much in common. Often referencing cultural and visual histories, they are multidimensional realisations of creative ambition, featuring intriguing muses and unique narratives that are rewardingly surprising and oddly believable. While my doctoral research makes the leap that music video *is*, or can be, fashion, in the realm of fashion pedagogy I suggest that music video can also be considered more widely as a window through which to view both what fashion is, and how fashion works.

5. Conclusion

Fashion is an expanding field of practice and inquiry that maps continually renewed understandings of fundamental human motivations and the societal structures that support and constrain them. Transcending the boundaries of the garment, fashion is at once fleeting and perpetual. In the context of the condition of postfashion, non-material fashion forms such as moving image works can be considered products of critical fashion design practice. Understanding this can create a positive de-emphasis on the material production of fashion, which is a global imperative of the current era.

In the the 2013 David Bowie music video *The Stars (Are Out Tonight)*, it is possible to discern a number of critical concepts common to fashion and fashion-adjacent theories, such as posthumanism and non-reproductive sexuality, Butler's gender performativity and Veblen's conspicuous consumption. This demonstrates the usefulness of music video as a pedagogical tool in fashion education, in order to provide theoretical underpinnings to the work of a new generation of critical fashion practitioners.

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DESIGNER'S PERSPECTIVE OF DIGITAL KNITTING: from fashion design to wearable technology

Authors

Yishu Yan,
Institute of Textiles and Clothing, The Hong Kong Polytechnic University

Corresponding Author: yishu-yan@connect.polyu.hk

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Abstract

This paper recommends that digital knitting as an integrated textile-based design and development process not only reforms the framework of conventional fashion and textile design but also offers an alternative pathway towards the innovative construction of advanced wearable technology. From a designer's perspective, the transitional role of digital knitting in these two fields is illustrated, analysed, and compared. A practice-based methodology is indicated for the development of both fashion design and wearable technology through the digital knitting process, in which the positive character of a designer is especially highlighted.

First, the concept of digital knitting is described. The general work procedure and the advantage of digital knitting are explained. Second, the relevant research regarding digital knitting design is reviewed. The examined cases are generally grouped as fashion design through the application of digital knitting and wearable technology using the digital knitting process. The design proposes, work process, and outcome of each reviewed case are compared. The general frameworks of each group are additionally shown and concluded.

Third, the original practice-based research work is presented. A technical-led fashion design practice utilizing digital knitting as an integrated process for the creation of both textile and garment is exhibited. Then, a design-led wearable technology exploration using digital knitting as digital fabrication and additive manufacturing method is also demonstrated as preliminary research work.

This paper introduces brand-new thinking of utilization of digital knitting as a transitional bridge for both techno-led fashion design and design-led wearable technology development. The recent and classic research cases are examined from a comparative viewpoint. The empirical experience of two practice-based projects with completely different orientations offers innovative and reasonable insights for future relevant research and practice, especially for a practitioner with design backgrounds.

Introduction

The topic of this paper is that digital knitting makes a positive contribution to both design creation and technology innovation through playing different roles in the research process. There is also interaction and relationship between techno-led fashion and textile design and design-led wearable technology development. They have reciprocal impacts on each other.

It is known that design cannot be separated from techniques or technology and designer are required to be occupied with techniques or technology to realise their design ideas (Matković, 2010). However, with the progress of society and the refinement of disciplines, the gap between art design and engineering technology is increasing larger. The high precision of machines and the high complexity of technology make it very difficult for designers to master and manage technology. The technical skills gaps prevent the ideal of a designer-maker. At the same time, knitting as one traditional textile manufacturing method has attracted more and more attention in recent decades. It is because of its cross-border applications in other scientific research fields, especially in the direction of wearable technology. Therefore, knitting now spans the traditional textile and clothing industry and modern electronic devices. However, this advanced research area is often dominated by scientists due to its technical complexity, and the proportion of design is very limited. How to make designers find another pathway to carry out innovative research in this field is a focus worthy of discussion. The emergence of a digital knitting design system seems to bring hope to this dilemma to a certain extent. From the designer's point of view, a digital knitting system links the design content and engineering content in a visualised method, so that the designer can easily carry out technological design and has the opportunity to understand the technology in the design process (Eckert, 2001).

This paper gives a brief understanding of digital knitting and its roles in the different research areas. First, the general explication of the concept of digital knitting is presented. Second, a literary review regarding digital knitting applications is presented. Finally, some original practice-led studies are introduced. It aims to generate a possible method based on a designer’s viewpoint for developing both fashion design and wearable technology using the digital knitting process.

Knitting and digital knitting

(1) General information on knitting

Knitting is a conversion system in which yarn loops are intermeshed to form a fabric (Raz, 1993). A continuous length of yarn structures the basis of knitting, and a knitted loop is the basic unit of each knit. Commonly, there are three construction types of knitted loops, including weft knitting, warp knitting and crocheting. The first two are widely used in industrial mass-production for various textiles and clothing, while the latter type is normally handmade. Among various knitting technologies, V-bed flat knitting has the most superior design flexibility and creative possibility.

(2) Concept and feature of digital knitting

Digital knitting generally refers to the knitting technology that seamlessly connects knitting design and production process through comprehensive digitisation. In comparison with the common concept of computerized knitting, one of the most significant features of digital knitting is its super-powerful and friendly knitting design program. Developing from a designer's perspective, the digital knitting design system is highly embedded in the entire knitting process. The generated design file from the knitting system not only provides comprehensive design information, such as pattern and colour combination but also enclosures essential setting data for various digital-controlled devices in the machine, such as knitting bed racking and take-down method. A perfect design document equals successful cooperation of design ideas and engineering data. Therefore, the digital knitting process is gradually altering the leadership of knitting development from engineering thinking to design thinking. This lays a foundation for the difference between digital knitting and other knitting technologies. Therefore, it also can be said that digital knitting marks that the evolution of knitting is about to enter a brand-new stage. Different types of knitting are involved in the trend of digitalization through different pathways. The digital knitting system for V-bed flat knitting is the distinctive one among all of them. Since the design-led nature of the digital knitting system is well suited to the variable attribute of V-bed knitting, the enormous design opportunities and creativities are possible to be stirred up infinitely. The digital knitting discussed in this paper is mainly concentrated on digitalized V-bed flat knitting.

The typical digital knitting system for V-bed knitting includes APEX from Japanese company SHIMA SEIKI and M1 plus from Germany company Stoll. Both companies are the major manufacturers in the world for flat knitting machines. And they have developed their design system for their machines. Although the specific software development logic is comparatively different, the general components of these two systems are the same. If using APEX as an example, it can be noticed that there are various design platforms with different functions combined in one system. Among them, the KNIT program is used for knitting development, including designing a variety of stitches and patterns, while the DESIGN program is used to assist the design procedure, such as picture preparation. It is worthy to point out that, in this design system, various coloured squared incorporate special knit notations that denotes both the knit stitch structure and the mechanical operation. This fundamental programming philosophy originated the design-led attribute of digital knitting, using a visual and easy method to represent complex engineering contents.

The conventional workflow of such a digital knitting system consists of two main takes, including (1) creating and exporting a knit file by using the provided apparel designs system, and (2) executing the generated file and producing a knit on the digital knitting machine (Yan, 2021). This synthesise empowers a seamless dialogue to occur between design programming and technical engineering. All knitting information is integrated into a data file and conveniently transferred to the knitting machine.

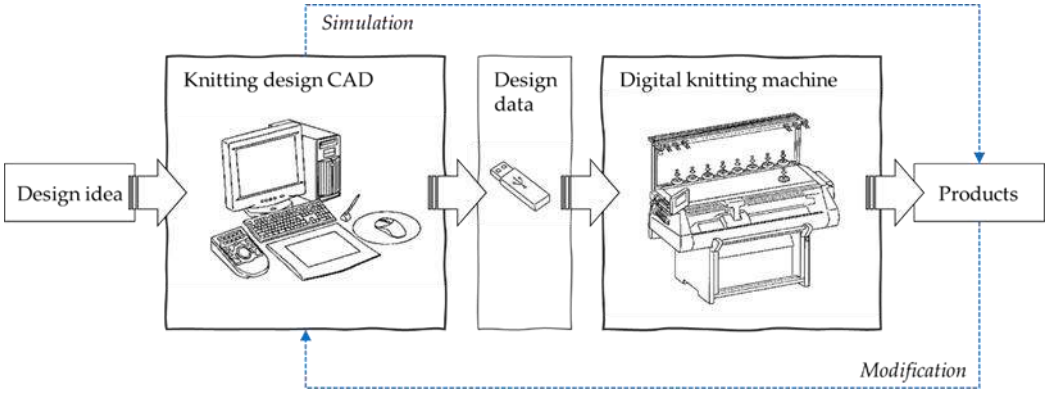

Figure 1. The conventional workflow of a digital knitting system

Moreover, another critical highlight of the workflow that involves a digital knitting system is that the visual simulation programming, which can offer highly accurate virtual samples and digitise interaction. This function completely alters the conventional development process of knitting. It can automatically check and simulate the entire knitting process on the machine before real production avoiding a vast amount of waste material, time, and human resources. At the same time, this digitalised function provides an efficient way for designers to understand certain mechanical principles and procedures that can greatly help for improving design effects and generating new design ideas. Therefore, it paves the way to designer-led creations and innovations through the application of advanced technologies.

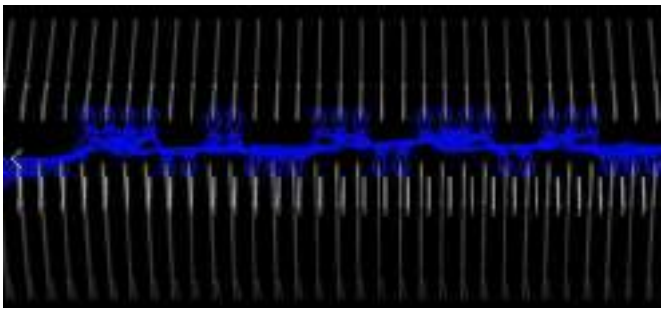

Figure 2. An example picture of knitting simulation using APEX 3 knitting design system

Due to these features examined above, digital knitting addresses many researchers' attention, not only from the arena of textile and clothing but also from other different disciplines, such as computer science, electronic engineering, and health care. The relevant research and applications precisely prove the huge potential of digital knitting in emerging novel technologies and building future lifestyles.

Research regarding digital knitting

The reviewed research concerning digital knitting and its applications are generally classified by (1) fashion and textile design and (2) wearable technology. Because the subject categories are fairly different, even if they are all associated with digital knitting, the viewpoint of these studies is also fairly different. A general review will be presented according to the two aspects, respectively.

(1) Fashion and textile design

Knitting as a traditional textile manufacturing method is constantly one essential research emphasis in the scope of the fashion and textile industry. Different from weaving, in the knitting process, especially the flat knitting process, the knitted fabric structure and knitted garment structure can be constructed simultaneously. This feature merges the definite boundary of garment and fabric making and provides great potential for knitting innovation. On the other hand, with the rapid development of science and technology, the problem of the separation of technical design and artistic design has become increasingly prominent. The increasing technical threshold makes it difficult for designers to take charge of the entire knitting development process. Various researchers have been conducted different studies around these features and problems.

Underwood (2009) conducted a study about the construction of three-dimensional preforms using the digital knitting process. The research employed flat knitting as an additive fabrication method for generating various three-dimensional objectives for a wider range of product types, not just textile and clothing. Besides, many studies have focused on seamless knitting in flat knitting machines, which is one of the most popular textile technologies recently. They investigated the complex digital system for seamless knitting from a designer's prepositives around serval key questions, including the conflict between fashion design process and technical development process using digital knitting design system (Yang, 2010), the technical skills gap between designers and industrial knitting technology (Taylor, 2015), and digital seamless knitting as a design innovation method for three-dimensional assemblages' development (Smith, 2013). Furthermore, due to the comfort and inclusiveness of seamless knitwear, there is also a study on designing clothes that can accommodate the physical problems of the disabled using digital seamless knitting technology (Radvan, 2013).

Overall, studies in the fashion and textile arena regarding digital knitting generally consist of two major objectives. First, it is understanding the technical matrix of digital knitting technology to bridge the gap and build a new design workflow. Second, it is using the established perception and technology to create a new design for different proposes.

(2) Wearable technology

Wearable technology, or known as smart clothing, has been attracted a dramatic increase in attention from both academics and industry. The digital knitting process has been widely used in the research and development of various wearable devices due to the outstanding structural flexibility and the forming possibility of a knitted construction. However, as a highly interdisciplinary research field, the research attributes of different wearable technologies are

very different. In addition to textile and clothing engineering as an important scope, the research regarding wearable technology normally requires many different bits of knowledge, such as computer sciences, information science, electronic engineering, and human engineering. Therefore, the role and proportion of digital knitting in different research are very different.

Relatively simple wearable devices often use textiles as the carrier of electronic devices, smaller devices are embedded in clothing using pocket or other direct methods (Van Langenhove, 2007). On the other hand, some scholars have utilized the flexibility and elasticity of knitting to develop a series of textile sensors through the digital process (Ou et al., 2019, Fan et al., 2020, Luo et al., 2021). These flexible sensors have been integrated into the various knitted structure to investigate different properties, improving the comfort of smart clothing as well as reducing additional devices. Furthermore, these sensors have been investigated as an essential wearable platform for applications in various interfaces. MIT Media Lab has introduced a smart jacket that embedded a touch-sensitive keypad connected by conductive yarns, which is the beginning of exploring textile-based wearable devices in human-computer interaction (Orth et al., 1998). Moreover, a knitted smart keyboard has been developed, highlighting advantages of the digital knitting process, such as intarsia knitting and attractive colour effect by thermochromic and composite yarns (Wicaksono and Paradiso, 2020). Additionally, Song and team members developed a design framework for producing a seamless smart glove sensor system using digital knitting technology, various design components, including electrical conductivity and reasonable comfort, were achieved (Song et al., 2021).

Overall, studies using the digital knitting process for wearable devices development are usually including three main kinds. The first is the basic type, knitted textile is used as a reasonable media to carry electric devices to achieve a certain function. This method is a very efficient way to provide some single functional requirements. The second type is assembling textile sensors using knitting construction. In this way, the electronic equipment is directly integrated with the textile itself, so as to provide stronger functionality. The last type is to develop a completed and multifunctional product or objective. This method highly integrates different disciplines, realising both complex functions and precise control.

(3) Discussion

The general frameworks of the two research categories regarding digital knitting systems are presented and compared in Table 1. Corresponding to the nature of research, various studies regarding digital knitting can be roughly divided into techno-led design research and design-led techno research. Techno-led design research refers to the research that investigates certain technology from a design perspective and uses this technology as an innovative base for new design creations. On the contrary, design-led technology research refers to the research that examines certain design-related approaches from a science perspective and uses this approach as an imaginative foundation for novel technology or engineering innovations.

Categories	**Fashion and textile design**	**Wearable technology**
	Techno-led design research	*Design-led techno research*
Major researchers	Designer	Scientist
Research scopes	• Digital knitting • Certain design concept	• Digital knitting • Other science and technology • Certain design concept
Objectives & The role of digital knitting	Digital knitting as a practical technology for new design creations	Digital knitting as a design approach for novel technology or engineering innovations

Table 1. The general frameworks of digital knitting research from the two categories: (1) fashion and textile design, and (2) Wearable technology

The essential difference between the two types of research comes from their varying research proposes and the perspectives of major researchers. Some research stands in the between or known as transitional area. This kind of research is, in general, highly interdisciplinary and required a researcher and team with comprehensive discipline development. Generally speaking, the research proportion of digital knitting in a research project is directly proportional to the proportion of design in this research. That is, the more attention is paid to design, the more emphasis is positioned on digital knitting.

Original practice-led studies of digital knitting

From a viewpoint of a fashion and textile design specialised in knitting, two practice-led explorations around digital knitting systems will be presented. One is using digital knitting as a practical technology for generating modern fashion design based on the transitional concept. Another is using digital knitting as a design approach for developing novel personal wearable devices.

(1) Transitional fashion via digital knitting

Transitional fashion via digital knitting (TFDK) is a design approach that aims to develop a systematic process for creating a new form of knitted fashion with improved adaptability by using digitalized V-bed knitting technology (Yan, 2021). In this research project, the design concept of transitional fashion is the leading force, while digital knitting is a technological means. The advantages of digital knitting and the integrated attributes of fashion knitwear design together present new opportunities for the realisation of TFDK. Firstly, based on the proposed design concept, a theoretical model is established. According to the model, two practical explorations, “3D stretchable fabrics” and “adaptable forms”, are conducted.

Finally, design applications based on the obtained direction from both theoretical and practical studies are demonstrated. Figure 3 and Figure 4 show a series of fashion and textile design that generates from the presented research.

(a) (b)

Figure 3. The design collection of TFDK in Fashion Shenzhen Show

(a) (b)

Figure 4. An exhibition showing TFDK design results in Fashion Gallery, The Hong Kong Polytechnic University

In this research project, the knitting structure mainly studied is very basic, but due to the complex physical and mechanical properties of both yarn and fabric structure, there has been no systematic research to explain and summarise this basic law. The digital knitting design system provides excellent convenience for this research. A special knitted template is developed, including three main parts: waste, main body, and binding-off. In addition to the change in the number of stitches in the basic stitch structure, all other parameters that may affect the final fabric effect, including yarn feed amount and take-down tension, are all accurately controlled (Yan et al., 2021). This founded the base of this design research. After understanding the basic law of the change of stitch structures, the pattern drawing function of the digital knitting design system offers a flexible but logical method to the general various stitch pattern, which is highly stimulating and expands the innovative possibility of basic stitch structures. Combined with different stitches and rows, several elementary patterns can be knitted and transformed into fabrics required by different fashion styles.

(2) Integrated knitting for personal wearable device

A personal wearable device is proposed to offer a reasonable control of both temperature and humidity for individuals wearing protective clothing. The basic principle of the entire equipment is generally similar to an air conditioner, which is containing many components, such as the main apparatus, fans, pipes, batteries, and controllers. The basic design requirement is that this garment can bear the weight of all equipment, place various components in a reasonable position with a suitable method and can be disassembled. It also needs to be lightweight and comfortable wearing while ensuring the firmness and durability of the fabric. In addition, the basic beauty of clothing is also necessary.

Based on the needs, a knitted vest is designed and produced. One of its primary features is the unique channel constructed with a special knitting structure. This channel is completely hidden between the fabrics, at the same time, providing enough volume that can be propped up by pipeline. While ensuring that the pipeline passes through the specific envisaged position, this design improves the aesthetics of the entire clothing. In addition to fabric structure, garment structure is also considered in the process of designing the knitting procedures. The one-piece, fully formed garment structure is devised to make the subsequent processing steps extremely simple and ensure the durability of the garment. The realization of these complex structural designs highly depends on the suitable application of the digital knitting design system. Figure 5 shows an initial sample for the proposed knitting vest design. Figure 6 exhibits a part of the knitting design program in the SHIMA SEIKI digital design system.

Figure 6. An initial sample for the proposed knitting vest design

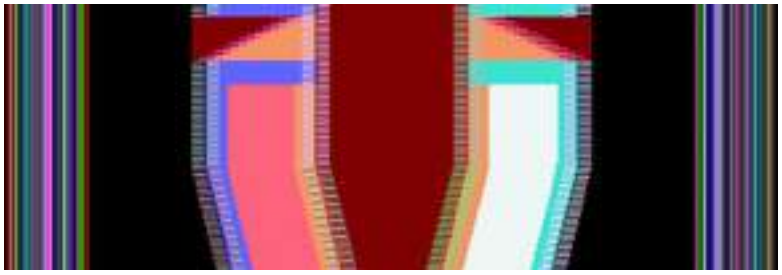

Figure 5. A part of the knitting design program in the SHIMA SEIKI digital design system

It is worth mentioning that, unlike the wearable designs reviewed earlier, the functional device in this project is relatively heavyweight and requires to be disassembled, so more attempts are made to construct a reasonable knitted structure to arrange, bear, and protect all components in the device system, so that makes it wearable and functional garment.

Therefore, the focus of design has shifted from the construction of circuits or sensor structures in the knitted fabric to the construction of the knitted garment itself. It indicates another route for developing clothing for wearable technology that is in between. As a preliminary research work, there are many matters considered to be explored in the future. One of the next research goals is to integrate all equipment into clothing smoothly and provide an integrative disassembly scheme.

(3) Discussion

From a designer's perspective, the digital knitting process is an integrated media that connects both art design and techno engineering. On the one end of the spectrum, digital knitting is an advanced platform for transforming design ideas to real objectives, as an additive manufacturing method for digital fabrication. On the other end of the spectrum, the process of digital knitting is a precious deposit containing a vast number of creative ideas. In other words, some surprising creativities and innovations could be born during the designing process for a specific purpose in digital knitting workflow. This potential part benefits from the training of design thinking for a designer, and also thanks to the unique working model of digital knitting system integrating design and engineering. Therefore, for a designer who would like to practice digital knitting in design innovation, it is necessary to build a clear insight about the general engineering of digital knitting, at the same time, to master the thinking mode of creative design.

According to the requirements of different types of projects, different design strategies can be proposed and further implemented on the basis of the appropriate deployment of the two fundamental knowledge mentioned above. The collision of the subjective initiative of designers and the objective initiative of digitalised design tools is the major source of the originality and novelty of this practice-led design research for future fabrication. Comparing these two types of design practices, it should be noted that, with obvious different orientations, how to grasp and balance the role of designers in the research process is one significant topic. Because this directly affects the final landing place of the research and the way forward for future

development. Especially for wearable technology, as multiple scientific knowledge is often involved and leading the way, the design of digital knitting should assist the achievement of essential functions, meanwhile, developing unique aesthetics and practicality understand certain constraints. When talking about creative fashion and textile design, the use of digital knitting is relatively flexible. However, it also means that the design innovation requires a deeper understanding of knitting technology.

Overall, the transition from designing for fashion and textile to designing for wearable technology is a flowing process, in which the two categories could promote each other harmoniously. The practice-led research conducted for both sides could be beneficial for the advancement of digital fabrication as well as the development of a moving design paradigm.

Conclusion

This paper introduces a novel design thinking regarding the digital knitting process. From a designer's viewpoint, it is believed that digital knitting can be acted as a transitional bridge for developing both techno-led fashion and textile design and design-led wearable technology development. The concept, advantages, and general workflow of the digital flat knitting system are presented. The recent and classic studies concerning digital knitting are examined from both design and technology viewpoints. The comparative analysation is revealed that, according to different research objectives and needs, digital knitting could alter its role in the research process and this transformation process is circular and interactive. Additionally, two practice-led projects using the digital knitting process further prove the huge possibilities of digital knitting, especially when design and designer are the dominant force.

Acknowledgments

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INTERACTIVE PRACTICES IN REMOTE TEACHING OF STUDIO CLASSES: a jewellery design case study

Authors

Wendy Yothers and Tomoyuki Chie Teratani
Fashion Institute of Technology, State University of New York, USA

Corresponding Author: wendy_yothers@fitnyc.edu

Keywords

Jewellery; interactive teaching; remote learning; Smartphones as teaching tools; wax carving

Abstract

In March of 2020, global pandemic suddenly compelled us to teach our "hands-on" studio classes in cyberspace, with "hands-off" technology. Amid the confusion there was one thing we were sure of, we could not afford to lose a year to Covid. Our task became to re-imagine teaching and learning jewellery craftsmanship at a distance. This case study chronicles how we translated the first two classes in jewellery design from face-to-face to remote, interactive studio experiences.

The "interactive" component was the most challenging. Discussed here are the strategies we tried that worked, as well as the ones that failed, compelling us to search for new solutions. In the end, the most successful approach involved a multi-media blend of technologies. The illustrations in this paper depict some of the projects our students accomplished using our experimental approach during the Covid year. It tracks their growth as designers/craftsmen, and our learning trajectory as educators. The great calamity of Covid forced us to invent new ways to reach our students in the permanently changed here-and-now. This case study describes what we learned, and how we made it work.

Introduction

Before Covid 19, studio classes consisted of live demonstrations, followed by hours of structured practice. The teaching and learning happened face-to-face. It was interactive, with spontaneous explanations and bench-side demonstrations to support the written and spoken content of each lesson. Additional "open studio" time was provided for students to work on their projects with a technologist present to insure they learned the safe use of the industrial grade equipment for jewelry manufacturing. That's how it worked before Covid.

In March of 2020, we were suddenly compelled to translate the studio classes onto the remote platform. That meant:

- No face-to-face instruction.
- No real-time interaction beyond the two-dimensional computer screen.
- No access to studio equipment.
- No opportunity for students to learn to work with the machinery in a state-of-the-art studio. Every project had to be accomplished by hand.

We couldn't afford to lose a whole year of our two-year Associate of Applied Arts degree program to the pandemic. We had to create new projects that accomplished the curriculum safely in a dorm room or on a kitchen table, while providing an enriching learning experience.

This case study encompasses how we re-crafted the first two experience-based studio classes in our jewelry fabrication curriculum to the remote platform. Discussed here are the strategies we tried that worked, as well as ones that did not. The most successful approach combined traditional studio practice with a multi-media blend of live-streamed demonstrations, and videos we created and up-loaded for the students to view again and again. We used digital meeting platforms to create a synchronous experience. This worked to a limited degree, but we discovered that the secret to interactive engagement with the students in real-time was technology they loved best and used as an extension of their hands—Smartphones.

Literature review

In 2019 and 2020, the problem of how to teach studio classes remotely was brand new. The terrifying pandemic made in-person classes at first uncertain, and later impossible. The resources available to us included conferencing platforms, virtual chat rooms, and videos we could incorporate into PowerPoint presentations. All of these were originally designed for delivering lecture based curriculum. They stopped short of the hands-on interaction we needed to teach craft.

We searched the literature for specific examples of practice-based curriculum, taught remotely. We found an interesting historical example, but precious little published before and during the pandemic on how to re-create an interactive studio experience online.

The longest established remote learning platform is the School of the Air, in Australia. Created in 1951, it still provides a means for children in the Outback to receive education where populations are too isolated to support a conventional school. We accessed the Australian Research Council Linkage Project on Interactive Distance Learning for Isolated Communities (ARCL) project discussion papers (Crump et al., 2010). They chronicle distance learning in Australia from its earliest days, when the Royal Flying Doctor service was used to connect communities, through the use of pedal radios, and then on to shortwave, and finally wireless internet. The system now uses one-way video feeds and two-way webcam images and audio. The instructional videos are produced in studios in each school district. Homework is handed in online. Live interaction occurs when students are brought together three or four times a year for shared experiences.

For immediate help on how to pivot to the remote platform, we networked with peer institutions to find out what they were doing. The following are articles written 2020 and 2021 to help studio faculty pivot to remote teaching:

The University of North Carolina published an article online, titled, "Home Remote Teaching Resources for Art and Art History". (University of North Carolina, 2020). This is a compilation of advice to faculty, meant to help keep students engaged and track progress. Suggestions included:

- Modify projects to be done at home.
- Use an online forum to assign additional reading and require written responses.
- Require students to post photos of work in progress.
- Employ videos for demonstrating techniques.
- Use of PowerPoint presentations was encouraged to introduce units and assignments.

Mary Ellen Flannery, senior writer for NEA Today, the online journal for the National Education Association, published a compilation of the best advice for faculty collected during the pandemic from readers of the NEA Journal. (02/17/2021). Her findings included many of the suggestions listed above, and added an emphasis on the use of laptops and tablets for students to record musical and theatrical performances for critique and evaluation. (Flannery, M. 2021).

In fall of 2021, Boston University Center for Teaching and Learning published what amounts to a toolkit for teaching remote art classes, (Boston University, 2021). Suggestions included a litany of the same advice:

- Adapt course objectives to remote learning.
- Stress skills students might be able to develop without access to materials, equipment, and space in the studio.
- Present information with videos stored on the course management system students can access online and re-play again and again.

- Have students work off-line independently and then reflect on what they learned through writing and digital presentations.
- Utilize video conferencing discussions to build a sense of community in the class.

Finally, of particular interest is a resource published by Yale University. In a pdf compiled by the "Studio, Performing Arts, and Collection-based Task Force", the steering committee outlined principles to guide decision making in teaching studio classes remotely (version 6.30.2020, Yale University). Under "Teaching Recommendations", the paper basically agreed with the points previously listed. It added an emphasis on health and safety, and advised faculty to prioritize courses that are best suited to remote instruction. In other words, teaching the classes that require specialized equipment, interactive lab-practice, etc., should be restructured, or even put in abeyance until face-to-face instruction could safely resume.

Addressing the limits of the literature:

The literature we reviewed agreed entirely on most points. All of the advice focused on stop-gap measures centered around technology designed for lecture classes. Give and take in studio classes was relegated to verbal pedagogy, with pre-recorded videos standing in for studio practice. Nowhere could we find documentation of research that described the kind of interaction we were looking for.

To teach well, we had to let go of the idea that the pandemic would soon subside. There was no guarantee that the future would once again include unrestricted, in-person instruction. To close the gap between real studio experiences and remote teaching, we took the best advice from the literature and built on it as we went along, eventually finding a way to see our students' hands working and to help them learn craftsmanship in real time.

Methodology: An organic approach

This was not a dispassionate study with limits, controlled conditions, and academic funding. We approached the problem organically...building the plane while we were flying it. After the fact, the methodology that best describes our study is divided into three working parts:

Our experiences and reflection: Even before the pandemic, students were changing

New students were coming to us as the product of education based on annual achievement scores. They were conditioned to expect a right or a wrong answer. Filling in the blank was enough. Nuanced problem solving wasn't evidenced in their motor skills or design development. The disconnect between imagining a design and making it was difficult to mend in some cases and impossible in others.

Attention spans were shorter. When grit was required to fight through a difficulty, some students would turn away, saying "I'm just not good at this". This is easy to understand. Even before Covid, Generations X, Y and Z have been sitting in front of computer screens since they were embryos. The tech-mediated education they receive in school is useful for conveying scripted content, but it cannot replace the competence and confidence they learn from building ideas into realities in a studio art class.

It was becoming harder to get them to recognize the value of failing well when there is so much cultural pressure to get a high mark and move on. Tight academic schedules leave no time to let new skills marinate. And being "liked" on Facebook is instantly gratifying. Hard won, personal victories are not.

As teachers of jewellery fabrication, we noticed all of this, but our initial response was to double down on what we were already doing. It wasn't until the pandemic that we realized we needed to radically change our delivery to reach these students.

Conceptualisation: We failed, then we figured it out

Re-assessing projects and lectures for presentation online was the easy part. For the projects in the curriculum that were impossible to perform safely at home, we created illustrated lectures and pre-recorded video presentations. Soldering, annealing, ingot making and all the processes that depend on torches and heavy industrial equipment were handled in this way. For the practice-based part of the curriculum, we focused on projects that helped the students synchronize hand and eye.

Then we had to face the hard part. With the studio off-limits during Covid, we had to invent a way to teach our hands-on curriculum with "hands-off" digital technology. Like Alice through the looking glass, everything was backwards, and just beyond our grasp.

At first, we tried adapting the procedures listed in our literature review. We relied heavily on the PowerPoint format, laced with pre-recorded videos.

That strategy fell flat. Students hung around and listened to the lecture for a few minutes, then turned off their cameras and disappeared into cyberspace. When that didn't work, we enhanced our slide presentations with step-by-step illustrations and explanations. We live-streamed demonstrations for each skill students needed to learn. They watched, but had a difficult time understanding how to make their own hands do what they saw us do. When we asked what we could do to help them adjust to learning online, the students said they missed calling us over to their bench for help. They complained of having trouble connecting with the concepts we were teaching, and with one another. We had to find a way to bring them together—our experience has taught us students learn faster and better when they learn on two fronts—from us—and from each other.

We recrafted our approach to exploit the cyber tools our students use all the time. But first, we drafted a list of touch points to help us create a community in our cyber class.

- Live stream most sessions from the studio to establish a professional atmosphere—and to make the students' fingers tingle for tools.
- Create projects that bake-in design fundamentals with the fabrication skills needed to create jewelry from their designs.
- Teach the "how" with the "why". Understanding how a process has evolved through time provides firm ground for students to stand on when they innovate.
- Incorporate real-time give and take problem solving in class for each project—with each student.
- Use deadlines to create an undercurrent of urgency.
- Remain steadfast until the very last minute—and then encourage anyone having difficulty to try again. Reward resilience.
- Teach students to forgive themselves as they learn difficult new skills—nobody can really grasp any new knowledge without persistence.
- Forbid self-deprecating remarks. Assuage dismay with fact-based hope. Praise progress often. This helps it take root and become lasting.

The Experiment:

We devised a multimedia approach using gooseneck tripods and cell phones. The credit for thinking of this goes entirely to Professor Teratani. It was his idea to exploit the fondness students have for their cell phones to create a live-action studio experience.

On the first day, we showed a slide presentation picturing all the tools students would need for remote learning in our class. One of the items on the list was a gooseneck tripod for their Smartphone. Next, we taught the students how to set up a workspace at home by clamping a bench pin to a table or window sill. Then we showed them how to set up the gooseneck tripod with the Smartphone, focusing the camera on the bench pin and plugging it into their computer. We set up an identical tripod on our own bench.

When they logged-on, everyone in the class had a clear, simultaneous connection with us and with each other. The shared experience of watching each other at work helped catalyze a sense of community. Live streaming was essential for this. The wide screen gallery array projected beautifully on their home screens, and on our studio White Board. The students could see every demo and hear every explanation, and we could see how well they were "getting it". The lecture content and some pre-recorded demos were presented in class with our narration. Time was allotted for Q and A. All of the written and recorded content was archived in the course management system for students to view as often as they chose.

We were surprised at how much more voluble students were in the written chat than in a face-to-face class. In a normal session in the studio, they cannot view the demonstration and talk to each other about it at the same time. In the chat box, they shared epiphanies, asked questions and answered them. They watched each other's hands as they worked, and saw our live streamed responses on their screens as we repeated demos and fielded their questions. This eased their performance anxiety. Students found it easier to forgive their own mistakes when they could see everyone else engaged in the same struggle.

Figure 1. Gooseneck tripod with Smartphone positioned over the student's bench pin

Figure 2. This is a workspace created at home using the ledge of a window sill. The blue pillowcase is positioned to catch wax filings. One of the most important things we teach in our curriculum is working safely. We teach the importance of bench height in ergonomics, good light and ventilation, as well as the necessity of keeping the place clean to avoid cross contamination of working materials with living spaces. The positioning of Smartphones over each student's workspace allowed us to monitor safe working—and to correct problems instantly before bad working habits could form.

Figure 3. Professor Teratani demonstrating wax carving at his window-sill bench.

Figure 4. The gallery array of students working, projected on the large format White Board in the jewellery studio with students' Smartphones plugged into their computers.

Figure 5. We enlarged the images when we fielded questions and often put images up in the full-screen format for clarity.

Adapting Projects to suit the remote Learning Platform

We created projects that emphasized the elements of three-dimensional design—line, form, space, texture and balance. For the earlier projects, discipline was embedded by compelling students to adhere to specified measurements. The designs could be as free as their imaginations—but overall craftsmanship had to be measurably precise.

Sawing, piercing, wax carving and finishing were done at each student's bench during class with our interactive instruction. The hours of practice that would have been done in the "open studio" were done at home, instead. The completed wax carvings for rings and flatware were sent to local casters, returned as raw castings and finished by hand by each student.

Project 1: Piercing and Sawing

The assignment: To create a symmetric pierced design incorporating at least 100 holes.

Skills learned:

- Drilling metal
- Sawing metal with precision
- "Grit", the courage to try again
- Visualizing mirror image design and creating an effective intertwining of active and empty space.

These designs were accomplished with a jeweller's saw and drills on a bench pin, at home. Dimensions: two inches by two inches square

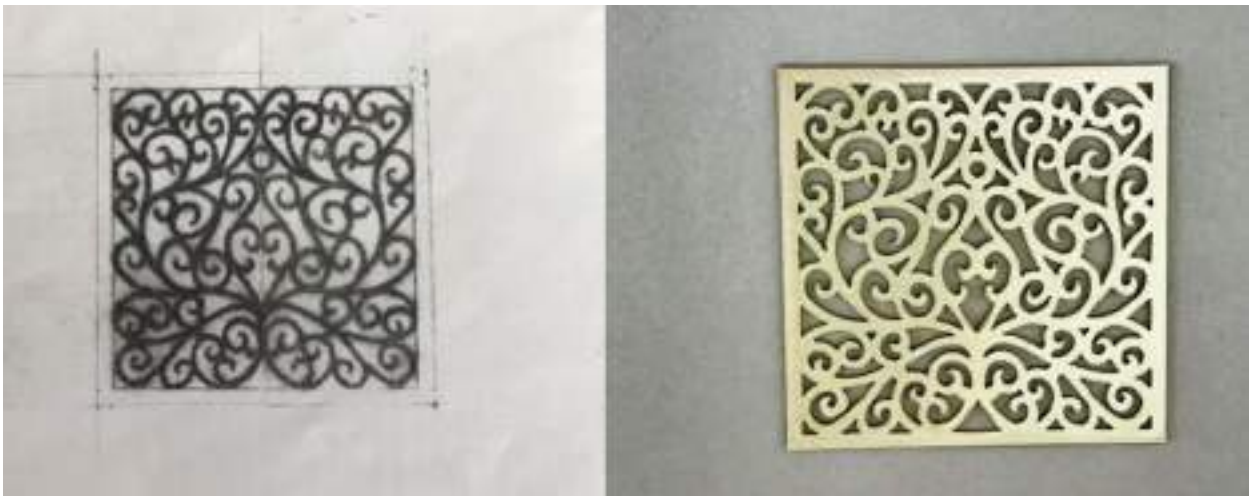


Figure 6. This is the teaching example Professor Teratani made for the first project. The thickness of the brass is 18 gauge--one millimeter. This project teaches precision and confidence with the jeweller's saw. Filing to correct wavy cuts was not permitted. Students were required to hand in their photos of their original design and their finished work for comparison and accuracy.

Most of this cohort came to us directly from high school, or were career changers with no experience with handling a jewellers' saw, or a drill. Learning these new skills was difficult for everyone, as these images of their work illustrate. No one got it right the first time, but in the end, their perseverance and resilience surprised us—and themselves.

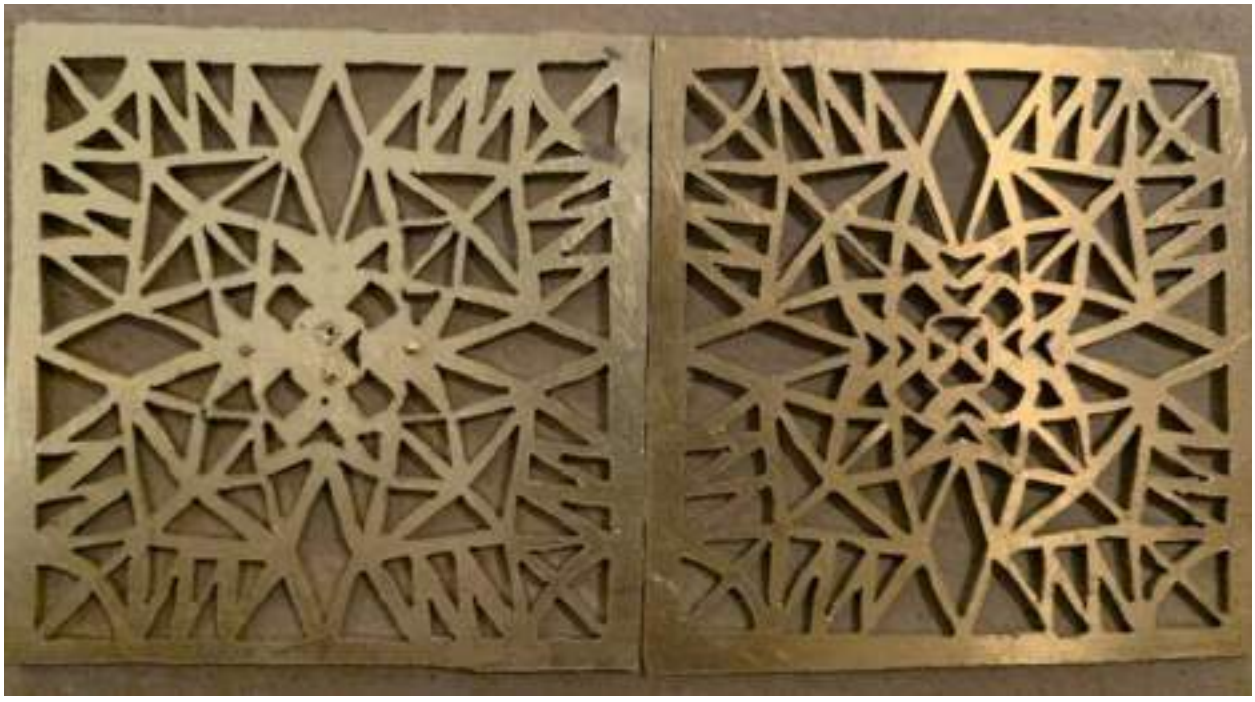


Figure 7. This student had a very difficult time learning to control the drill and the jeweller's saw. This is an image of the first attempt next to the final version, handed in for grading.

Figure 8. Two interpretations of a symmetric pierced design. Both of these took design liberties with the "100 holes" requirement. We pointed that out, and then also pointed out how successful they were in telling a story with the interplay of positive and negative space.

Project 2: Rings – Learning to visualise in the Third Dimension by carving in wax

Wax carving is one of the oldest methods for creating models for casting. It is especially adaptable to the remote platform because it can be done by hand, with a few simple tools. We used it to teach students how to turn a block of wax into a ring that fits precisely. They learned how to carve and hollow out their carvings to a correct, castable weight, and to use wax as an expressive sculpting medium.

Figure 9. The first ring assignment required precise measurements, and the design had to be expressed on more than one plane. The ring had to be equally beautiful from all sides.

Figure 10. These two photos illustrate the ring in progress and finished. Light is used as a tool for checking the thickness of the carved wax. Darker areas are thickest, and must be hollowed out to a single millimeter before the ring can be cost-effectively cast in precious metal.

Figure 11. This student created a cat sculpture. The cat's tongue is a hidden secret seen only by the wearer.

Figure 12. Rings from the second semester. The assignment was to create a ring that features a bezel-less setting. This ring embodies all the learning goals from the previous one, with the added tasks of learning to clean up and polish the casting, and setting the stone. Students were taught to make their own setting tools in steel for this project.

Figure 13. This student designed a whimsical hand reaching for the stone.

Figure 14. This student incorporates texture to emphasize the sculpture, and made the difficult to polish recessed areas an asset to the design.

Project 3: Creating Flatware

In the second semester, the curriculum included flatware. We had to modify the unit to eliminate hot-forging methods—the use of a torch was off-limits. We created a presentation that illustrated how flatware is traditionally made, and then demonstrated how the process can be modified to make flatware without a torch. This project incorporates the skills students already learned in wax carving, piercing, sawing, filing and added a new skill: riveting.

Figure 14. These are teaching examples created by Wendy Yothers. The handles were carved, cast and riveted onto the knife.

Figure 15. The cheese knife parts are ready for assembly. The three-dimensional effect on the blade was created by filing and polishing.

Student interpretations of the flatware assignment

Figure 16. We encouraged students to design flatware to serve their favorite food. It had to be functional, but the form was up to them. The photos show the front, side and back of the knife. The blade is pierced brass, riveted in place. We insisted that the rivets be either an integral part of the design, or invisible. The assignment called for only one cast piece. This student “pushed the envelope.”

Figure 17. A tomato server

Figure 18. A sandwich spreader

Figure 19. The process.

Figure 20. Here is the finished piece. The design tells a story. This lizard is getting a fly.

The Final Project: Nunome Zogan, Japanese Inlay

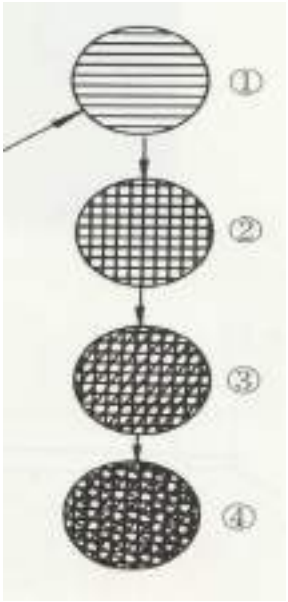
Nunome means “grain of fabric,” and zogan means “inlay.” This project was included to give students an awareness of jewelry design across cultures. Nunome zogan is a texture inlay technique in which thin metal leaf is hammered into a pattern created with a special chisel. It is a “cold” process—no soldering is required, and that makes it suitable for safe practice at home.

Instead of soldering, the metal leaf is held in place by a carefully patterned texture that resembles the fine pattern of woven cloth.

Learning goals for this project:

- Tool making
- Precision in making textures with the tool
- The introduction of a design esthetic that celebrates the use of non-precious metals in a jewelry context

Figure 21. A brooch made by Tomoyuki Teratani in the nunome zogan technique.



Figures 22, 23 and 24. Left, the chisel each student made. Center, the sequence of the pattern, and far right, an example of the pattern on brass, ready for inlay.

Student Work: The materials used were brass, inlaid with aluminium foil

Figure 25. This photo shows a close-up of the background texture made with the chisel and how it remains visible through the foil in the finished earrings.

Figure 26. This student incorporated mirror image design learned in the piercing project.

Findings and Analysis: what we learned teaching studio practice remotely

Teaching remotely forced us to re-examine every aspect of our teaching practice.

- Our old method of extemporaneous lectures/demonstrations had to be distilled into videos that were scripted to anticipate questions, needs and difficulties. We posted them online for students to view and review.
- We learned that live, interactive demonstrations were actually more effective when projected on the computer screen. Every student could see clearly, and ask questions in the chat box without interrupting the flow of our lecture.

- We learned that Smartphones with the cameras focused on students' hands while they worked helped us to respond immediately to their questions with spontaneous demonstrations that pinpointed each specific problem. The images projected on the gallery array allowed the whole class to see and be involved in the problem-solving.
- We learned that reviewing the homework images in a structured critique each session accelerated the learning process. Students discussed their difficulties and shared their solutions. They supported each other openly, thus creating a safe space that included unembarrassed praise and thoughtful, constructive brainstorming.
- We learned to use the inescapable solitude of the pandemic to communicate the importance of perseverance. No matter how thorough the teaching, it never sticks until students try what we show them on their own. Learning at home—alone—forces students to come to grips with this bittersweet piece of wisdom: We can hand them the keys to the door, but they have to figure out how to unlock it. (Tompkins et al, 2016 Their finished projects are evidence of this. Each one tells a story of resilience.

Analysis of what we learned requires several more semesters of trial, and then comparison with other scenarios for remote teaching and learning done in other studio classes. Covid was a unique situation.

The urgent need to convey the content of the curriculum consumed all of our care and attention—we couldn't afford to lose a year, or a student. Our successes and our failures happened daily, and are too numerous and various to quantify as research data. We wanted to plant the seeds of craftsmanship and resilience into our cyber studio experience. How well they take root will only become apparent after the test of time.

Discussion and Concluding Thoughts:

"Reach students where they are now—not where they used to be." Troy Richards, Dean of the School of Art and Design, Fashion Institute of Technology.

We discovered that a new door to students' imaginations can be pried open with their texting thumbs on their Smartphones. In the past, our teaching practice assumed students had some kind of studio art experience in primary and secondary schooling. Our assignments were designed to connect with what we assumed they had already learned in art or shop class. Trouble is—for the past thirty years or so, art experiences have become increasingly virtual in schools. Computer design programs and rapid prototyping do a lot of the actual "making" for students. Young adults leave school knowing their way around a keyboard, but not much about building ideas into tangible art. We've seen evidence of this again and again in their application portfolios.

Nevertheless, students are as smart as ever—smarter—and just as creative. The technology they have in their hand-held devices connects them to each other and the rest of the world—instantly. They are natives of Cyberspace. The main difference between us and them is generational. Their generation has had less opportunity to build their ideas in cloth, clay, wood and metal. For that reason, a real studio experience in their education is vital.

The global pandemic forced us to use the remote platform to convey content we believed could only work effectively in the studio. We had no choice but to find a way to bend digital technology into an interactive learning tool that would enable us to reach our students. In the end, we used their phones to connect their imaginations with their hands, and it worked pretty well. We were able to use that connection to pull them through the glass screen separating us. Once we got them to our side, we could help them learn how to make what they can imagine.

The pandemic made us better teachers. It forced us to face—again—that education is a two-way street. If we demand our students be open to new ideas and experiences, we must be equally open to their evolving capacity to receive them. We must learn and re-learn to use technology as creatively as any of the other tools at our workbench—and to adapt it for our purpose—whether it is for conveying our lecture content, our studio practice, or our art.

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EMERGING DISTINCTIONS IN GLOBAL FASHION: a new landscape for fashion capitals?

Author

David Zajtmann,
Institut Français de la Mode

Corresponding Author: dzajtmann@ifmparis.fr

Keywords

Fashion weeks, Field Configuring Event, Luxury, Legitimacy, Status.

Abstract

This research relies on the concept of Field Configuring Events (Lampel & Meyer, 2008). It is recognized that, during decades, fashion weeks, mostly in London, Milan, New York and Paris, have shaped the global fashion industry.

This research aims at assessing the changes which occurred between 2019 and 2021, thus including the reaction to the COVID-19 crisis. The results of this study show new inflexions, including a shift toward the use and promotion of a national offer and market.

The results of this study show a trend towards a specific positioning for every Fashion Week. Thus domestic specificities are more taken into account. New players apart from the four main fashion capitals have taken an interesting role.

Therefore, this study gives a new perspective on the way a Field Configuring Event (Meyer & al., 2005) can be envisioned. Hence this study challenges the idea of the relevance of one single event and highlights the asset for an industry of having rather a range of events.

Introduction

This research relies on the concept of Field Configuring Events which are defined as 'temporary social organizations that encapsulate and shape the development of professions, technologies, markets, and industries' (Lampel & Meyer, 2008, p. 2). It is recognized that, during decades, fashion weeks, mostly in London, Milan, New York and Paris, have shaped the global fashion industry. This research aims at assessing the changes which occurred between 2019 and 2021, thus including the reaction to the COVID-19 crisis. The results of this study show new inflexions, including a shift toward the use and promotion of a national offer and market.

This research is based on a desk-study and a field study. The desk-study relies on an inventory of the debates echoed by the business media of the fashion industry regarding the positioning and future of the main fashion weeks. The field study relies upon business material, interviews and field observation. This longitudinal study is based on an observation between 1973 and 2015, and a comparison with the 2016-2021 period. Analyses of 35 years of general assembly minutes of the Fédération Française de la Couture have been conducted, which gave first-hand information on the strategy of the main professional organization managing the Paris Fashion Week. 24 interviews of key actors of the industry (CEOS and former CEOs of the fashion and luxury industry) have been conducted. Besides, interviews of experts on the Milan and New York fashion weeks have been planned. A global study of the recent changes dealing with the main fashion weeks has been conducted. A focus has been made on the Paris Fashion Week, which, implicitly since its creation in 1973, and explicitly since 1998, had an openness and inclusivity strategy for the *Prêt-à-Porter*, while keeping its *Haute Couture* exclusive and national.

The results of this study show a trend towards a specific positioning for every Fashion Week. Thus, domestic specificities are more taken into account. New players apart from the four main fashion capitals have taken an interesting role. Hence, the Shanghai fashion week is a case of a specific positioning, aiming the domestic market and combining BtoB and BtoC. The Copenhagen fashion scene is making a specific focus on sustainability. And more globally, the trend towards sustainability has become a reality. At the same time, New York and Shanghai are more willing to address local markets and local designers. Locations are still present, but the digitalization changes their perception. Choices have been made between keeping presenting real collections and showing films. The four main fashion capitals made a strong shift toward digitalization.

Therefore, this study gives a new perspective on the way a Field Configuring Event (FCE) (Meyer & al., 2005) can be envisioned. Hence this study challenges the idea of the relevance of one single event and highlights the asset for an industry of having rather a range of events.

Literature review

It has been shown that the inclusion of the economy in formal and informal networks plays a favorable role for agents (Granovetter, 1973 and 1985). These networks make it possible to

obtain exchange of information and to benefit from economic opportunities (Uzzi, 1996 and 1997). The networks take the form of regular meetings that structure the activity of a sector and even define the criteria for judging it (Anand and Watson, 2004). These Field Configuring Events (Lampel & Meyer, 2008) do not, however, automatically offer a guarantee of sustainability for their participants (Delacour and Leca, 2007). An organizational field is always threatened by deinstitutionalization (Oliver, 1992).

While the mechanisms of deinstitutionalization have been well documented, little research has been done on how an organization can react to the threat of deinstitutionalization.

The fashion industries appear to be operating without any real competition in the high-end segment at the end of the 1920s. The fashion industries appear to have no real competition in the high-end segment at the end of the 1920s (Simon, 1931; Deschamps, 1938). On the other hand, they were competition from the 1960s onwards (Merlo and Polese, 2006; Djelic and Ainamo, 1999). This threat of deinstitutionalization was overcome in the early 1970s (Grumbach, 2008). However no research has been done on the way the Field Configuring Events of the fashion industries have been changed by the last two years.

Methodology

This research is based on a longitudinal analysis of the role of the Third-Party actors in supporting the fashion capitals.

The research used both secondary and primary qualitative data and was based on a thematic analysis of (1) the minutes (previously unreleased) of the general assembly of the Fédération de la Haute Couture et de la Mode (called underneath Federation) and (2) 24 interviews conducted between 2008 and 2021. Interviewees were chosen with the aim of capturing a diverse range of firms and also to meet people who directed firms throughout the period studied. Among the people interviewed were the former CEOs of Christian Dior Couture, Chloé International, Givenchy, Guy Laroche, Hermès International, Karl Lagerfeld, Kenzo and Yohji Yamamoto in France.

The interviews were conducted face-to-face using a semi-directive method. They lasted on average 44 min. All the interview were recorded and transcribed into verbatim. The transcribed interviews were then coded by themes using the QSRNVivo10 software.

A triangulation of data was also conducted in order to better analyze the data. First we crossed the information obtained from monographies and general assembly minutes with the information obtained from the interviews. Second, we checked the accuracy of information with several professional for the key research themes in our study. Triangulation also gave interesting results concerning the reality of the threat Paris faced from the Milan in the 1990s.

Besides a desk research on specialized business magazines such as *WWD* and *Jing Daily* has been done on the changes of the New York and Shanghai Fashion Weeks. This research has been completed by a one hour interview with an expert from the Shanghai Fashion Week.

Findings and analysis

The high-end fashion industry/Haute Couture sector is structured globally around bi-annual presentations of collections: the fashion shows (Zajtmann, 2017). These were first introduced in the 1920s in Paris by a pre-existing professional body, the *Chambre syndicale de la couture Parisienne*. The presentations of collections in Paris remain important events for the global fashion industry thanks to a long-term strategy of strong professional representation, regulation and integration of national and international key industry players carried out by the Federation over time.

Haute couture started in Paris in 1858 with the establishment of a new professional activity: the *couturier*. A *couturier* is someone who signs their creations and sell their products to a private clientele. In 1911, these professionals decided to create their own professional organization, the *Chambre syndicale de la couture parisienne*. In the 1960, face with the new competition from newcomers in the sector both domestically with the advent of the Ready-to-Wear sector and from abroad with the rise of the importance of couturiers from Milan, New York, etc. the couturiers decided to reshape their professional organization by extending its remit to integrate these newcomers. This led to the creation of the Federation in 1973.

The importance of local professional organizations and regulations in the development of creative sectors has been emphasized by Scott (2000, 2010). In his work on the interaction between creative industries and cities, he demonstrates how institutions of governance and collective action constitute a major component of the "creative field of the city" (Scott, 2010, 115).

Indeed how collections are sold is a key component in the value chain of the fashion companies. For these companies, being part of a network that enables them to meet professional buyers is crucial. There is therefore a strong need for intermediaries in this industry to support point of encounters where industry players can meet. In this context, a cultural intermediary such as the *Federation* can play a key role.

Over the years attempts to contest the dominance of Paris in the high-end fashion industry by the cities of Milan, New York and London have never really succeeded. Paris has managed to respond to this competition by offering a diversified and international environment, thanks in part to the strategies put in place by the French fashion industry's governing body, the Federation. The city has thus maintained its leading role in the global fashion industry.

The value chain of the Haute Couture sector can be described the following way. Individual clients and professional buyers acquire Haute Couture products by visiting the so-called salons of the couture houses. Since the 1920s, clients have also attended the fashion shows organized by these houses. These couture houses are based in Paris and contain "ateliers" inside the city of Paris as well.

In contrast, the value chain of the Ready-to-wear sector can be described as follows. Individual clients acquire Ready-to-wear products in multi-brand stores. The buyers from the multi-brand stores attend the bi-annual Ready-to-wear fashion shows in Paris.

The high-end fashion sector in the world can be considered on the basis of retail characteristics. From this point of view, two main types of actors need to be considered: mono-stores which generally belong to large and famous brands (e.g. Christian Dior and Chanel) and multi-brand stores among which we can distinguish two categories: department stores such as Bergdorf Goodman, Selfridges, etc. (the department stores from the USA playing a major role in this category) and independent multi-brand stores such as Dover Street Market in London which, while less important with regard to their turnover, are considered as avant-garde by professionals in the industry and, as such, have influence in the selection of the fashion brands they decide to sell.

Key moments for the industry are when professional buyers gather for the bi-annual fashion weeks where the new collections of fashion brands are presented to professional buyers who then make their orders. The fashion weeks in Paris are the ones with the most importance globally. Twice a year, the main international buyers and journalists gather in Paris to attend the *prêt-à-porter* fashion shows. Being part of the Parisian fashion weeks is considered as a measure of talent recognition for international fashion brands. This has motivated Japanese brands to take part in the Parisian fashion weeks in the 1980s, same for Italian brands in the 1990s and the Russian and Asian brands in the 2000s.

Besides Paris, three other major cities play a significant role in the global fashion industry: Milan, London and New York. The Milan fashion weeks present Ready-to-wear brands, mainly Italian ones. However no Haute Couture (as it is proposed in Paris) presentations are made in this city and few emerging designer brands are presented within this context. The London fashion weeks are recognized as very creative, and are therefore much attended by journalists and fashion talent scouts. However few orders are being made during these fashion weeks. The New York fashion weeks have a significant international coverage. However, the business audience at these presentations is mostly North American. As such, Paris is still playing a key global role high-end fashion with the main buyers and journalists from the industry coming to Paris for its two bi-annual events, the couture weeks and the other so-called Paris Fashion Weeks.

In the 1950s and 1960s, strong competition started coming from Italy. Initiated by Giorgini, an Italian businessman, fashion shows were organized in Florence and attracted considerable interest from American buyers. An Italian coordination and promotion body, the *Camera Nazionale della Moda Italiana* (the National Chamber for Italian Fashion), was founded in 1958. The USA also started developing its own high-end fashion industry in the 1970s. Organizations such as Calvin Klein and Ralph Lauren thrived without attending the European fashion shows.

On the domestic front, the couture industry was challenged considerably by the so-called *créateurs de mode* (emerging fashion designers), who started organizing fashion shows outside the official calendar and quickly won approval from specialized and generalized magazines. Most of these newcomers came from the Ready-to-wear industry. This was the case, for example, of Kenzo, who was born in Japan in 1939 and presented his first show in Paris in 1970 (Kawamura 2004, 114-119); Sonia Rykiel, who created her eponymous company in 1966

(Jones and Mair 2003, 402) and Agnès B., who opened her first store in Paris in 1975 (Jones and Mair 2003, 50).

From the mid-1960s, *Haute Couture* professionals in Paris had to face the rise of a counter-culture of influential *créateurs* and *stylistes*.

The main steps of the history of the Federation are the following:

- 1973: foundation of the Federation, comprised of 3 bodies: one for Haute Couture, one for Ready-to-wear and one for menswear.
- 1998: official strategy from the Federation: Haute Couture is exclusive and national, Ready-to-wear is inclusive and international.
- 2001: softening of the regulations for Haute Couture by the French ministry of industry.

This key strategic change and evolution of the structure, organization and regulation of the professional organizations representing the fashion industry in Paris, to incorporate international competitors, helped Paris in retaining its role as the global and key center for fashion. Since then, key international competitors have been regularly admitted as members of the Federation.

It is also interesting to look at the use of Paris as a space by the high-end fashion industry at different levels. First, space in terms of a geographical location (with production, design studio and head offices concentrated in Paris), embodied by *Haute Couture* in general. Second, the use of specific neighborhoods by some Parisian designers, as done for example, by the brand Kenzo, which relied on the district around *Place des Victoires* for its head office and design studio. Third the use of Paris only as a space of exhibition during the fashion shows, as done by Italian brands such as Valentino whose studio stayed in Roma, or Acne, a Swedish brand, thriving on jeans wear product.

Similar professional organizations have been created in London, New York and Milan in order to enhance the fashion industry of their respective cities, challenging the Parisian role. We seem to be in presence of a phenomenon of mimicry.

Prior to the health crisis, topics of discussion in the trade press focused on the dates of parades in different cities. Another topic of discussion was that of the availability times of the products presented (so was the debate in 2016 about the implementation of S*ee Now, Buy Now*, i.e., the possibility of making available for sale immediately what is presented during the week of the collections). Ultimately, these debates did not lead to a change in operating rhythms.

Due to the health crisis, the summer 2020 collection presentations in Paris have changed shape. From physical shows, we have moved to a fashion week that is both physical and digital combined with a global broadcasting ecosystem. This system has allowed us to maintain the presence of Paris in a modern way. In any case, the event has not been suspended but has been reshaped and is moving towards a phygital format.

Beyond the digitalization of the fashion shows in reaction to the health crisis common to all fashion capitals, we note different initiatives depending on the city. These initiatives seem to be aimed at retaining or bringing back established brands. The means used are to insist on the national character of the collections (as in New York), or to seize the opportunity of a very favorable economic situation to promote local actors or even to welcome foreign actors looking for visibility on this market (as in Shanghai).

In New York, the *Council of Fashion Designers of America* (CFDA), chaired by Tom Ford, has decided to reorganize its collection presentation week, with the New York Fashion Week calendar becoming part of the American Collections Calendar. The company, which until 2014 was in charge of the collections calendar in New York before was taken over by the CFDA in 2014. On May 13, 2021 was announced an alliance with 11 American designers (Telfer, Rodarte, Proenza Schouler, Altuzarra, Brandon Maxwell, Prabal Gurung, Sergio Hudson, Monse, Jason Wu, LaQuan Smith and Markarian). The brands are committed to presenting during New York Fashion Week for the next three seasons. Three of these brands (Rodarte, Proenza Schouler and Altuzarra) had in the past integrated the calendar of collectionsin Paris, namely temporarily the calendar of the couture for Rodarte and Proenza Schouler, and, as part of the ready-to-wear for Altuzarra. It is difficult at this stage to assess the respective proportions of desire (and in particular the opportunity of a very favorable economic situation in the United States) and constraint (practical difficulties in presenting collections outside the United States) in these decisions. Moreover, we can ask ourselves what place there is in this system for designers whose houses are not based in the United States.

As far as Shanghai is concerned, its fashion week is part of the city's tourism development policy. Thus, the showrooms of the fashion week are open to the public. Platforms are specifically dedicated to local designers. Shanghai Fashion Week thus seems to take on a rather specific character, through its close connection with national and local economic policies, and through the organization of events that closely mix BtoB and BtoC. However, we can ask ourselves questions about the meaning of the presence of certain actors: for example, are the BtoB Brands (industrial brands) adapted to the requirements of a fashion capital? Furthermore, is the presence of European brands in fashion weeks likely to increase or is it just a one-off eventlimited in scope?

It is interesting to notice that the digitalization did not allow new capitals such as Helsinki, to challenge the influence of London, Milan, New York and Paris as fashion capital cities. The ecosystem of these cities proved to be resilient.

The structuration of organizations who are now ancient and quite established helps in our opinion to maintain this influence. Hence, in France the *Fédération de la Haute Couture et de la Mode* was created in 1973 which is quite recent, but one of its component: the *Chambre Syndicale de la Haute Couture Parisienne* was created in 1911. In Italy, the *Camera Nazionale della Moda Italiana* was born in 1958. In New York, the *CFDA* was created in 1962. It is in London that the professional body in charge of the fashion week is the younger because the *British Fashion Council* was created in 1983.

The consumer became a part of the fashion week thanks to the possibility to livestream most of the fashion shows. Designers became to express themselves more. For example, in Paris, the Fédération de la Haute Couture et de la Mode developed a partnership with the television channel *Canal Plus* and released interviews of designers during the Paris Fashion Weeks.

We can globally notice that technology, through its digital aspect, has been more and more used.

Discussion

The results of this study show a trend towards a specific positioning for every Fashion Week. Thus, domestic specificities are more taken into account.

New players apart from the four main fashion capitals have taken an interesting role. Hence, the Shanghai fashion week is a case of a specific positioning, aiming the domestic market and combining BtoB and BtoC.

The Copenhagen fashion scene is making a specific focus on sustainability. And more globally, the trend towards sustainability has become a reality. At the same time, New York and Shanghai are more willing to address local markets and local designers. Locations are still present, but the digitalization changes their perception. Choices have been made between keeping presenting real collections and showing films. The four main fashion capitals made a strong shift toward digitalization.

It is rather the logic of Field-Configuring Events that should be followed. Fashion capitals are sometimes temporary, but this temporary character does not harm their strength, it allows them to integrate new actors from around the world. In this perspective, the Federation of Haute Couture and Fashion and other actors continue to organize the Field Configuring Event in fashion.

The crisis of COVID-19 had to be managed by the four fashion capitals. Above all, it has changed the status of the fashion show, which has lost its imperative character. Paris has both a specificity: haute couture and a more general ambition: world capital of fashion. We can also see that there is now a disconnection between the places of consumption, which are increasingly located in Asia, and the places of demonstration, which are therefore located in Europe and North America. But this disconnection does not bother the existing fashion capitals. Indeed, these cities are not required to be year-round fashion capitals.

Conclusion

This study gives a new perspective on the way a Field Configuring Event (FCE) (Meyer & al., 2005) can be envisioned. Hence this study challenges the idea of the relevance of one single event and highlights the asset for an industry of having rather a range of events.

Marshall's theories describe well the first decades of the functioning of Parisian couture. We can see that geographical logics have their limits: the fashion capitals are so because at certain

moments, the presentations of collections, they are visited and or arouse the interest of important actors in the fashion world. The places of demonstration are indeed no longer necessarily linked to the places of production. It is rather the logic of Field Configuring Events that must be followed. Fashion capitals are sometimes temporary, but this temporary character does not harm their strength, it allows them to integrate new actors from around the world. In this perspective, the Federation and other actors continue to organize the Field Configuring Event.

The decrease in travel should not necessarily change this situation. A clever use of digital tools allows fashion capitals to maintain their pre-eminence. It remains to be seen how long these digital tools will be closely or distantly linked to the place in the imagination of consumers. It remains that the arrival or not of professional buyers and fashion actors in general is an important factor of competitiveness. The year 2020 and the first six months of 2021 have seen initiatives flourish in the various fashion capitals. These initiatives have of course resulted in a growing rise in digitalization. Outside Europe (in China and the United States), they have also aimed to affirm the strength of fashion centers that benefit from a very favorable economic context.

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(CO-) DESIGN FOR UNDERSTANDING: mediating between processes of multi-stakeholder value creation towards circular fashion and textiles

Authors

Freya Zaplata, Anja Köppchen, Theresia Grevinga and Daniëlle Bruggeman,

Freya Zaplata,
ArtEZ University of the Arts / Radboud University

Anja Köppchen,
ArtEZ University of the Arts / Inholland University of Applied Sciences

Theresia Grevinga,
Saxion University of Applied Sciences

Daniëlle Bruggeman,
ArtEZ University of the Arts

Corresponding Author: f.m.zaplata@gmail.com

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Circular design principles, circular fashion and textiles, co-creation, (co-)design for understanding, interdisciplinarity

Abstract

In the transition towards a circular fashion and textile system, there is an increased awareness of the importance of interdisciplinary, multi-stakeholder collaborations and co-creation. Yet, this process is far from straightforward as navigating between interdisciplinary interests and mindsets demands relationships built on mutual trust and understanding. This paper argues that design can help to mediate between processes of multi-stakeholder value creation, by embracing *co-design for understanding* as a guiding design principle.

In this paper we discuss the results of the project Going Circular, Going Cellulose $(GC)^2$, which explored multi-stakeholder value creation from a design-driven perspective on textile development. Based on practice-based design research, field research and case study analysis, the project results show how a relational (design) approach between partners is an important precondition for co-design for circularity. We discuss two case studies that illustrate how

(co-)design can create a deeper understanding of circular design and textiles for multiple stakeholders, by finetuning communication, creating collective learning experiences and highlighting interdependencies between aesthetic, emotional, technical, and socio-cultural decision-making. (Relational) proximity between stakeholders helps to align different

perspectives and different ways of working. Designing ‘boundary objects’ (Stompff, 2020; Stompff & Smulders, 2015) seems to be a way to create (relational) proximity, as these operate as a shared language and provide a common frame of reference. In this way, design facilitates dialogue and interaction, which is needed to create a shared vision among stakeholders, and to co-create new, circular systems.

The design research case studies have resulted in a new circular design principle: *co-design for understanding* shifts attention away from designing products and materials as end goal, towards designing processes and methods of mediation between multiple stakeholders to create a shared language and mutual understanding, driving the transition towards more circular value chains and systems.

Introduction

In the transition towards a circular fashion and textile system, there is an increased awareness of the importance of interdisciplinary collaboration and co-creation. Several authors (cf. Bocken et al., 2016; Ellen MacArthur Foundation, 2020b; Hornbuckle, 2018) have emphasized the role of design and the designer as a potential key actor in making sustainable choices, by being more and more involved in material development and production processes. This requires developing more (technical) knowledge about processes of making and production methods, as well as more knowledge of the role of circular design principles in interdisciplinary collaboration and value creation. However, the exact role that designers can and should play and the challenges that designers face regarding their responsibilities and required competencies is an ongoing discussion (cf. Niinimäki et al., 2017; Sumter et al., 2018). In this paper, we propose to approach design as a way to mediate between processes of multi-stakeholder value creation.

We do so by presenting results of the project 'Going Circular, Going Cellulose' (2018-2020), in short $(GC)^2$, which explored multi-stakeholder value creation from a design-driven perspective on textile development [11]. Six fashion/product designers (or design duo's) collaborated with technical, industrial and research project partners, to research and develop innovative circular materials, concepts and ways of working (see Tables 1 and 2 for an overview of all partners). In this paper, we focus on our analyses of two case studies: the designers Hellen van Rees and Michelle Baggerman. Based on these case studies, we argue for the importance of co-design in terms of shifting attention away from designing products and materials as end goals, towards designing processes and methods of mediation between multiple stakeholders to create a shared language and mutual understanding.

We build our argument by first reflecting on existing literature on circular design principles and multi-stakeholder value creation. Second, we describe our methodology to introduce the design research case studies. Third, we present our analysis of the case study of Hellen van Rees and reflect on how a relational (design) approach including designers, technicians, and producers, is an important precondition for co-design for circularity. Fourth, the case of Michelle Baggerman highlights the role of design in mediating processes of multi- stakeholder collaboration and value creation even more, through designing 'boundary objects' (Stompff, 2020; Stompff & Smulders, 2015). In addition, Baggerman coined the term *design for understanding* as a guiding circular design principle, which also represents a shift in design practice from designing end products to developing new knowledge and insights through design processes and working *with* and *from* the materials.

Both case studies show how (co-)design can potentially create a deeper understanding of circular design and textiles for multiple stakeholders, enabling informed decision-making

[11] 1 Going Circular, Going Cellulose (2018-2020) was a two-year project led by Saxion Universities of Applied Sciences (Enschede, The Netherlands) in collaboration with ArtEZ University of the Arts (Arnhem, The Netherlands), funded by SIA RAAK-mkb.

processes along the value chain, and mediating between different types of knowledge and ways of working.

Circular Design Principles & Multi-Stakeholder Value Creation

The role of design in the transition towards a circular economy has been explored predominantly within the fields of (industrial design) engineering, innovation management, and ecological and environmental sciences (Lofthouse & Prendeville, 2018: 460; de los Rios & Charnley, 2017). Focusing on products, services, business models, and/or systems, a variety of conceptual frameworks, strategies, principles, guidelines, methods, and toolkits have been presented (e.g. Bocken et al., 2016; Moreno et al. (2016); Ellen MacArthur Foundation, 2020a). Most of these focus on product design and/or business models from a technical/industrial perspective. Despite the common agreement that circularity is a joint effort of multiple stakeholders within and between ecosystems (e.g. Hornbuckle, 2018: 27; Wennber & Östlund, 2019), there seems to be much less emphasis on the social, cultural, and relational dimensions of circular strategies (cf. Brink et.al. 2021). Furthermore, we have limited understanding of how such design principles work in practice and if and how these can provide practical guidance for designers and other stakeholders (cf. Brown et al. 2021).

To reflect on the practical implementation of circular design principles, the framework of Bocken et al. (2016) served as a starting point in our project. Building upon the work of Stahel (e.g. 2010) and Braungart et al. (e.g. 2008), Bocken et al. provide a comprehensive list of product design strategies (as well as corresponding business model strategies). They introduce two main overarching strategies "according to the mechanisms by which resources flow through a system" (Bocken et al. 2016: 309): (1) 'Slowing resource loops' and (2) 'Closing resource loops'[12] (see Appendix 1). The framework has been criticized for overlooking extant literature on Design for Sustainability (DfX) (Moreno et al., 2016)[13], yet it offers a practical and still comprehensive overview of possible circular design strategies and principles. Questions remain about how these strategies and principles can be implemented in a complex multistakeholder environment. What is overlooked here is the social dimension of circularity needed for an actual implementation of material resource flow strategies. Put differently, *how*

[12] Bocken et al. (2016) further indicate a third overarching principle which is referred to as 'narrowing resource loops'. This particular principle aims at decreasing the resources used per individual product which has already been successfully implemented in linear production models. While this principle helps and is needed to improve efficient use of resources it does not address the "cycling of goods", i.e., resources are not looped back into the system and waste is inevitable.
Therefore, narrowing resource loops strategies are rendered less relevant in the context of $(GC)^2$.
Nevertheless, narrowing resource loops strategies may be implemented in circular models to improve resource efficiency (Bocken et al., 2016: 310).

[13] The criticism of Moreno et al. also shows that the discourses of sustainability and circular design provide a plethora of literature on design principles and strategies. However, it also reveals how disjointed, as well as confusing at times, both discourses still are. Further, given the systematic complexity of creating circular products it is challenging to provide a comprehensive yet practical overview not too overwhelming for designers (and technical partners alike).

can different stakeholders collectively work with and towards these strategies, and how do such strategies work in practice in the context of fashion and textiles?

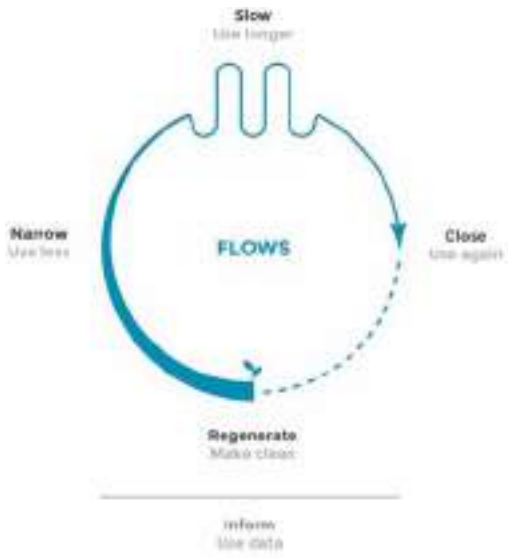

Figure 1: Circular strategies (Konietzko, Bocken & Hultink, 2020: 5)

In a more recent article, Konietzko, Bocken & Hultink (2020) further develop the framework of circular strategies by integrating an ecosystem perspective, and by providing a practical tool for firms to analyse and develop their circularity potential. Building on existing frameworks, they distinguish between five interrelated strategies**:** *narrow*, *slow*, *close*, *regenerate* and *inform* product, component, material, and energy flows (Konietzko et al., 2020: 4-5; see Figure 1). Each of these strategies comes with a set of (design) principles that differ in the required scope of the perspective to operationalize the principle: product, business model, or ecosystem.

While we didn't test this more elaborate framework within our project, it provides a valuable contribution to our analysis of how circular design strategies and principles work in practice. Konietzko et al. define *principles* as "solution-oriented guidelines that can achieve a desired result" (2020:2). In our project, *design principles* served as a tool for reflection in and on action. By explicitly reflecting on designers' practices in relation to (theoretical) design principles, we came to understand how such principles often serve as sub-conscious guidelines to inform and assess design decisions, rather than explicit, practical guidelines of what to design. Furthermore, Konietzko et al. (2020) help us to go beyond the technical aspects of circular design. In line with the Ellen MacArthur Foundation (2020b), Konietzko et al. define *circularity as a systemic property*, which "emerges out of changes in how different actors, products, components and material interact with each other" (2020: 3). In this paper, we argue that this interaction could be mediated by design.

The (changing) role of the designer has gained increased interest in several disciplines, especially in relation to tackling complex, societal challenges (e.g. Irwin, 2015; Manzini, 2015). When taking a systems-perspective, multi-stakeholder collaboration is needed, not just to bring in different knowledge and expertise, but also to negotiate and align agendas and interests

(Pedersen & Clausen, 2019: 3373). In the field of fashion and textiles, aesthetic, emotional, and socio-cultural value is intertwined with technical, functional, and commercial value. Designers supposedly play a vital role in this multi-layered value creation (e.g. Sanders & Stappers, 2008). Co-design and co-creation of aesthetic, technical and functional values through multi-stakeholder collaboration seems to be a crucial factor in the transition towards circular value chains in textiles and fashion (cf. Tubito et al. 2018). However, questions remain about the exact role of designers in this transition and how co-design works in different contexts. Circular design principles in the literature primarily focus on *what* to design (in terms of materials, products, services, business models, systems), but less so on the *process of design*. How to actually align all the different stakeholders, which is so much needed in the transition towards circularity?

Methodology: Design Research

In the (GC)2 project, a design-driven approach on textile development was central to developing insights into the ways in which designers put circular design principles into practice and how multi-stakeholder value creation works between designers, and engineering and industrial partners. The key methodologies were:

(1) Research-through-design by the participating designers, to develop sustainable textiles and new insights into circular design principles and their underlying values. This research- through-design could be understood as a form of 'constructive design research': "design research in which construction—be it product, system, space, or media—takes centre place and becomes the key means in constructing knowledge" (Koskinen et al., 2011: 5). The research-through-design was guided by the designers' expertise and backgrounds, and their different approaches to collaborating with industrial and research partners. Each research- through-design project thus followed its own logic and methodology in collaboration with the project partners (see Tables 1 and 2 for an overview of all partners).

We selected six designers/ design researchers in the fields of textile, fashion and/or furniture/interior design (Table 1). These designers represent different approaches ranging from a focus on knowledge development, to a systems approach, a focus on production processes, the relationship with the consumer, the aesthetic dimension of textiles, or a focus on material/product development and technical yarn development.

Designer	Expertise	Desired Impact	Co-design Partners	Applied Circular Design Strategies
Hellen van Rees	Contemporary handmade wearable or fashion products with a sustainable angle	Utilise (mass) production 'flaws' for circular design opportunities	Alcon Advies; Enschede Textielstad	1. Design for Dis- & Reassembly 2. Design for Emotional Attachment & Trust; Design for a Technological Cycle 3. Design for Ease of Maintenance & Repair; Design for Physical Durability
Bureau Baggerman (Michelle Baggerman)	Design research, Research & prototyping	Explore and better understand the complexities of sustainable design (decisions)	Alcon Advies; professional designers; Enschede Textielstad; Saxion Textile lab.	1. Design for Understanding 2. Design for Emotional Durability, Attachment and Trust 3. Design for Physical Durability, Design for a Technological Cycle, Design for a Biological Cycle
UNSEAM (Bas Froon & Karin Vlug)	Technologically driven, specialised in development of manufacturing and production techniques	Explore the possibilities of laminating technology (new) cellulose-based materials in combination with the 3D UNSEAM technology	Permess; Enschede Textielstad.	1. Design for Reshoring 2. Design for Impact, Design for Durability, Attachment and Trust 3. Design for Standardization and Compatibility, Design for a Biological cycle, Design for Dis- and Reassembly
Buro Belén (Brecht Duijf & Lenneke Langenhuijsen)	Material research, natural materials, focused on colours and light in clothes, objects and spaces	Create attractive wearables protecting against the sun, use aesthetics as facilitator to wear sunscreen alternatives	Alcon Advies; Enschede Textielstad; Saxion Textile lab.	1. Design for Emotional Durability, Attachment and Trust (aesthetic usability effect, emotion memory link, persuasive emotion) 2. Design for Physical Durability
Milou Voorwinden & Suzanne Oude Hengel	Textile research, Woven textile design and three-dimensional structures, knitwear & footwear	Exploring textiles as construction material with the ultimate aim to make the industry look different at material qualities and production technologies	Saxion Textile lab; Alcon Advies; TU/e.	1. Design for New Production Process Techniques 2. Design for Upgradability and Adaptability, Design for Physical Durability 3. Design for Standardization and Compatibility, Design for Dis- and Reassembly
Tous les Chéris (Els Bugter)	Baby clothes, branding with a special eye on the relationship with consumers	Understand and visualize complexity of textile industry's ongoing transition towards sustainability; position different stakeholders within these processes, to contribute to a better synergy in cooperation.	all project partners, including design researchers/ designers, researchers, industry partners, as well as external experts and industry stakeholders.	1. Design for Understanding, Design for Upgradeability and Adaptability 2. Design for Emotional Durability, Attachment and Trust

Table 1. (GC)2 Participating designers & projects

(2) Field-research: monitoring the design projects with regular check-in meetings and semi-structured interviews. Between March 2019 and March 2020, we conducted seven (monitoring) meetings (two full consortium, five designer meetings) and 18 semi-structured interviews with the designers and the key project partners. These meetings and conversations aimed to critically reflect on the design process in relation to the circular design principles, to articulate, frame and define the designers' circularity challenges, to capture their collaboration

practices and intentions, and to reflect on their (different) roles within the (GC)2 project.[14] Additionally, we conducted three semi-structured interviews with key technical and industrial partners (see Table 2) in November 2021, to gain new insights into the impact of this project – and specifically the collaboration with the designers – on the partners' work towards circularity.

	Expertise
Alcon Advies (Anton Luiken)	Textile consultancy advising companies and organizations in making (sustainable) choices regarding textile materials and products.
Enschede Textielstad (Annemieke Koster)	A small-scale industrial weaving mill in Enschede, the Netherlands that produces garment and interior textiles with local and/or recycled yarns.
Permess (Evert-Jan Berenpas)	Textile company specialised in high quality interlining products
Saxion Textile Lab	An educational research lab with machines on a small, "pilot", scale used for the production of fibers, yarns, and fabrics as well as the analysis of technical properties. Students, teachers, researchers, and industry work together are able to work together on challenges in the short and long term.

Table 2: (GC)2 Participating technical partners

(3) Based on the empirical data collected through participatory observation, interviews, and the designers' own process documentation, we conducted *a qualitative analysis of the case studies* (the research-through-design projects), comparing and reflecting on the various design-driven approaches and multi-stakeholder interactions. Our case study analysis was thus an explorative and iterative process of literature study on circular design principles, collecting empirical data through observation and interviewing the designers about these principles, and cross-case comparative analysis.

In the following two sections we will present the case studies of Hellen van Rees and Michelle Baggerman. Both cases illustrate how (co-)design can create a deeper understanding of circular design and textiles for multiple stakeholders by finetuning communication, creating collective learning experiences and highlighting interdependencies between aesthetic, emotional, technical, and socio-cultural decision-making.

[14] For these co-reflection sessions, we drew from the framework for design-driven material innovation as developed and applied in the European project Trash-2-Cash (Niinimäki, 2018; Tubito et al., 2018), as well as from creative tools from the Circular Design Guide developed by the Ellen MacArthur Foundation and IDEO (https://www.circulardesignguide.com/).

Case Study 1: Hellen van Rees

Dutch fashion and textile designer Hellen van Rees owns a small-scale business, specialising in creating "contemporary, customized, handmade products with a sustainable angle."[15] Within $(GC)^2$, Van Rees' research focused on errors in traditional textile productions, by exploring the possibility to repurpose this form of pre-consumer (waste) textiles for small- scale productions or limited series products within her own practice. By working with what would traditionally be viewed as production 'flaws', she aimed to add value to the material and to transform the perception of 'flawed' textiles or 'waste' into circular design opportunities.

Upcycling 'flawed' pre-consumer (waste) textiles into modular garments

Van Rees started the project by focusing on technical errors in textile production guided by the principle *design for a technological cycle*. In close collaboration with Annemieke Koster (Enschede Textielstad), she assembled an inventory of common production 'mistakes' and 'errors' that usually end up as waste (Figure 2). She reframed the perception of those waste textiles and scraps by reworking/upcycling them into new products and unique details. Value was added by repurposing them for high quality garment design enabling the textiles to be looped back into the system and thus a (more) circular flow of material resources.

Figure 2: Examples of production mistakes (©Hellen van Rees)

The close collaboration with technical partners in the form of company visits, face-to-face conversations and work sessions, were a prerequisite for Van Rees to be able to look beyond a

[15] www.hellenvanrees.com

more “traditional design approach”, drawing attention to the real-life complexity of textile production, bridging knowledge gaps regarding technical limitations, and as such to take in a system perspective on circularity. Her process and reflections strongly illustrate how interwoven choices in material, aesthetics, technical aspects, as well as user needs are:

> It's always responding to new knowledge and then improving the processes. The more I learn about it, the more I learn that to really be (…) sustainable (…), you have to transition from having your design being informed by the aesthetics, to being able to combine that with all the technical limitations. The more sustainable something is, the more you have to be informed by the technical possibilities and limitations and adjust the design to that
>
> (Hellen van Rees, December 2019)

Through the interaction and technical knowledge exchanged with Koster as well as Anton Luiken (Alcon Advies), she realised she had to take further steps and extend her initial approach to truly be able to develop a (more) circular product. Hence the principle *design for dis- and reassembly* combined with *ease of maintenance and repair* gained in importance and Van Rees decided to develop a small collection with modular garment parts (Figure 3). This decision had impact beyond the project context as working with a modular approach requires to also rethink her business model in terms of selling and recollecting modular pieces.

Figure 3: Prototypes of modular garments (©Hellen van Rees)

Mediating different ways of working

What stands out in Van Rees' case is her relational design approach manifesting itself in several ways. Throughout the process, interdependencies between her design approach, including different circular design principles, technical limitations and challenges in textile production, and the corresponding business model became more and more noticeable. Through the close dialogue with Koster (Enschede Textielstad) and Luiken (Alcon Advies), in which design and technical knowledge were very much intertwined, Van Rees' awareness of the intimate connections between different principles increased. This dialogue was further enhanced by Van Rees' way of working with and from the material at hand, as the textiles 'flaws' provided by Koster were taken as the starting point for further conceptual and aesthetic explorations. Likewise, by utilising the features of the reworked waste textiles as design elements, the material helps to create a unique product identity and thus to facilitate greater emotional attachment to the product as well as personally engaging with her clients.

Van Rees started with a very open-ended process, approaching manufacturers from the very beginning to let her design be inspired by potential 'flaws' and production errors. 'Flaws' are only considered 'flaws' within a specific context, and designers' ability to change perspectives can thus help to reduce 'waste' by providing a valuable tool to reflect on and understand each other's visions, capabilities, and ways of working:

> The way of working and approach is completely different. (…) designers start from a subjective goal, not from a concrete idea. Totally the opposite how technical textile engineers work. Furthermore, the designers are more emotionally involved, the textile engineers are at a distance
>
> (Anton Luiken, November 2021)

However, we have to be careful to claim that these abilities or competencies can only be assigned to designers. It needs a certain openness to re-frame and see different opportunities, which is also key to the approach of Koster. Koster and Van Rees share a similar vision and approach towards sustainability, but bring in different types of knowledge regarding technical possibilities, design opportunities and consumer needs. Their collaborative process of understanding and refining each other's vision (in terms transforming textile 'flaws' into design features) worked very well, due to a shared (open) mindset and creative approach, but also facilitated by their (physical) proximity and (frequent) direct contact. The equal, open and curious dialogues demonstrate how both designer and manufacturer are learning from each other and change their perspectives. Through close dialogue in different stages of the process, technical limitations thus become design opportunities. Van Rees' aim to *design for dis- and reassembly* furthermore became part of the dialogue with technical partners, including Koster and Luiken. In this way, circular design principles foster understanding between different ways of working, functioning as a common frame of reference, or shared language, to align interests, values and ambitions, facilitating stakeholders' learning and reflection capacities.

Case Study 2: Michelle Baggerman

With an MA in Design Research, Michelle Baggerman considers herself a design researcher, rather than a product designer, with a strong interest in "social, ecological, and economical sustainability."[16] Baggerman's research within $(GC)^2$ focused on what it takes to create a sustainable product by exploring a tea towel as an example of a "simple" and "functional" product. Her main challenge constituted to explore and better understand the complexities of sustainable design, to help designers, buyers, producers, and other stakeholders in the textile industries to make informed sustainable decisions:

> We all think that we know what circularity means, because there are rules to follow. But following the rules in practice is extremely complex. It is crucial to be aware of this complexity to be able to make the 'right' decisions
>
> (Michelle Baggerman, October 2019)

Unravelling complexity

By "unravelling" a tea towel and subsequently re-designing/re-engineering it, Baggerman first developed a 'decision matrix' (Figure 5), illustrating the choices designers and product developers are confronted with in the design and production process: from selecting raw materials and yarn thickness to the density of the fabric and the type of weave, and most importantly how these decisions do not only affect the outcome but also each other.

Baggerman involved a wide variety of partners in the development of her matrix throughout several iterations, including Anton Luiken (providing technical knowledge), external designers and researchers (to test the comprehensibility of early matrix versions), Saxion Textile lab (to produce first tea towel prototypes), and Annemieke Koster (providing technical knowledge & producing final tea towel prototypes based on sustainable yarns). As a result, several tea towel prototypes were produced according to a decision matrix specifically tailored to Enschede Textielstad's production possibilities (Figure 4). The final prototypes illustrated different 'degrees of sustainability' and how decisions taken during the design and production process influence functionality, aesthetics, and circularity of the end product.

[16] www.bureaubaggerman.nl

Figure 4. Tea towel prototypes (©Michelle Baggerman)

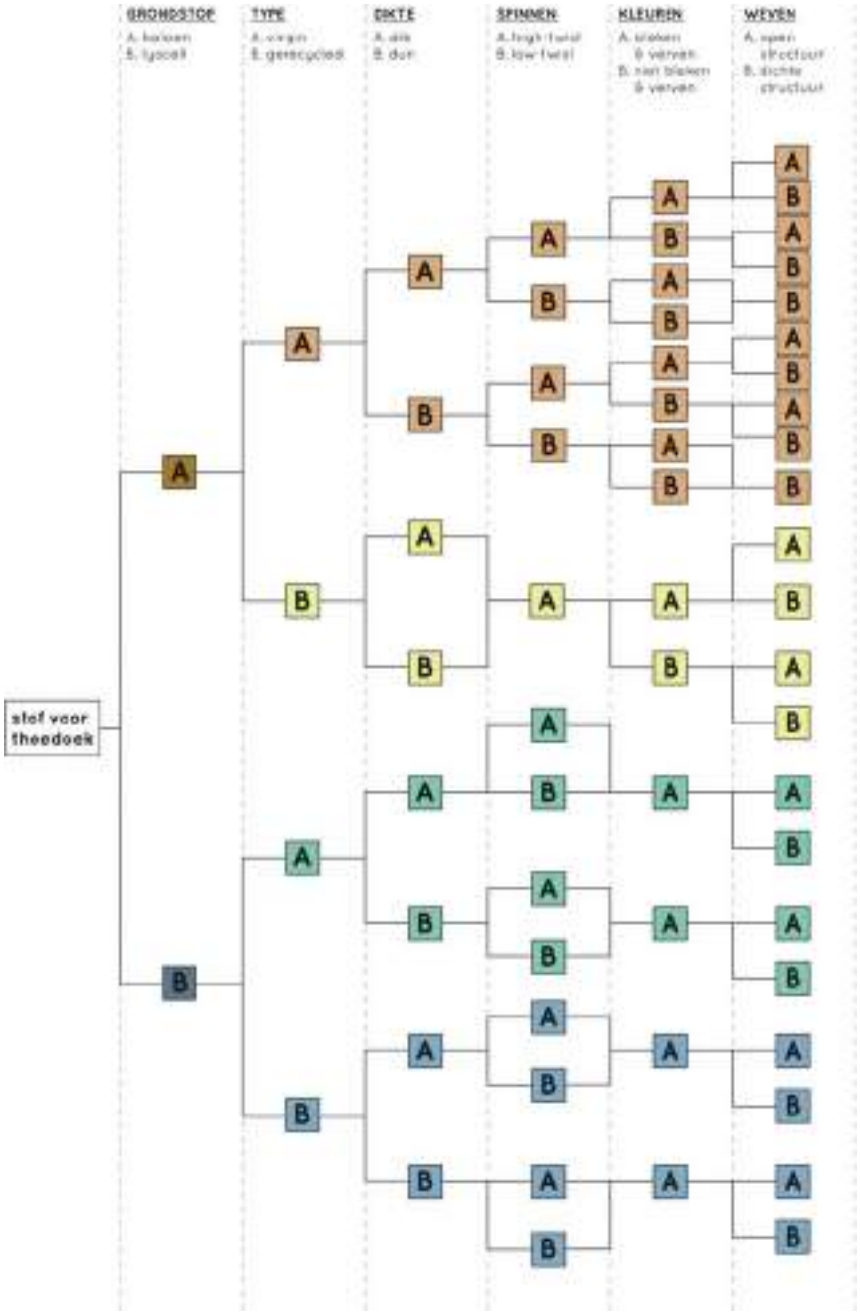

Figure 5: Decision matrix (©Michelle Baggerman)

Design for understanding

Baggerman felt that the essence of her approach was not captured in the provided framework of Bocken et al. (2016), which led her to coin a new circular design principle: *design for understanding*. Her key focus was the industry's lack of transparency, aiming to open up and communicate the complexity of technical and design choices that inform and structure the production process. By opening up the design and production process to all actors within the

value chain (designers, suppliers, manufacturer, users), complexity was no longer a black box but became part of a shared learning process about (technical) limitations and possibilities.

The ability to make informed decisions means being able to design according to different circular design principles more effectively, such as *physical durability* and *technological/biological cycles*, by choosing appropriate material and production techniques.

Communication of the design and production process alone does not automatically affect material resource flows. *Design for understanding* rather serves as an underlying principle to contribute to circularity as it conceptually addresses fundamental issues of sustainable fashion and textile production on a systems level. From transparency and information can (ideally) follow trust into the product, according to Baggerman's vision: "In order to understand, we need to open up and generate trust" (February 2020). Hence, adopting *design for understanding* as a guiding principle can also positively influence emotional attachment to the product.

Designing boundary objects

Design for understanding does not necessarily involve the production of market-ready end-products. Baggerman's decision matrix and tea towel samples rather served as boundary objects (cf. Stompff, 2020; Stompff & Smulders, 2015) to facilitate dialogue and shared learning experiences: "I am not designing a tea towel really to dry dishes. I definitely design as a way to learn (…and to show…) alternatives" (Michelle Baggerman, February 2020).

To collaborate and co-design effectively, stakeholders need to mediate between different ways of working, knowledge, expectations, and mindsets:

> The fun AND difficulty are that you deal with curious designers, who want to dive deep into the whole process. Therefore, you must fine tune the communication to prevent ambiguities about how to proceed, who is responsible for what, and what can we do together. It is sometimes frustrating that you cannot fulfil the designer's expectations because it is technically not possible
>
> (Annemieke Koster, November 2021)

Baggerman's curiosity and capacity to translate (abstract) knowledge with and for different stakeholders by making it tangible, visual, understandable, and usable is key here. It is in co-reflecting on her visualizations and the test results of her samples with other stakeholders (fellow designers, textile researchers and manufacturers), that a shared understanding was created. Interdisciplinary reflection and interaction within Baggerman's design research was a necessary condition to learn and create new knowledge, as for instance about the technical possibilities at Enschede Textielstad. Yet, at the same time, the visual and tangible knowledge that Baggerman created through this interaction, is what actually facilitated co- reflection and co-visioning. Baggerman's diagrams and prototypes thus served as boundary objects to bridge (potential) knowledge gaps between designers, manufacturers and researchers. Ultimately, the result of this design research was a (communication) tool to create a shared language and shared understanding and thus facilitate a circular co-design approach.

Co-design for understanding

In aiming to unravel complexity and to facilitate and increase shared understanding among different stakeholders along the textile value chain, Baggerman engaged in a co-design and co-learning process with technical partners and designers and (design) researchers. The boundary objects that were created within this process were both facilitating and facilitated by this collaborative approach. *Design for understanding* served as a guiding principle and tool for collective learning and knowledge creation. In this way, design – and more specifically *co-design* – facilitates dialogue and interaction, as well as a common frame of reference among stakeholders. Put differently, *co-design for understanding* as a guiding principle can help to mediate between different types of knowledge and practice.

Discussion & Conclusions

This paper explored (co-)design as a way to mediate between processes of multistakeholder value creation in the transition towards circularity in textiles and fashion. There is common consensus in the literature that circularity is a joint effort within and between ecosystems. Circularity goes beyond technical aspects, emerging out of changes in how different actors, products, components, and material interact with each other. The role of design has gained increased interest in relation to tackling such complex, societal challenges. Multi-stakeholder collaboration is needed, not just to bring in different knowledge and expertise, but also to negotiate and align agendas and interests. However, current approaches often have a limited understanding of the socio-cultural and relational dimensions of circularity, respective circular design principles, how such principles work in practice, and what role design(ers) can or should play in multi-stakeholder collaborations, especially within the textiles and fashion industries.

Based on the case studies of the $(GC)^2$ project, we conclude this paper by reflecting on the potential of circular design principles – and more specifically *(co-)design for understanding* – in mediating between processes of multi-stakeholder value creation. We discuss the role of a relational (design) approach, as a condition for interdisciplinary collaboration, and how *(co-)design for understanding* as a guiding principle can facilitate and build (relational) proximity.

Relational proximity in interdisciplinary collaboration

Integrating aesthetic, technical, and functional values through multi-stakeholder collaboration seems to be a crucial factor in the transition towards circular value chains in textiles and fashion. This demands for interdisciplinary collaboration based on mutual trust, transparency, and understanding. While textile value chains are often globally dispersed, our research has shown that physical proximity between stakeholders is beneficial in developing a shared understanding, as frequent direct contact contributed to more effective dialogue and collaboration (cf. Köppchen, 2014). Yet, while physical proximity helps, *relational* proximity might be even more important for such co-design processes. To collaborate effectively, and to really *understand* each other and work towards a shared goal, stakeholders from different

disciplines need a common frame of reference. Such common frames of reference include ways of understanding AND doing, and could be anything from shared routines and practices, rules, values, norms, vocabulary, tools, cultures, techniques, methods, etc. (e.g. Aspers, 2010; Knoben & Oerlemans, 2006). Knowledge is thus not only shared, but needs to be translated, and new knowledge is being created in the process. Our analysis indicates that some form of (relational) proximity between partners indeed helps to increase designers' and technicians' agility or capacity to adapt to and to co-create new knowledge. It facilitates mutual understanding of interdependencies between circular design principles, defining a common goal and building a collaborative interdisciplinary practice.

Circular design principles as tools for reflection and learning

Within the $(GC)^2$ project, designers were challenged to critically reflect on the role of circular design principles within their research, practice, and their collaboration with (technical) partners. For designers, circular design principles initially played a role only on a sub-conscious level. They indicated that they often work quite intuitively, which can be very different from the technical partners' way of working. However, especially in the early stages of the design process, reflecting more consciously and deliberately on circular design principles together with different partners proved to be a valuable tool for communication, reflection, and learning. In this way, circular design principles are not necessarily determining *what* to design, but as a tool for reflection they can help to guide the interdisciplinary interaction between stakeholders, making the more subconscious and intuitive (design) decisions more explicit and thereby providing a shared language for collaborative innovation and value creation.

Co-design for understanding as a tool for mediation

Michelle Baggerman coined the principle *design for understanding* as a way to address challenges in production complexity and lack of transparency, by using design to identify and visualize interdependencies between aesthetic, material, and technical decisions. The 'products' of this design (research) process serve as 'boundary objects' (Stompff, 2020) in a shared learning process among different stakeholders. Ultimately, the aim is to enable stakeholders to make more informed (design) decisions, which helps to transform technical limitations into design opportunities for circular innovation and the development of concrete circular practices and solutions.

The role of boundary objects in facilitating mutual understanding has been extensively explored by Stompff & Smulders (2015; 2020) in the context of team design, supporting our observations in both case studies that diagrams, samples, and prototypes can facilitate interaction and dialogue, thus shaping a shared vision between stakeholders. Furthermore, Niinimäki et al. (2017) found that when dealing with contradictory aims and knowledge gaps between disciplines, an intermediator might be required in (material) innovation processes.

Both Baggerman and Van Rees have taken this role of (inter-)mediation by not only designing boundary objects as such, but by actively engaging in an equal dialogue with different

stakeholders to facilitate processes of co-learning and co-reflection. The emphasis then is no longer on designing new products or materials, but on *co-designing* a shared learning experience. The boundary objects that were created within this process were both facilitating and facilitated by this collaborative approach. Mutual trust and understanding are built within this relational process. We therefore propose *co-design for understanding* as a guiding principle and tool for mediation, to facilitate dialogue and interaction, which is needed to create a shared vision among stakeholders, and to co-create new, circular systems. As a tool for mediation, *co-design for understanding* thus contributes to creating relational proximity. It shifts attention away from designing products and materials as end goal, towards designing processes and methods of mediation between multiple stakeholders.

Limitations and further research

While our findings showed the potential of design(ers) as mediator between different stakeholders to align interests, and to create mutual understanding and awareness for interdependencies between circular design principles, technical project partners have consistently drawn attention to questions of impact and upscaling. The case studies we have presented are small-scale and highly context-dependent. Questions remain in how far our findings from these small-scale experiments can be translated to other contexts and situations, and to create impact on a larger scale.

Furthermore, the concept of relational proximity requires more theoretical and methodological exploration. The concept is being discussed in economic geography and organization sciences to understand knowledge exchange and creation between economic actors (e.g. Amin & Cohendet, 2004; Gertler, 2008). Diving deeper into these different strands of literature goes beyond the scope of our paper, but it could provide new insights into how relational proximity works on different levels in more complex value chains.

We do see the potential for *co-design for understanding* to be developed further into a concrete tool, to enable informed circular decision making in different contexts. With an emphasis on processes, mediation and relations based on trust and mutual understanding, *co- design for understanding* also relates to existing frameworks and concepts such as *empathic (co-)design* (cf. Mattelmäki et al. (2014); Smeenk, 2019). Combining and comparing respective existing tools and frameworks could then be a next step to further assess and validate both the potential impact and the practical usability of the principle and tool.

Especially in the context of education, it could be worthwhile to further explore the role of circular design principles in helping upcoming designers to consciously reflect on their practice and role in the process (cf. De Brouwer, 2020).[17] We invite designers, (design) researchers, practitioners, and industry professionals to further explore, experiment and adapt this principle

[17] As part of the project, researcher Zinzi de Brouwer developed the report "Recommendations for a Circular Design Practice: Reflections on Designing for a Circular Textile and Fashion System for Students and Emerging Designers" (2020). The report aims at starting designers who are invested in designing for the circular economy and in turn wish to incorporate and adhere to key circular design principles in their design practice.

as a mediation tool in different contexts. Based on our case study analysis, *co- design for understanding* seems a promising way to re-imagine and, perhaps more importantly, to *put into practice* mediating interactions between different actors in the value chain – ultimately, hopefully, contributing to the transition towards more circular fashion value chains and systems.

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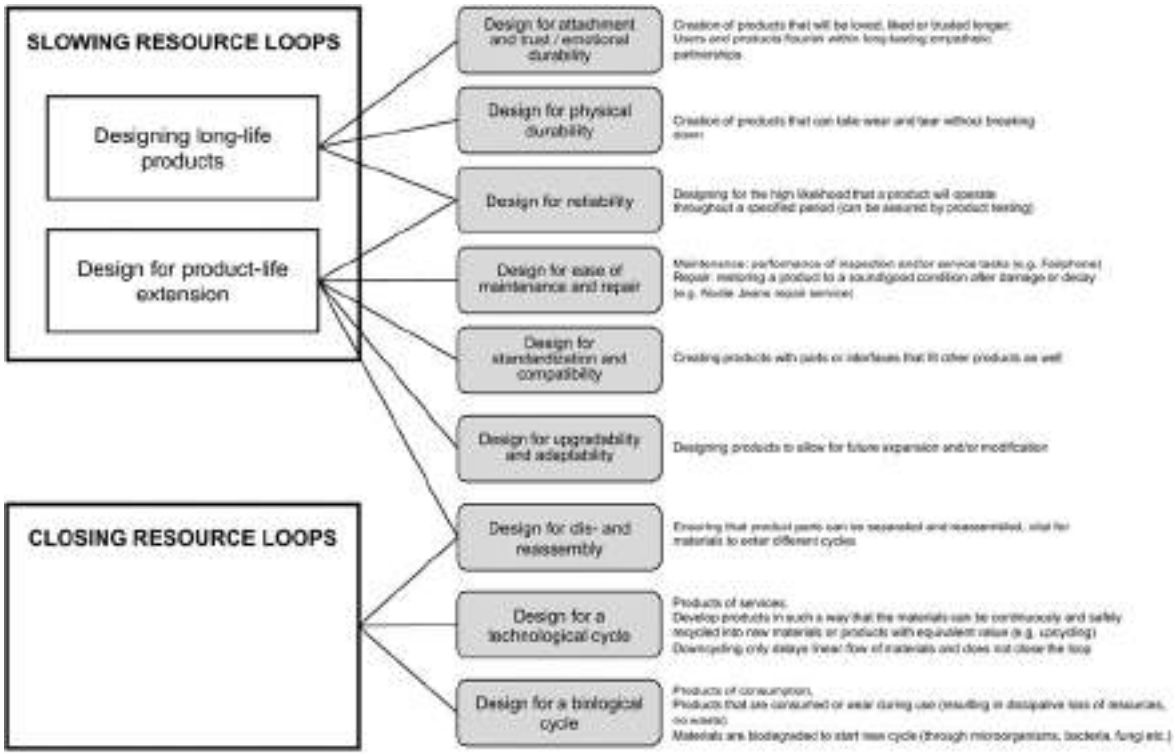
Appendices

Appendix 1: Circular strategies and principles based on Bocken et al. (2016)



DEVELOPMENTAL PAPERS

CREATIVE CUTTING APPROACHES: designing through a method

Author

Corneliu Dinu Bodiciu,
Lasalle College of the Arts, Singapore, Singapore.

Corresponding Author: dinu.bodiciu@lasalle.edu.sg

Keywords

Creative cutting, Body, Method, Investigation, Rethinking

Abstract

Fashion design and making practices follow in most of the times a similar journey which I would call the fashion design paradigm, that starts from the sketch or drape on the stand followed by pattern making, toiling and then the realization of the final garment. In this entire process the human form is central and has the agency to dictate the entire range of design and technical decisions which the designer is subjected to take throughout the creative process. Some designers have started to revolutionise this design process through unique creative cutting approaches as methods like the Subtraction Method, Transformational Reconstruction, Kinetic Garment Construction, Shadowear, just to name a few. Some of these methods radically shift the fashion design paradigm and decenter the role of the body shape from the process, some like Shadowear are even negating it. Bringing such approaches to the specialized fashion design education and revising the curriculum could de-establish the fashion design paradigm and change students' thinking, allowing them to re-imagine fashion. This paper is critically investigating how the implementation of some creative cutting approaches in fashion design curriculum is influencing students' thinking where designing becomes a process of re-consideration of the human body. By employing qualitative methods like semi-structured interviews and visual analysis, this approach seeks to identify if such curriculum shift is enabling students to approach designing in a non-linear process. Unlike the fashion design paradigm this educational model seeks to enable students to articulate own methodologies, parameters, and design tools, and through these to achieve novel and unique identities.

Introduction

Most undergraduate approaches of teaching fashion design and making (Sorger and Seivewright 2021; Faerm 2017) follow a linear process that starts with an initial concept/inspiration that is usually set by the designer/facilitator as a trigger of the design development. Starting from the brief, students are supposed to utilise a range of primary methods like visual analysis, observational drawing, draping and secondary methods (writings, existing creative explorations of the topic, trend forecasts etc.) to underpin and stimulate their creative response. Further creative explorations through experimentations with both construction and textile approaches are then allowing students to expand the field and identify a clear creative position. From this position, the work is then refined and articulated as a range of designs for a clear market sector and customer profile, that form a collection (Renfrew and Renfrew 2016). This collection is then translated into drafts and tested through toiling before being made in the final materials. Although the expansion of new digital approaches (Clo3D, Browswear etc.) have much helped to shortcut the making side of the process, the initial steps leading to the design of the collection remain mostly the same. In this research I will refer to this chain of steps as the *fashion design paradigm*. Although the *fashion design paradigm* contributes greatly in shaping a designer's practice for the fashion industry, I argue that it is formulaic particularly because is regimented by the industry's requirements for production next to the increased financial implications of fashion as a profit- making industry.

The *fashion design paradigm* has also strongly impacted the production of waste, firstly during the creative process, when designers imagine garments without a consideration of pattern shapes or arrangement of the cutting marker and later, during the prototyping stage when toiles are conducted to achieve the perfect fit and desired proportions. And because in the process of prototyping the designer's vision has to be achieved in reality, I see the creative process and the making as an exercise of power and control of the material. Thus, I argue that the fashion design paradigm itself teaches students to control and dominate the materials and the creative tools that are meant to stimulate ideation and thinking.

Context

In my teaching practice I have encountered a range of novel creative methods that have departed from the fashion design paradigm. Methods like Subtraction (Roberts, 2013) or Transformational Reconstruction (Sato, 2011) re-think the process of designing and making. Because both methods rely heavily on draping the design process happened on the body form and allows for unexpected volumes and proportions to form and shift the initially imagined silhouette. These approaches enable the design process to become a discursive practice between designer, body form and material. Whilst very creative and sometimes unexpected the collection takes shape through the consideration of self-discovered articulations of the methods supported by the range of materials used, colour palette and manufacturing details.

Somewhat inspired by *Taking a Line for a Walk: Assignments in Design Education* (Paim, Gisel and Bergmark 2016) I developed a range of exercises catered specially for fashion design. These exercises intend to expand the student's understanding of the conventional

features and notion of the body. Such exercises are: *Shadowear*, *Changing the Body/Challenging the Body*, *Writing a Garment*, and I will briefly explain each one for clarity.

Shadowear is a method of designing and making garments that shifts the focus of the designer to the bi-dimensional shadow of the body instead of the body itself. The method uses the shadow as an abstraction of the body. Through this process of abstraction, the image of the body is depleted of any trace regarding gender, race, age and size (Bodiciu, 2020). The shadow also plays as a space for negotiation of garment detailing and construction information, requiring a strong set of knowledge and ability to visualize works tri- dimensionally. The power of control with which the designer approaches the entire process is diminished through this method because the outcome is unexpected (Figure 1.). As this method fosters a new agential exchange between the designer and their work, the designer becomes a spectator of the final result (Bodiciu, 2020).

Figure 1. S*hadowear* (2017) process documentation from the image of the shadow (left) to the final garment (right)

Figure 2. *Changing the Body/Challenging the Body* process documentation from initial padding (left) to final garment without padding (right)

Writing a garment is another creative exercise that engages writing as trigger of the design process. Somewhat responding to Roland Barthées *The Fashion System* (2010 [1967]) the exercise aims to expose the potential of the written word to be subjected to interpretation. Participants work in pairs and each describes in writing a garment (imagined, or existing). It is up to the participant to communicate the garment as detailed as possible or not. In private, each participant then makes a sketch of the garment they described in text, for future comparison. The participants exchange the writing while keeping the sketch secret. Taking the text as guidance each participant develops the described garment up to final fabric. The dialogue that emerges when the sketch and the final garment are compared reveals the subjective ways in which each individual perceives, imagines and represents design data.

Mixing a range of creative approaches for designing and making garments from *Transformational Reconstruction* and *Subtraction* to *Shadowear, Changing the Body/Challenging the Body* and *Writing a Garment,* I have shaped a creative fashion cutting course that is delivered at the second year of Bachelors in Fashion Design. The course is delivered after the general knowledge on drafting and draping are taught in the first level of the programme. The course aims to enable students to think outside of the confined approached of designing and making garments as directed by the *fashion design paradigm.*

I started this investigation based on the assumption that such a teaching approach when students are confronted with a wide range of creative making approaches enables them to devise their own methods of working and has the potential to impact their subsequent projects and graduation work. Through this I mean that the confrontation is not with a prescriptive process of designing but with a multitude of unique methods which open a new way of thinking and designing. This way of thinking takes the method as tool for creative development, allowing the designer to negotiate the outcome in a discursive manner with the method they have devised/adapted.

Methods of investigation

After the third iteration of the module in a bachelors' programme in fashion design, this research gathers empirical data through a qualitative investigation that mixes a discussion of some case-studies of the work produced by students which have undertaken this course, as well as insights from semi-structured interviews (Denscombe, 2010; Adams, 2015) I have conducted with some members of the 3 cohorts. I have obtained the right to publish the following visual materials and insights from the interviews in this article directly from the participants which have read prior to the interview a participant information sheet and agreed with the participation by signing a consent form.

I have conducted 7 interviews with participants, some which have graduated the programme and some that were still studying at the time of the collection of data. I have selected the participants based on the fact that each has devised/adapted own method of designing and making that became the cornerstone of their graduation project. I have conducted the interviews in the aim to unpack the role of the creative fashion cutting class in their education, namely how they find it impacting on their own practice. As the participants are familiar with the *fashion design paradigm* as the design approach taught in the first level of bachelors, the interviews also aim to uncover student's opinions on the two approaches in comparison. The third aim of the interviews was to identify which methods out of those delivered have had the most impact on their education and in what ways. Next to the data gathered from interviews I will discuss some of the projects which the participating students have developed in order to sustain the discussion of the data.

Data and discussion

A first case study is a graduation project by student Joshua Ng whose motivation to find new ways of minimizing waste production for casual forms of dress uses a combination of creative cutting approaches with zero waste thinking (Figure 3a.-3c.). The method he invented is titled *Spaghetti Cutting*, and is named after the very long panels that make the garments cut through this method. Based on a mathematical formula he identified that most fabrics used in the industry have 7 inch as a common denominator. Taking this measurement as the width of each panel, the garments are produced through a spiraling process that minimizes the production waste with up to 20%. After testing the method on staple wardrobe pieces (Figure 3a &3b), the student further explored the method in creative ways to explore new volumes and proportions, as seen in Figure 3c.

3a. 3b. 3c

Figure 3. *Spaghetti Cutting* (2020) by Joshua Ng (3a) Technical drawing; (3b) garment in final fabric; (3c) creative interpretation of the method.

Another example of a work that was developed based on a unique method devised by the student was aiming to generate a certain sense of closeness between the wearer and the designer through the medium of fluid garments. Through fluid garments, student Kimberly Lintungan understands a range of engineered wearables which through fastenings enable the wearer to approach each piece in multiple ways. To stimulate this dialogical interaction between the wearer and the garment the entire range was designed based on basic geometric shapes like circles, squares and rectangles, as seen in Figure 4.

Figure 4. *Fluid garments* (2020) by Kimberly Lintungan: Technical flats (left) final garment (center and right)

A third case study is the work of Simrita Dass who investigates the abstraction of the body through a combination of photography and collage for the production of flat garments. As seen in Figure 5, the student generates a series of collages from self-taken photographs which become the stimulus of design development. Strongly inspired by Shadowear method, as highlighted by the student in her sketchbook and during the interview, the approach of abstraction is meant to enable the wearer to playfully interact with the garments and take own decisions in terms of how the pieces could be worn. The designer attempted to decrease her power to control the act of wearing allowing a great space for negotiation between the wearer's body and aesthetic drive and the garments.

Figure 5. Work in progress by Simrita Dass (2021) Inspirational collage (left); fashion illustration (center) and technical flat of the same garment (right)

The last case study follows the same approach in developing a unique method of work. Adeline Biancha Gunawan invented a board game (Figure 6.) to enable designers and not only to approach the act of designing and making garments as a game. Adeline has designed game that has multiple option of play from single to multi-player or from fresh fabrics to upcycling existing garments. This approach opens new directions for fashion design, where the creative process becomes subjected to a set of uncontrollable actions and tools. The game also reveals the subjectivity of each player driven by individual pre-requisites that highlight fashion as a social and cultural phenomenon situated in space and time.

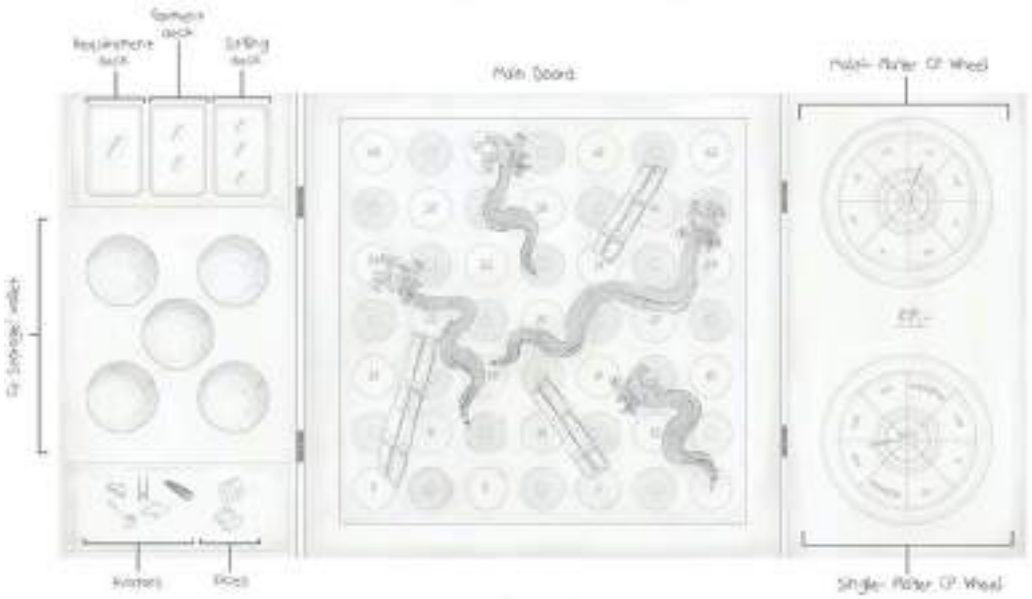


Figure 6. Adeline Biancha Gunawan (2021) Sketch of a board game designed to enable fashion designing

As briefly introduced, the 4 examples of methods devised by students to produce fashion-related content next to other examples of work which have not been discussed here have each very clear and unique features that follow a creative cutting approach rather than the *fashion design paradigm.* By devising a unique method of designing and making students develop a clear identity that reside in the method itself and furthermore, if the method would be approached by someone else with a new set of moods and materials the method will remain to be visible in the final products. These examples enable me to assume that the way students approach design has been strongly influenced by the creative cutting course undertaken and to verify this assumption I have conducted a range of semi structured interviews to unpack the students' perceptions on the taught curriculum.

I have conducted 7 semi-structured interviews amongst which 4 participants are the authors of some earlier discussed works. I have organised my questions in 3 main directions, first to understand the relation between the *fashion design paradigm* and the creative fashion cutting course, second to unpack the impact of the creative fashion cutting curriculum on their own practice and understanding of design process, and lastly to find out which methods taught have impacted the most their thinking.

All the participants have identified that the way the content is organized and delivered in the first level of the bachelor', when they learn the basic knowledge on design and construction, the curriculum follows a prescriptive model. I identify very much this model to follow the *fashion design paradigm*. As some of the participants observed, in the "traditional way from sketch to toile there is a clear step by step process" (Kimberly) which is very different to the creative fashion cutting course. The participants also observed that while very different in content and delivery, the two courses should not exclude each other as the traditional way (*fashion design paradigm*) establishes the foundations for the design students. This means that

the *fashion design paradigm* is relevant at the early stages of design education to enable the students to understand basic principles of design and processes of making as the key parameters of the industry. Once grounded in a discipline, in the second year of the bachelors' the basic knowledge could and should be challenged by novel and creative approaches that broaden the students' understanding of body, garments, and implicitly fashion because "the creative cutting classes really change the way I perceive garments" and "the way I view design and the way I approach design becomes different" (Kimberly). It is important to highlight that these insights confirm that the two design pedagogies should not exclude each other but be complimentary, and addressed at the right stages of fashion design education.

Moving further, in terms of impact of the creative cutting course on student's practice and perception of fashion design, all participants have observed that the course "changes the way I perceive garments" (Kimberly), it "made me question the way that a garment can be constructed" (Shi Jie) and furthermore it enables the students to "create own ways of designing" (Justin) and thinking. As the creative fashion cutting course does not follow the established methods of draping or drafting and some of the workshops are not requiring measurements or even a tridimensional body form, the participants admitted that it is a very disruptive teaching approach which "brakes" (Simrita and Kimberly) established knowledge and approaches of design. Some participants observed that the way curriculum pushes them outside of their comfort zones and it enables them to explore directions that they never imagined before or would not have been achieved through traditional methods (Shi Jie).

Next to the observations articulated by the participants it is evident that the creative cutting curriculum enables students to approach design from unforeseen and unexpected perspectives thus shifting completely the prerequisite understanding of the body, garment and processes of making. The process of design becomes an experiential journey, a form of embodied practice of the designer. Furthermore, all the participants also observed that because they have been exposed to a diverse range of methods of design, each supporting the production of a very distinct final outcome, their further practice has been strongly influenced by this way of thinking (Joshua). Based on these observations I argue that design in general should be understood as a large and rhizomatic (Deleuze & Guattari, 1987) range of methods rather than a linear set of actions. This understanding is enabling the student to realise their own agency in proposing their own and unique methods or re-interpretations of existing methods. Thus, seeing fashion design as a method of negotiating between body and other material entities and ways of embodiment releases design thinking from framed education paradigms.

The last aim of this investigation was to identify which workshops from those delivered in the creative fashion cutting course have impacted the most students' thinking and practice. The majority of the participants considered that Shadowear is strongly shifting their understanding of body and garments and enables them to feel free and liberated from the pressures of designing and producing something that has to fit and dress the body in an expected way. Other two workshops, Transformational Reconstruction and Changing the Body / Challenging the Body have been mentioned to impact the participants' understanding of body and garment construction. I observe that the 3 workshops have in common a certain power to abstract the body, either through the reduction of its' tridimensional features or through an active distortion

of its' shapes and volumes. Through this abstraction perhaps the students experience (in an unaware manner) a certain distancing from the familiar, from the established features of the human body. Through this distancing the sartorial politics of the body can be overridden much easier in the design process. In established design practices like the *fashion design paradigm,* the designer is trained to follow the body' shape and enable the body to be presentable in public, thus the paradigm itself is subjected to the social discourses and politics of the body.

As this research is in development and will continue to be conducted for more data and insights from participants, I will refrain to conclude at this point in time. Some directions that will lead to the later conclusion section have started to already form in this section. This discussion will also serve as new strands of dialogue with future participants to test newly formed assumptions.

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A GUIDELINE FOR CONSCIOUS ENGAGEMENT WITH CRAFT ARTISANS

Author

Martin Bonney,
Lasalle College of the Arts, Singapore

Corresponding Author: martin.bonney@lasalle.edu.sg

Keywords

Co-creation, designers, craft artisans, cultural ecology, symbiotic relationships

Abstract

Southeast Asia is a rich and vibrant region where craft is very much alive and rapidly undergoing a transformation in the search for progress. This opens up a wealth of possibilities, collaborations and exchanges of knowledge to be shaped and defined. In recent years we have seen a growing practice of co-creation between designers and craft artisans from the region, where either culture revitalisation or identity seems to be the driving factor. However, balancing traditions from past perspectives layers the final outcome with a historical conversation. This fixes it in a time and place in the search for preservation. These complex cultural systems don't fully acknowledge all the driving forces and different roles from each stakeholder. The developments of these products, practices and processes are often layered with romanticised foreign views, industrial capitalist perspectives with complicated social interactions of exchange. Which brings within it loaded questions towards intention and designing for social good. Alongside this is the popular emergence of sustainability that clouds the importance of cultural intentions on borrowed practices and processes. This research aims to explore the terrain of Southeast Asia to advance knowledge and understanding of the synergistic relationship between designer, artisan and the cultural significance of textiles. There is little scholarly research surrounding this cultural ecology from the region that explores the relationship between designers, craft artisans for the cultural significance of practices, products and processes. Fewer still in the approaches and methods from fashion and textiles design. Therefore this research aims to provide new insights into this triadic relationship between designers, craft artisans and the products that generate culturally significant intentions being conscious of each perspective. Through which possibilities are explored and mapped out through a practice-led research endeavour surrounding the cultural ecology of exchanged methods. This research is underpinned by new materialist theories using embodied and material practice research methods, layered with a performative theory that triggers heightened reflections for practice. It will theorise on symbiotic relationships between designers, craft artisans and the systems they operate in. This will provide new insights into the role of a designer to help develop a guideline for designers to be conscious about their engagement with craft artisans.

Introduction

Southeast Asia and the larger ASEAN region is a rich and vibrant ecosystem where craft remains to be alive through the different rituals, behaviours and beliefs. Its culture is robust with diversity being layered with complicated histories and social-cultural interactions. As the region continues to develop and advance, we have seen a growing shift in crafted communities shrinking or changing their practices to stay relevant and commercially viable. Reducing their cultural practices to feed novelty-hungry tourists collecting authentic treasures of 'stuff.' This, in turn, is shifting the region's craft into Fordist homogenised method of making following 'big ego design' systems of the past twentieth century, depleting the local wealth and identity. (Manzini,. E. 2018, Clarke,. A. 2011) There is little research and documentation of this complex set of relationships from the region and this paper aims to probe the cultural ecology systems surrounding crafted textiles. There is a growing practice of co-creation within the region between designers and artisans which raises the questions towards the driving factors and design decisions connecting them. (Adamson,. G. 2013). We need to acknowledge the different driving forces between these complex relationships to ensure a balanced design ecology. While understanding that, craft and culturally significant products need to adapt, innovate to remain relevant for a consumer society. This challenging relationship of cultural significant practices, products and processes need to create new emerging systems for them to exist. By exploring this design ecology and the triadic intentions at play, can we develop a guideline for researchers and designers that provides the criteria for conscious engagement with craft artisans offering a new future of products?

Cultural significance is rarely discussed in the practice of design and its importance towards the geographical and social-cultures systems that surround it. It seems today we are locked on a linear trajectory of homogenised design that needs to be questioned. We have whitewashed our design world following 'big ego design' that dilutes the local and relevant knowledge, skills and beliefs we have to offer. (Manzini,. E. 2018, Walker, S. et al. 2018).

The 'big-ego design' refers to the last century's demiurgic vision through which design products or ideology that imprints itself as a singular way of thinking and doing. This is highly problematic when we consider how globalised design and culture is digitally connected today. (Manzini., E. p. 58 2016) Thus, our designed cultural actions, ways of making and thinking need to be more culturally relevant. With all of us recently going through a global pandemic that continues to disrupt our state of living, we should take advantage and redesign a conscious future. These acts of doing, thinking and the products are representations of the diversity that makes up the larger human species. (Dillon,. P. 2015) We as designers, researchers and makers are compelled to socially understand and place this at the forefront of the design agenda. It is requiring a shift in our ways of doing design responding to the cultural subtleties that liberate us from this single path. Through understanding these design tools, methods, and transactions of culture we can allow a local sense of cultural identity, grass-root thinking to enter into the design thinking. Thus design culture needs to be redefined. The role of the designer needs to shift into a facilitator working with craft artisan to challenge the future practices for appropriate indigenous solutions.

We currently don't have any established frameworks to enable the conscious evaluation and measure of the balance of these interactions. This research aims to address these issues and provide guidelines for future practitioners. Rather than following globalised directions, market-driven relations of design culture can shift into an anti-design system of 'prototyping the social' and enter a new emergent design future. (Clarke,. A. 2011)

Methodology

This research adopts a design anthropologies observational techniques and thinking that will explore the different perspectives of designer and craft artisan involved in the making and theorising of contemporary textiles products from a regional perspective. (Clarke., A. 2011) As a designer, maker and educator, I also aim to develop products and materials by inserting myself into the research to understand the social phenomena through a qualitative collection of empirical materials questioning the designed cultural actions, ways of making and thinking in search for cultural significance. With the growing co-creation between designers and craft artisans from Southeast Asia, this data aims to allow for reflections and insights into the grassroots of indigenous workings and depth of social understanding for future emergent significant design systems. Liberating a local, regional voice through design and products.

This is a design ecology system approach that explores the complex implications and cultural transactions from a designer, craft artisan and product lens that maps relevance and emergence from a complicated and robust region that is under threat to big ego design thinking and ways of doing. The use of triangulation will be explored and developed as an approach to explore design, social-culture systems from three perspectives: designer, craft artisan, product. Allowing for depth of analysis and ensuring a rigorous approach to exploring the territory. This hopefully will allow the development of a guideline for researchers and designers that provides the criteria for conscious design engagement with craft artisans from other regions. (Sbordone., M. A. 2021)

Original Contribution

- Mapping the complex implications and cultural transactions from a designer, craft artisan and product
- Create a framework of engagement for future practitioners for the conscious engagement between designer and artisan
- Provide a framework for cultural significant design tools and methods for a contemporary artisan product
- Contribute to the wider debate around the need for the role of the designer to include cultural significant practises
- Contribute to the wider debate around design ecology and anti-design ideas

Respecting and Reflecting

Figure 1. Co-designed Ikat, Bonney., M. 2021

Throwing myself into this research process, juggling both my textiles and teaching practices led to an elective workshop for my students in early 2018 to explore ideas in and with Artisan Textiles Masters from Indonesia. Having done many different projects in the past and explored Indonesia's rich and evolving craft region I wanted to share its magnificence. With this in mind, I ran a three-hour workshop, where I introduced the Ikat process and brought my students some traditional Indonesian fabric as a reference. I had explained that we would be working with the master weaver Pacagusti from Bali Ubud, where he creates traditional ceremony fabrics and dresses and employs the local women to support the production process. We were free to explore any ideas but must keep in mind our culture and the culture of Ikat.

Figure 2. Co-designed Ikat Process Spinnin, Bonney 2018

Figure 3. Co-designed Ikat Process resist, Bonney,. M. 2018

Figure 4. Co-designed Ikat Process Weaving, Bonney,. M. 2018

The design process was fairly simple, from discussions and mind maps to ideation and sketched designs plans. It is a co-designed fabric filled with multiple designer intentions coming together exploring with slightly unknown outcomes. Not native to Ikat making students could only imagine the outcome. This raw process finished within a few hours gave way to a long making process. I was at this stage in communication only by WhatsApp to the neighbour of Pacagusti as he lives a relatively simple life. At this stage, I was happy to encourage students to venture out into the craft community commission and continue craft practises within the region with the only rule of respectfulness to craft and culture. Not really understanding the cultural significant exchanges and sensitive relationship and power struggles between designer and craft artisan.

The single Ikat woven fabric made in Indonesia Ubud during 2018 pictured in the images above was in many ways lacking the research and consideration of any significance but it embodies an emotional response to the designs process and crafting abilities of the weavers. It is this woven Ikat that gave joy to the designers when we received it back in Singapore 3 months after. Designs felt empowered, connected and wanting to do more. We had created a fabric filled with personal and intuitive developmental values wanting me to explore more between the cultural exchange of designers, craft artisans and the products, practises and processes they create. It highlighted the separations of each and my own driving forces.

Reflecting on this process and workshop triggered the intentions of the paper, we have lacked the to capture the knowledge of the master weaver Pacagusti and only employed his technical skills. We do not teach the importance of craft practice at this level with industrial artisans and consider the implications of developmental factors in cross-exchange. The few encounters and conversations with Pacagusti during the process were more client-maker than designer-artisan. This piloted workshop didn't bring his knowledge equally. The beautiful ikat fabric only embodies the designer perspective at this point but helped develop the need for greater awareness and research. Having spent over a decade in the region I have started to see and understand the social and cultural separations and thinking surrounding design and its imbalance.

Following up with Pacagusti, the excess dye and material was used by the craft artisan within his own practice as not to waste materials and supplies. A master weaver generating heritage fabric innovates patterns with bold and colourful fabrics. The surplus materials and thinking should be considered in the system moving forward. It is this exchange of design and cultural transactions that intrigue me to continue this research and approach post-pandemic as a practice-led PhD to map out ways of work and guidelines for significant exchange.

List of Illustrations

Figure 1. Co-designed Ikat, Bonney,. M. 2021

Figure 2. Co-designed Ikat Process Spinnin, Bonney,. M. 2018

Figure 3. Co-designed Ikat Process resist, Bonney,. M. 2018

Figure 4. Co-designed Ikat Process Weaving, Bonney,. M. 2018

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THE ROLE OF CHATBOTS AND THE ONLINE CUSTOMER EXPERIENCE IN LUXURY FASHION RETAILING

Author

Ruofei Chen,
The University of Manchester, Manchester, United Kingdom.

Corresponding Author: ruofei.chen@manchester.ac.uk

Keywords

Chatbots, Online Customer experience, Luxury fashion retail, Luxury customer experience, Covid-19

Abstract

With rapid digital advances and emerging technologies, an increasing number of customers are now shopping online, forcing initially resistant luxury fashion retailers to embrace this channel. In particular, the fast development of artificial intelligence (AI) has redefined the online customer experience and provided more opportunities for luxury fashion retailers to interact with their customers using chatbots. Indeed, chatbot adoption in online shopping has become one of the fastest growing uses of AI in the luxury fashion sector. Chatbots have become incorporated into the online customer shopping journey over the last few years in the luxury fashion industry with the aim to provide a better online customer experience. The Covid-19 pandemic has increased the importance of this as customers have had to rely on online tools such as chatbots to seek services and product information to help them make informed purchase decisions. However, previous research regarding luxury fashion retailing predominately focuses on how luxury fashion retailers can provide exceptional service in stores as opposed to online. Therefore, there is a gap in the literature regarding the impact of chatbots on the customer experience and whether or not they can enhance the luxury retail shopping experience from a customer perspective. Hence, this study aims to investigate customers' use of chatbots during their online luxury fashion shopping experience. The study will explore customers' thoughts and feelings towards their luxury fashion shopping experience through in-depth interviews in order to gain a better understanding of how chatbots can be used to maintain the expected level of customer service online and meet customer needs. By talking to luxury fashion customers, the researchers will develop a rich account of their experiences that may challenge the working assumptions of marketers and retailers. As this is a developmental paper, the key focus is to explore how chatbots can potentially impact the online customer experience and whether/how it can meet the service expectations of luxury fashion customers online.

Introduction

Today's fashion retail industry is becoming increasingly digitised and undergoing tremendous transformation as a result. For luxury fashion retailers, it is becoming critical to embrace technologies to provide better online customer service that is responsive to customers' needs (Klaus and Manthious, 2020). The increasing number of online customers and continuously changing retailing climate requires fashion retailers to differentiate themselves via outstanding customer service and a better customer experience (Ameen et al., 2021). As a result, numerous customer encounters are now managed by automated systems powered by artificial intelligence (AI). These ongoing changes have brought AI-powered application chatbots into fashion retailing for retailers to interact with customers online through auditory or textual conversations (Bock et al., 2020; Chen et al., 2021). The adoption of chatbots is rapidly growing in fashion retailing as the chatbot market size is expected to reach $9.4 billion by 2024, particularly, chatbots in customer service in retail is considered as the rapidest growing market segmentation between 2019 and 2026 (Nguyen, 2020). Hence, the rapid evolution of chatbots has gradually altered how luxury retailers interact with their customers and redefined the customer experience, which offers great opportunities for retailers communicating (e.g., via chatbots) (Chung et al., 2020; Sidaoui et al., 2020).

Incorporating chatbots as customer service agents on e-commerce sites has become one of the most commonly used applications of AI and luxury retailers are increasingly adopting chatbots to connect with customers to influence the online customer experience (Chen et al., 2021; Huang and Rust, 2021). For example, luxury retailers such as Louis Vuitton, Burberry and Gucci use chatbots to offer recommendations to help customers make purchase decisions and have personalised their shopping experiences just as they would receive in the store (Forbes, 2020a). Furthermore, due to the outbreak of the COVID-19 pandemic and subsequent lockdowns, reaching out to customers through chatbots online has become more crucial for luxury retailers as they have been forced to make rapid operational changes, and chatbots have emerged as feasible and scalable alternatives for luxury retailers offering their services to customers (Forbes, 2020b), the online customer experience has also become critical for customer retention and luxury purchases through chatbots (McLean and Osei-Frimpong, 2019).

Chatbots are "*interactive, virtual agents that engage in verbal interactions with humans*" (Przegalinska et al., 2019, p.786). Chatbots have the potential to make a substantial impact by solving issues and shortcomings in e-commerce and lessening the impersonal aspect and hazards involved with online purchase (Chen et al., 2021). Chatbots can provide customer support, marketing, and customer service 24/7, hence are considered to be highly beneficial to the fashion retailers (Rese et al., 2020). While the potential of chatbots in e-commerce in the context of fashion retailing has been recognised (Chopra, 2019; Chung et al., 2020), the manner in which chatbots influence customers' shopping experiences remain unknown (Ashfaq et al., 2020). Past research has predominately focused on different types of chatbots and their influence on users' responses (Hill et al., 2015; Mou and Xu, 2017; Ciechanowski et al., 2019; Chung et al., 2020; Chen et al., 2021) as well as antecedents that affect chatbots' acceptance and adoption (Xu et al., 2020; Rese et al., 2020; Chen et al., 2021). However, the results of chatbots impact on customer service are somehow contradictory within research (Pizzi et al.,

2020). Previous research has largely focused on the technological aspects of chatbots, such as the functionality or the quality of the interaction. Yet the impact and value chatbots have from customer's perspective lacks research. This is however vital to understand as it may result in disappointment in purchase decisions (Pizzi et al., 2020) or negative shopping experience (Castillo et al., 2020). Furthermore, most previous research has adopted quantitative methods to examine users' responses towards chatbots and focused on chatbots from a technology perspective. However, there is a paucity of research exploring how chatbots impact the online customer experience and the potential value of chatbots from the customer's perspective. Therefore, there is a gap within the literature regarding the potential role and impact of chatbots for the online customer experience in the context of luxury retailing. Empirical research from a qualitative perspective in order to explore the impact of chatbot on customer experience is lacking.

The above research gap indicates that academic research regarding chatbots in luxury fashion retail lags behind luxury retailers' adoption of chatbots on e-commerce, therefore, understanding customers' feelings, thoughts and motivations for chatbot adoption is critical for developing a more effective chatbot e-commerce system (Chopra, 2019; Pizzi et al., 2020; Chen et al., 2021). To fill the above-mentioned research gaps and contribute to the online customer experience literature, this paper aims to explore customers' motivations and experiences while using chatbots when shopping online, exploring their thoughts and feelings in the context of luxury fashion through in-depth interviews. In particular, the authors address these research questions in order to achieve the aim:

RQ1) What are customers' motivations and needs while interacting with chatbots?

RQ2) What are customers' cognitive and affective responses regarding the integration of chatbots?

RQ3) What type of experience do chatbot interactions create for customers?

This paper contributes to the body of knowledge on online customer experience of chatbot adoption and customer responses in luxury research. In order to answer these research questions, this paper is exploratory in nature and adopts a qualitative research methodology through semi- structured in-depth interviews. As the current paper is still in its developmental stage, the data collection is still ongoing and initial findings from interviews will be presented and discussed on the IFFTI 2022 conference.

Literature review

Online customer experience and chatbots

Rose et al. (2012) acknowledged that experience is critical to the growth of online shopping. Customers' online shopping experience goes beyond their engagement with a website, influencing their views of value and service quality (Petre et al., 2006). Hence, service quality and its impact on behaviour of the customers has been the focus of researchers for a long time

(Parasuraman et al., 1988). However, customer experience is more than just quality service (Meyer and Schwager, 2007). The research on online customer behaviour over the years have focused on understanding the perception of the online environment by the customer and overall assessment of the service quality (Klaus, 2013). Yet, the research focus has been shifting toward the online customer experience just like the offline environment (Nambisan and Watt, 2011; Lallemand et al., 2015). This has led to a paradigm shift from the traditional e-commerce and website developments to the interactive and dynamic websites enabling interaction and customisation on the online web (McLean and Wilson, 2016).

According to prior studies, offering an enhanced online experience has a beneficial effect on customers' online behaviours (Shobeiri et al., 2015). Hoffman and Novak (2009) explored the online customer experience from the cognitive perspective of the online interaction. In addition, the significance of customer emotions during the online experience were outlined by Rose et al. (2012). Flavian-Blanco et al. (2011) added that customers tended to abandon their online activity due to their emotions prevailing before, during, and after the online experience. The customers seemed to engage in affective and cognitive processing of the incoming online sensory information which gets stored as an impression in their memory eventually influencing the overall experience (Rose et al., 2012; Martin et al., 2015). Keiningham et al. (2017) found that cognitive factors within the customer experience represent functionality, availability and the speed of the service provided by retailers. Moreover, for affective factors, it is expected to be complex in nature regarding customer service as customers' emotional feelings can be positive or negative, including different sort of feelings such as happy, sad, surprise or anger (Keiningham et al., 2017; Ladhari et al., 2017). Therefore, in order to gain more insights into the behaviour of their response, the types of thoughts evoked, and how the consumers feel about it could be obtained by studying the affective and cognitive responses to a specific technology.

The online customer experience has been defined as the affective and cognitive assessment of the customer about the indirect or direct interaction with a company, specifically in the online context (Rose et al., 2012; Kalus and Maklan, 2013), despite this experience originating from the interactions of the customer with a company, a part of an organisation, or a product (Gentile et al., 2007). However, there are many challenges in creating a compelling online customer experience, such as a lack of human interactions or privacy concerns during online shopping. This highlights the importance of focusing on cognitive and affective elements when improving online customer experience as these two components of customer experience have been more related to experience (Rose et al., 2012). The affective and cognitive responses have been used as the two main components of online shopping experience in the earlier research (Rose et al., 2012; Klaus and Maklan, 2013b; Kawaf and Tagg, 2017). As such, the affective and cognitive responses have been considered as the two main components of the online chatbot experience of the customer in this study.

To affect the online customer experience, chatbots could be used as service agents for the whole customer shopping journey (Marinchak et al., 2018; Copulsky, 2019). According to Lemon and Verhoef (2016), the three stages through which the customer interacts with the retailer during their shopping journey are: pre-purchase, purchase, and post-purchase. Chatbots can

interact with customers throughout each of these stages of their online shopping journey. Chung et al. (2020) investigate how chatbots affect consumer perceptions and indicates that chatbots could positively influence customer satisfaction focused on communication quality. However, the study did not reveal how customers think and feel during interactions in order to understand their holistic experience with chatbots. Another study by Moriuchi et al. (2020) investigates consumer interactions with chatbots and its impact on the behavioural outcomes. However, Moriuchi et al. (2020) fail to explain what consumers' feel regarding this engagement and to what extent they think that this interaction is valuable. This indicates further investigation is needed as understanding customer's feelings and thoughts regarding chatbot interactions would help to uncover how chatbots could enhance the customer experience, as opposed to just focusing on chatbot adoption (Chan and Leung, 2021). Rese et al. (2020) analyse which customers accept chatbots and which factors determine their acceptance during shopping in fashion retail using the TAM model. They found that chatbots were positively adopted by customers, however, further impact of chatbots is still unknown and potential negative benefits is unsolved, which require further studies to explore chatbots customer experience in order to help understand how customers actually react to the interactions when shopping online. Thus, the authors suggest that future research investigate how customers affected by chatbot interactions regarding their holistic chatbot enabled shopping experience to help improve chatbots shopping experience and solve those contradictory issues. Therefore, past studies have predominately examined how chatbots affect users' responses but have overlooked their holistic thoughts and feelings toward the integration of chatbots during their shopping journey and how it impacts the whole customer experience. Customers' affective and cognitive responses are crucial experiential elements to provide a holistic understanding of customer experience (Lemon and Verhoef, 2016; McColl-Kennedy et al., 2019). Hence, this paper aims to explore customer's affective and cognitive response when shopping online with the help of chatbots in order to gain insights regarding chatbots impact from customer's perspective.

Methodology

This paper is exploratory in nature and adopts a qualitative research methodology in form of semi- structured in-depth interviews with approximately 20 participants, or until the saturation point is reached. Interviews include questions related to customers' interactions and experiences when shopping online with the help of chatbots. Both purposive sampling and snowball sampling techniques will be used to recruit participants including both male and female luxury fashion customers that are UK based millennials. Participants must have purchased luxury items online at least three times in the past year to ensure they are frequent luxury customers and are familiar with online shopping, and all participants should have experienced shopping with the help of chatbots. According to ForwardPMX (2019), luxury e-commerce customers have an almost equal gender split between male and female (46.6% male and 53.4% female) and millennials tend to purchase more luxury items online. Furthermore 70.8% of millennials are very interested in purchasing high-end luxury fashion items in the UK, which shows that millennials luxury customers are suitable for the current study.

Qualitative data including interview transcripts and notes will be analysed and coded by applying thematic analysis approach. The present study aims to find out customers' views, opinions, knowledge, experiences or values when interacting with chatbots that can be derived from a set of qualitative data – interview transcripts. According to Braun and Clarke (2012), thematic analysis is an effective and efficient way for comprehending a collection of experiences, thoughts, or actions across a data set. Therefore, following Kiger and Varpio (2020), the six steps of thematic analysis will be conducted: 1) familiarising with the data; 2) generating initial codes; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes; 6) producing the report/manuscript.

As this paper still in its developmental stage, the data collection is still ongoing, hence, initial findings will be presented on the IFFTI 2022 conference.

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MATERIAL ENCOUNTERS: using video elicitation and journaling techniques to understand the hands-on experience of beginners learning to sew clothes for themselves during a global pandemic

Author

Sally Cooke,
Nottingham Trent University, Nottingham, UK

Corresponding Author: sally.cooke2019@my.ntu.ac.uk

Keywords

Amateur sewing, sustainable fashion, participatory methods, video elicitation, journaling

Abstract

This developmental paper focuses on an innovative multi-method approach adopted for a practice-informed participatory craft/design research study undertaken during the Covid-19 pandemic. The context for the study is the unsustainability of fashion as we know it and increasing interest in amateur textile crafts as tactics within a panoply of potentially sustainable fashion practices. Amateur clothes sewing has found renewed favour in the 21st century, supported by a new generation of paper patterns and an abundance of online resources and social networking opportunities. Covid-19 enhanced the visibility of sewing as a valuable and desirable skill. While some people turned their hands to the production of face coverings and even scrubs for medical professionals in response to the pandemic, others, finding themselves with unexpected free time at home, took up clothes sewing as a new hobby. This paper is based on PhD research which seeks to understand the experiences of people learning to sew clothes for themselves, the resources that help then do so and the difference this makes to their relationship with clothes. The main participatory element of this study, devised to account for Covid-19 restrictions, combined journaling and video elicitation techniques to gain insight into the experiences of five sewing beginners as they attempted to learn to sew clothes for themselves at home. Participants recorded their sewing activities in short video clips and in written journal entries which were then used as prompts for subsequent online 'elicitation interviews' where participants talked through their learning experience. This combined method provided a 'near present as possible' insight into the experience of the sewing beginner and allowed both participant and researcher to reflect on this experience at each stage of the project before agreeing the next stage on an individual basis. In this process, participants became both the self-directed learners at the heart of the study and co-designers of the study itself and the researcher navigated multiple roles as researcher, designer/maker (experienced other) and facilitator with shifting orientations towards elicitation, motivation, empathy and knowledge sharing.

Introduction

This paper will consider the pros and cons of a combined journaling and video elicitation approach adopted to research the hands-on experience of amateurs learning to sew clothes for themselves at home during a global pandemic. The research forms part of a PhD study. It was preceded by a series of seven interviews with people who had recently learnt to sew clothes.

In the UK, clothes sewing skills, once commonly passed on between generations of women within the home, declined significantly in the latter half of the 20th century (Burman 1999) before seeing a resurgence in the 21st (Bain 2016). Home clothes sewing in its contemporary guise is underpinned by a new generation of paper patterns and an abundance of online resources and social networking opportunities across multiple platforms.

The motivation for the study is the unsustainability of fashion as we know it and the urgent concomitant need to re-evaluate our relationship with clothes (Fletcher 2016). In focusing on the hyperlocal, uncommon (yet increasing) case of those wishing to make their own clothes I have two intentions. Firstly, to shed light on contemporary would-be home sewists' experiences of learning to sew clothes for themselves. Secondly, to identify anything from this experience that is of use in our attempts to reimagine the fashion practices of the global north into something altogether less destructive.

I come to this research as someone whose own experience of sewing straddles the period of home sewing's decline and resurgence and as a maker and designer with particular interests in materiality and craft skills.

Research Design

This is a participatory textile craft research project conducted from a feminist perspective. The knowledge generated is both about, and elicited through, active engagement with the highly gendered practice of sewing clothes at home. The mode of analysis is interpretative.

Participants in the research are all UK based sewing beginners recruited via an open call on Twitter and Instagram, which was further circulated by two social enterprises in the north of England with interests in clothing sustainability (Zero Waste Leeds and Leeds Community Clothes Exchange).

Of 100 potential participants, 30 attended one of four online information sessions about the research early in 2021. From the 22 people expressing continued interest following these sessions, five were selected based on convenience (locally based) and purposive (mixed agebrange) sampling criteria (Braun & Clarke 2013). Subjective judgement was also used to select those expressing strong intrinsic motivations for wanting to learn to sew clothes for themselves specifically, as opposed to a more general desire to learn sewing skills.

Participants' orientation to issues of sustainability did not form part of the selection, although all were aware of this as the context for the research. The final group of participants were all white European women aged between 22 and 44. In this, they were typical of the wider group of potential participants responding to the call.

Each participant took part in an introductory one-to-one online workshop and three subsequent elicitation interviews, between which they undertook clothes sewing activities at home in their own time. In each case, these activities took place over a period totalling 5-6 months during 2021. Echoing the experience of people interviewed in the earlier phase of research, participants were first asked to try making a simple garment using resources described as 'easy' or 'beginner'. Subsequent making activities were agreed on an individual basis following each elicitation interview.

Participants recorded their making activities through short video clips and written journals (Images 1&2). Journals and videos were used to inform the interviews that followed each iteration of making activity.

Figure 1. Example video still, participant cutting out fabric pieces for a skirt

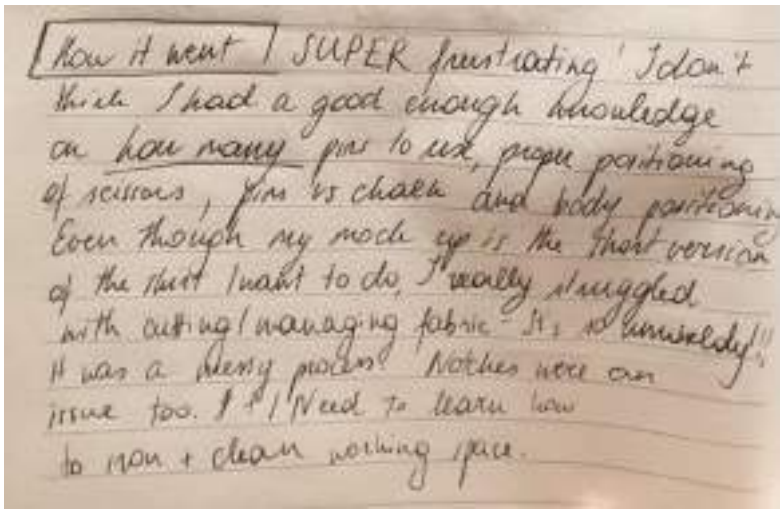

Figure 2. Example journal entry, participant reflecting on the challenges of working with fabric

Each interview followed a similar format combining four elements (Table 1). Interviews were recorded and transcribed to facilitate an inductive process of thematic coding and analysis (Braun and Clarke 2013).

Table 1: Elicitation interview format
• **Recap** - Participant reflects on their sewing experience to date and how it has gone - supplementary questions/discussion may follow as in a semi-structured interview
• **Elicitation** - Participant asked to talk through the experience shown in their video clips which are screen-shared, played and paused to facilitate reflections and discussion
• **Q&A** - Participants given chance to ask any sewing related questions they might have – conversations, illustrations or short demonstrations may follow using a webcam
• **Next steps** - Participant and researcher discuss what the next making activity will be – these may include trying a new garment style, pattern or instruction format or other short making exercise designed responding to participant's interests/experience so far.

All workshops and interviews were held online using Zoom. The Iriun webcam app was used to make the researcher's hands visible – screen-shared from a second (phone) camera – where it was helpful to demonstrate or illustrate an aspect of sewing practice in response to participants' experiences.

Discussion

The methods used in this research were combined in response to the challenge of conducting participatory textile craft research under the social distancing restrictions of Covid-19. In this section, I explain the rationale for adopting these methods and reflect on the experience of using them in practice.

Near real-time

Before the pandemic, it was intended that participants' home sewing activities would have been interspersed with in-person workshops in which experiences of sewing could be shared, practised and observed. In this 'live' scenario, observation and interaction with and between participants would have been key sources of data from which to understand beginners' clothes sewing experiences. Sewing activities undertaken within the workshop would have allowed for direct observation of participants' engagement with sewing as an embodied craft practice. As in-person workshops were not an option, alternative methods were required.

The diary-interview method introduced by ethnographers Zimmerman and Wieder as an 'approximation to direct observation' (1977 p.494) was initially considered. This was felt to be insufficient for research seeking to foreground the material and embodied nature of learning a craft skill in practice. Diaries would bring me closer to beginner sewists' subjective experiences of learning to sew, by reducing the retrospection to which interviews alone can be prone (Bolger et. al. 2003) but would not *show* me anything of the experience itself. Video was introduced as a way to enable 'the body as sense-making subject' to be accounted for in the research (Rana & Smith 2020, p.53).

In combination, participant journals and video clips offer near real-time reflections on experiences of learning to sew (journals) and real-time footage of sewing in practice (video clips). Journal entries give insight into what has been done and how it has been experienced and understood. Video clips augmented this with a rich picture of the embodied and material experience of this 'doing' in practice.

Reflective

Journals and video clips had multiple roles in the research. Both were vehicles for reflection on the part of the participant/learner (Schön 1987). The guided journal entries (Bolger 2003), which offered participants' subjective reflections on their experiences of learning to sew, set the tone for the interviews. The video clips, which provided 'live' footage of participants' making activities, acted as 'reflective artefacts' (Toraldo 2018) for discussion within the interviews. In this sense, journal entries and video clips were forms of data in their own right and also 'data-generating device(s)' (Zimmerman & Wieder 1977) which opened participants' experiences up to further reflection and questioning during the interview process.

As videos were replayed in interviews, participants were asked to talk through what they were seeing on screen. Some participants were more spontaneous and forthcoming than others during this process. It sometimes helped if I reiterated that my interest was in *their* experience of learning to sew and that in this experience *they* were 'the expert' (Braun & Clarke 2013). It also helped to remind them that I was particularly interested in what they were doing with their hands and in the decisions they were making as they sewed. I often asked participants to clarify what they were doing in the clips so that I could 'see it better through their eyes'. Sometimes I asked participants how something they were doing felt, or how they felt about it, to elicit their reflections on the physical or emotional aspects of their experience.

Dialogic

While the interview format (Table 1 above) provided a structure for the online interview, in practice it was extremely difficult to keep the four elements of this conversation separate.

Participants understood from the outset that my role in these interviews was primarily that of designer/researcher rather than teacher, but they were also aware that I had more experience of

sewing than they did. This meant that their reflections on the sewing experience and their questions about how else things might be done were often intertwined.

Similarly, my questions about what they were doing and how it felt would bring to light what had been experienced and understood, but also what had been misunderstood along the way. This insight presented an ethical dilemma about when, whether and how to address such misunderstandings. I opted for an empathic approach (Braun & Clarke 2013). In doing so, I aimed to replicate the kind of dynamic that would occur more naturally in an in-person workshop, where participant questions and facilitator observations would be a part of the discussion around the activity being undertaken in real time.

This made my role in these interviews a complex one, alternating between that of researcher aiming to elicit participants' experiences and that of facilitator trying to support and encourage them in their making and learning activities (Image 3).

While I did not always feel I got the balance of these two roles quite 'right', I would align the approach taken with an 'ethics of care' that is flexible to individual circumstances (Kara 2018, p35) and appropriate to the reciprocal nature of participatory research (Twigger Holroyd & Shercliff 2020). Taking a dialogic approach to the elicitation process allowed conversations to develop and flow more naturally and helped mitigate some of the unfamiliar intensity of the one-to-one online interview format.

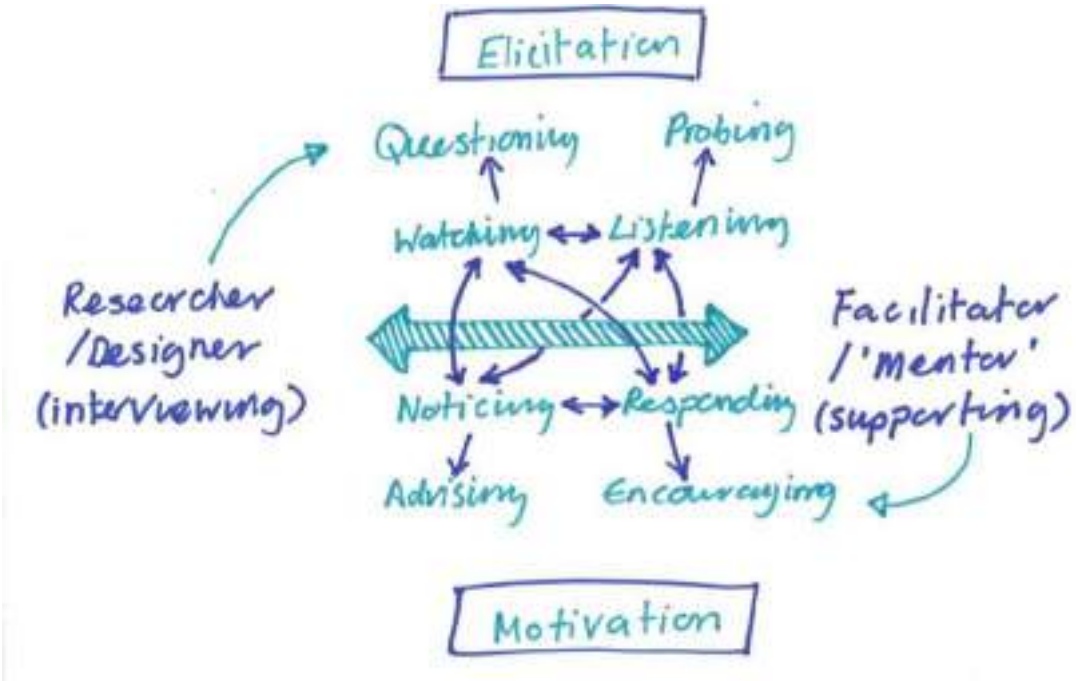

Figure 3. Rough sketch: complex roles of researcher/facilitator in the online elicitation process

Remote material methods

The use of journaling and video elicitation gave presence to materials and the materiality of the process of learning to sew clothes despite the research being conducted remotely. Video is frequently used to elucidate and celebrate craft practices (Knott 2019). Furthermore, the medium is central to the popularisation of amateur craft and the sharing of craft know-how (Orton-Johnson 2014; Torrey et. al. 2009).

Video clips brought to life the situated and embodied nature of learning to sew clothes at home. These clips enabled me to observe and talk to participants about their interactions with tools, materials and other resources while watching them in action. The combination of journal entries, video clips and interviews helped to illustrate the degree to which these material objects were active rather than passive in participants' experiences of learning to sew (Woodward 2020). Together, these methods convey a strong impression of the hands-on embodied experience and thinking with and through material things.

Participants in the research were extremely generous with their time and with the recorded material they shared. The request to capture their activities in both journal form and through video clips undoubtedly introduced additional complexity to the already complex task of learning to sew clothes. The individual preferences, life circumstances and domestic situations of participants all impacted on what they recorded, making this uneven between participants and for individual participants over time. Across the three data elements (journal, video and interview) and the three iterations of making activity, a rich picture of each beginner's experience of contemporary home sewing practice was achieved.

Conclusion

Initially inspired by the work of others exploring the intersection of amateur craft practice and clothing sustainability (Twigger Holroyd, 2013; Saunders et. al., 2019), I had understood participatory workshops as a way to elicit a live and lively insight into textile craft practices (new and old) as encountered by 'ordinary' people in 'everyday life'. The methods described above were initially adopted and adapted as a substitute for such workshops.

In practice, combined journaling and video elicitation methods provided a 'near present as possible' insight into the experiences and material interactions of sewing beginners. These remote methods precluded the social learning aspect of the in-person workshop and amplified the presence of the researcher, in what became a series of one-to-one rather than one-to-many encounters. However, by allowing participants' sewing practices to be seen in situ, these methods were in some ways truer to the experience of contemporary sewing beginners, who engage in craft learning that is often digitally mediated and undertaken within the home.

Instead of creating a co-design space in which alternative resources or activities could be developed and explored with a group, the one-to-one nature of these research encounters allowed multiple activities to be explored based on participants' individual experiences and interests. In this way, participants became both the self-directed learners at the heart of the study and co-designers of the study itself.

The research methods discussed here have proved successful in elucidating the digitally entwined contemporary experience of people learning to sew clothes for themselves at home, including some of the contradictions between how these practices look online and how they are experienced in real space and time. This has opened up home sewing to further critical reflection as a practice in its own right and as one of many tactics in a panoply of potentially sustainable fashion practices.

There are many benefits to in-person workshops as the means through which participatory textile research is commonly conducted. The remote methods discussed are *not* presented as a substitute for that but rather as an alternative that is particularly well suited to participatory research relating to activities undertaken within the home.

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‘FREE-FROM’ FASHION ILLUSTRATION: free from established canons

Authors

Anamika Debnath and Deepak Goswami,

Anamika Debnath,
National Institute of Fashion Technology, Kolkata, India

Deepak Goswami,
Amity University Kolkata, Kolkata, India

Corresponding Author: deepak.a.goswami@gmail.com

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Abstract

Breaking away from tradition and normalised practices, as well as resistance to them, is not unusual in fashion. Some of the newer fashion illustration techniques are defying conventions and growing into a more expressive and intuitive style. The 9-heads canon does not appear to concern new practitioners as much as they do to the fashion illustration educators who follow a traditional curriculum. Fashion illustration has long outlived its primary function of cataloguing fashion looks. It now boldly and brazenly crosses paths with a variety of fine arts disciplines. We can now claim that the transformation has occurred, and fashion illustration now sits quite comfortably interacting with art. It doesn't shy away from the interactions of art, design, and fashion; rather, it thrives in it. It revels in the constant flux that it is exposed to, much like fashion. Nick Knight's ShowStudio has been instrumental in identifying new domain practitioners and formally publishing their work on their website, thereby giving them some validity. The collaboration between fashion illustrator Rob Unett and Nick Knight for Vogue China March 2020 was another pivotal event, stretching the domain's bounds beyond accepted definitions. Contemporary illustrators such as Rob Unett, Helen Downie, Richard Kilroy, and others have broken free from the constraints of 'heads,' which were established much earlier and are still in use in academic curricula around the world. These illustrators have established a new specific space for themselves and fashion illustration in turn, aided by the democratic character of social media. While fashion illustration can come from clothing items, it can also stand on its own. An identity, other than fashion, within fashion.This paper looks into the emergence of fashion illustration styles that appear to be free of curricula’s traditional canons, which we refer to as ‘free-form’ fashion illustration. It will also explore the dissociation of

contemporary practice and pedagogy and the ‘flux’ tied with it. We would want to position this paper as a ‘catalyst of conversation’.

Zeitgeist

Virgil Abloh stirred, inarguably, the discourse surrounding diversity in fashion from the very top before his untimely demise. His Men's Fall Winter 2021 collection, Ebonics - presented as a multi-disciplinary artistic film directed by Josh Johnson; was steeped in spoken word and performance. Sarah Mower quoted him in her Vogue article—

> Well, he says: "I have a responsibility. We said we want diversity, didn't we say that in 2020? Making change means making these changes. I don't want to look back and say I turned a blind eye. But you know," he concludes, "I'm an optimist. The future is yet to be decided."

Fashion's preoccupation with a certain colour, race, and body-type is not unknown. It is more evident in the light of recent dialogues and debates around body positivity and inclusion. The lack of tangible actions of the fashion realm in this regard has been widely criticised for the longest time. However, going by the latest shows from the likes of Louis Vuitton, Balenciaga, Valentino, and others, the world of fashion does appear to be on a course-correction.

A varied group of people, including Elliot Page, were included as official models at Demna's Summer-2022 couture presentation for Balenciaga, which was paired with a bespoke episode of the 'The Simpsons'. The innovative 'photocall' format of the show shifted the focus to real images and notions of the body. In her article 'Balenciaga Takes Springfield,' Rachel Tashjian wrote in GQ about the show—

> "a new inclusive, egalitarian approach to fashion, broadcast from the highest echelon of the industry."

'We're All on the Red Carpet Now'—Venessa Friedman titled her NY Times article to mark the phenomena, writing that Balenciaga held the 'smartest show' of the week.

The undercurrent continued when Alexander Fury, fashion features director at 'Another' magazine, made a firm point about it in his Jan 28, 2022, Financial Times article; he wrote —

> "Diversity is an overused trope in fashion — but Piccioli's Valentino catwalk defied fashion's tokenism, his protean talent engineering clothes to embrace and celebrate a truly diverse cast of models, in ages ranging from early twenties to septuagenarians. They looked incredible."

It could be said that the diversity discourse is 'un-masked', quite glaringly so, amidst the pandemic, within the infamously 'elitist' rungs of the fashion system.

Is fashion being cancelled? By itself? —We wonder.

Figure 1. Louis Vuitton A/W 21, by Uzo Hiramatsu

Method

The idea of this paper germinated from our combined teaching/learning experiences in the fashion illustration domain, our continual interest in evolving styles and narratives, our desire to align the pedagogy with the various degrees of students' skills/abilities, as well as the bigger shifts in the fashion world.

We have observed that giving students some freedom from the conventional canons in their explorations of technique, media, and form can lead them to discover their own visual language. It sometimes results into surprising outcomes even from the ones considered less skilled. This statement is anecdotal but has acted as the springboard for this conceptual paper.

In this paper, we will look into the emergence of fashion illustration styles that appear to be free of curricula's traditional canons, which we refer to as "free-form" fashion illustration. We also hope to draw attention to some of the 'dots' and would want to position this paper as a 'catalyst of conversation'.

The methodology is drawn from contemporary visual references and experiential approaches to teaching and learning.

Fashion Illustration: Art?

Fashion illustration has been equated with the fine arts before. For example, the argument and the examples in Liard Borrelli's books on fashion illustration. 'Fashion Illustration Next', published in 2004, needs a special mention in this context where she says—

> "Once the Cinderella of the art world, considered the competent but lesser product when compared with a 'finished' painting or sculpture, a process rather than an art, drawing now has the credibility and cachet. Fashion illustration, however accomplished, is generally ignored by the arts establishment."

Cally Blackman also expressed similar thoughts in her '100 years of Fashion Illustration', published in 2007—

> "Despite the fact that many well-known artists have reflected its cultural and aesthetic power in their work, fashion illustration has often been dismissed as trivial, or at best, a 'Cinderella' art. Falling between fine and commercial art, it has only recently been revaluated as a significant genre in its own right."

The sentiment is more pronounced in the statement by Carlos Aponte in 'Fashion Illustration Next'—

> "I don't believe in fashion illustration but art, maybe fashion art if you want to label it. The work you see around in the last decade doesn't much resemble that term. I hear the word fashion illustration as I visualize a long-lost era."

It is to be noted that in contemporary practice, fashion illustrations, mostly, are a part of the artists' larger body of work. The term may prove limiting in capturing the essence of their practice, as we will find in the references discussed in the paper.

Free-Form: Advent

In January 2020, in the first issue of the decade, Vogue Italia released a series of seven variants of illustrated covers by different artists, with the caption - 'No photoshoot production was required in the making of this issue.' This was a defining celebration of contemporary fashion illustration. It is believed to be the first time a Vogue magazine has gone photo free since photography was invented, as shared by Emanuele Farneti, editor-in-chief of Vogue Italia in an editorial published on the magazine's website.

Figure 2. Cassi Namoda for Vogue Italia, January 2020. Ambar Cristal Zarzuela in Gucci

Figure 3. Vanessa Beecroft for Vogue Italia, January 2020. Female figure in Gucci.

For its March 2020 cover story, Vogue China took a different approach to working with a fashion artist. Nick Knight of famous SHOWstudio captured singer/actor Chris Lee inside a perspex box while fashion artist Rob Unett peppered the box with his quick illustrative marks which interacted with the poses of the model. The illustrator became part of the image- making process. Rob Unett shared in an interview with Hetty Mahlich—

> "Conceptually, this was a journey into how photography, illustration, light design, fashion, beauty, styling and set design all amalgamate to create moments of visual art... I wanted my marks to react to everything on set, from Chris Lee, her poses and the fashion, to the lighting."

Figure 4: Rob Unett on set, Vogue China March 2020

Nick Knight has been known to push the boundaries of fashion image. His collaborations with Alexander Lee McQueen resulted in several iconic images. The cover photo of Japanese/American model Devon Aoki, shot for Visionaire, in 1997, remains one of the most striking.

Figure 5: Devon Aoki in Alexander McQueen by Nick Knight for Visionaire magazine, 1997

He founded SHOWstudio in November 2000, an award-winning fashion website that bills itself as ‘the home of fashion film’. It has created visionary online content that explores fashion through moving image, illustration, photography, and the written word. A total of 85 fashion illustrators are listed on the website’s artists’ section at the time of writing this paper. A few of those artists’ works are explored in the next section.

Finding ‘Free-Form’

Rob Unett is known for his brave instinctive style. He also shares his action painting like process through his Instagram account. In his abstracted figures, he investigates gender, sex, power, and suffering. His nonconformist style constantly reveals new bodily forms.

Figure 6: Prada A/W, by Rob Unett

Figure 7: Gucci S/S 20, by Rob Unett

Hellen Bullock’s illustrations have an impression of spontaneity with her loose strokes and lines. The figure is not the svelte fashion ideal. The fuller body forms are frequently blobby, sometimes ‘awkward’ and far from the coveted ‘9 heads figure’.

Figure 8: Trussardi, by Helen Bullock

Figure 9: Versace 1996, by Helen Bullock

Julia Soboleva explores the notions of family, taboo, and generational traumamediating between the themes of madness and reality. Her figures take on personalities and have backstories.

Figure 10: Christian Dior A/W 19, by Julia Soboleva

Figure 11: Vetements A/W 19, by Julia Soboleva

Lara Lancaster's (née Mackenzie Lee) subjects are greatly abstracted, interpreted and reinterpreted in her unique construction/deconstruction of shapes and colours, sometimes obliterating the need of body in an illustration. She shows no goal of emulating the ideal fashion figure in her practice.

Figure 12: Fashion EastA/W 17, by Lara Lancaster

Figure 13: J. W. AndersonA/W17, by Lara

The forms in Rome-based **Marco Rea's** illustrations are nearly photographic in nature since he stays loyal to the existing pictures and works with body proportions that aren't unnaturally elongated. Faces lose their features and re-materialise in a void in his work. His characters appear to be carrying secrets reverberating with a sense of unease.

Figure 14. Kenzo S/S20, by Marco Rea

Figure 15. Heron Preston S/S20, by Marco Rea

Helen Downie (Unskilled Worker) has developed a significantly individual style. Her paintings are minutely detailed, but the forms are away from the traditional canons. On the other hand, Richard Kilroy fuses the academic style of drawing effortlessly in his suggestively incomplete illustrations in a ‘non-finito’ approach.

Figure 16. Protection 2019, by Helen Downie

Figure 17. Maison Margiela Menswear A/W 18, by Richard Kilroy

Figure 18. Illustration by Jasjyot Singh Hans from his series ‘Big in Fashion’

Figure 19. Illustration by Jasjyot Singh Hans published in the beauty section, Elle, India, July 2018

Jasjyot Singh Hans, a National Institute of Design, Ahmedabad and Maryland Institute College of Art, Baltimore alumnus, is an illustrator who chronicles the themes of body image, sexuality, and gender quite overtly in his work. His illustrations explore nuances of the fashion industry and subvert its perception of beauty and body image. Full bodied and olive- skinned, his women tell a story and redefine the ideals of beauty and the pre-set ideas of body image. He says – "I love drawing big women; women with marks on their body and oil- soaked hair. It's about staying true to what I have seen around me, and taking from it what seems beautiful to me and putting it out through my work… 'I think it's important to have an alternative voice, so people don't have to give in to the predominant ideas of what fashion and beauty is. My work is a more inclusive view on fashion and body image; it is a celebration of the everyday and seeing beauty in diversity."

In the Indian context, there is a rise in a fashion illustration practice which situates at the intersections of art, activism, ideologies, and function which can be found in the works of artist like Aditi Jain, Sweta Malhotra, Easternlight Zimik, Manjit Thapp, Annesha Das, among others. Their work gets disseminated in real time by the social media applications and reaches many in a democratic manner.

The contemporary practice is full of numerous narratives and engaging techniques of storytelling. The shift in the notions of the body is obvious in its depictions. There is a clear departure from the norms both in terms of the figure and the techniques. The new illustration is a free exploration of diverse ideas.

The explorations of the body defy established rules and structure, resulting in an amorphous aesthetic—a 'free-form' illustration style.

Canons

The figure/human form is central to fashion illustration. The conventional fashion drawing calls for the elongation of the figure, which uses '9-heads figure' as a fundamental canon. This long-standing practice has been, sometimes, attributed to the raised catwalk ramps of the past, which caused the illustrators to work from a low angle viewpoint. It's possible that this angle resulted in smaller torsos and longer legs, and subsequently the 9-heads fashion figure. This method also allowed for more aesthetic excursions in terms of stylization and gave the illustrator more room to explore the clothes' intricacies.

Most books written on fashion illustration establish the fashion figure in the very beginning. Bina Abling's book 'Fashion Sketchbook' establishes it in chapter one 'Fashion Figure Proportions', so does Elisabetta Drudi and Tiziana Paci's 'Figure Drawing for Fashion Design'. The books we swore by. 'Fashion Drawing' by Michele Wesen Bryant acknowledges today's diversity in fashion proportion practice yet establishes the 'Traditional Fashion Figure Proportion' in the first chapter, 'Drawing Women'. This practice is widely accepted in the fashion design curricula around the world.

In India, National Institute of Fashion Technology (NIFT) has spearheaded the fashion education since it was set up in 1986 by the Government of India in collaboration with New

York's Fashion Institute of Technology (FIT). FIT's inputs included development of the guidelines, curricula, training Indian faculty at New York and supporting with infrastructure and resources. Initial batches were taught by visiting professors from FIT like Eva Bernard Nambath, Theresa Reilly, and others. The '9 heads figure' appears to have been a part of the curricula since; a few of the illustrations were published in an article in SPAN magazine in August 1988.

Figure 20: Fashion Illustration based on 9-Heads canon by the first batch of NIFT students in article by Rehana Sen, published in SPAN magazine in 1988

The Conflict: Flux

The unrealistic/distorted representation and severe objectification of women's body has been a point of contention in fashion for a long time. Director Tim Piper's 'Evolution', Dove Campaign for Real Beauty, for Unilever was launched in 2006. It showed the heavy image editing process through photoshop or transform an image of a real girl into a glowing and slender fashion ideal, very clearly unreal. It ended with a statement, "No wonder our perception of beauty is distorted. Fashion's obsession with idealised beauty standards and curricula's supposed fixation with the '9-heads canon' may also have contributed to the larger construct of the distorted body-image.

The curricula's dissociation with the contemporary practice is apparent when both are compared. The traditional pedagogy focuses on traditional methodologies of fashion illustration and largely leaves the narrative-centred approach out of the curricula.

Are we guilty of carving distorted notions of the body in the young minds of fashion students?

Do the fashion curricula need to rethink the conventional fashion illustration canons? In what ways fashion illustration could address the real issues of the world?

Last week, Demna showed that fashion must not be afraid of grappling with the toughest realities of the world. He was on the verge of cancelling the Balenciaga show, until he realized that "canceling this show would mean giving in." and he ended up creating perhaps the strongest reaction to war, fashion has seen in recent times. Vanessa Friedman's tweet about the show happens to summarize the larger fashion zeitgeist -

"His subject isn't silhouette, it's the human condition."

Fashion embraces overlaps and conflicts and thrives in the flux. We hope that the change, which is being ushered in by the likes of Virgil Abloh and Demna, will make fashion more democratic, more conversational, more inclusive, and unapologetically reactive.

We hope to see the same spirit in fashion art/illustration/drawing.

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HUMAN PSYCHE AND NEW NORMAL POST COVID-19 IN FASHION RETAIL SPACES IN INDIA

Author

Vibhavari Kumar,
PhD Affiliation: Professor, NIFT

Corresponding Author: vibhavari.kumar@nift.ac.in

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Abstract

The year 2020 began with the globe facing an unforeseen crisis. The COVID-19 pandemic sent tremors throughout global communities. One of which could be seen through dislocating national and international supply chains triggering steep changes in markets. According to the Retailers Association of India, the retail industry achieved 93 percent of pre-COVID sales in February 2021. However, the COVID-19 crisis has had a severe impact on the Indian retail industry and overall revenue generation. Apparel and accessories industry was one of the worst hit. The players who would sustain are the ones who act fast and are resilient. It has already become clear that the high street will take on a very different form once the pandemic is over. The intermittent lockdowns arrested people in their homes. Many who were locked up in concrete jungles wanted to break free. There was stress of not being able to take care of the sick and stress of losing the near and dear ones. In normal day‟s retail therapy used to be a solution. All this had a cumulative impact on human psyche. Roger Doodley in his book Brainfluence states that, “ninty five percent of our thoughts emotions and learning occur without our conscious awareness.” Health and safety was of prime importance. With health and safety taking the front seat, the urban retail landscape is witnessing a transformation. The local brands are acclimatizing from traditional to multi & omni-channel, neuro and social media marketing. The retail platforms driven by technokinesis had to be adapted quickly. This drive is expected to linger and to support this change; consumers and retailers need to adjust to new normalities. The aim of this research is to observe the measures the Indian fashion retailers have taken and also to propose the measures that they could take with the interventions of technopathy. This paper will collect and collate information from approximately 1000 Indian customers who have made transactions in apparel stores post the second wave of pandemic in India. The sample will comprise of a mixed demography belonging to age groups 18 & above, and from various towns and cities, belonging to various strata of society in India. This data will also be supported by personal observations and interviews with about 50 stores across India.

The findings and analysis will provide significant insights and highlights for onsite stores to reposition to multi-omni- channel business, based on reports of Retail heads.

Introduction

The year 2020 began with the globe facing an unforeseen crisis. The COVID-19 pandemic sent tremors throughout global communities. One of which could be seen through dislocating national and international supply chains triggering steep changes in markets. Apparel and accessories industry was one of the worst hit. The players who would sustain are the ones who act fast and are resilient. It is already evident that after the pandemic is over, the high street will take on a totally different shape. The outbreak of novel coronavirus created disruptions for millions of people in the form of travel restrictions, health scares and stock market turmoil. It has been a rather unexciting time for most employees working in the design industry. A lot of designers used this time to future proof their designs and invested their time to prepare after the lockdown is over. Many professionals worked with reduced or half salaries hoping for compensation when the industry resumes. Payment delays from client have resulted in cash crunch seriously affecting cash flow. With the migrant laborers gone back it took almost a year for things to crawl towards normal. COVID 19 has been a big learning. People were locked up in their home due to intermittent lockdowns and fear of COVID19. There was a lot of anxiety and hysteria due to the inability to take care of your near and dear ones. Many a times seeing them passing away, without being able to help or comfort them, by being near to them or holding their hand. To overcome this hyper anxiety in normal days one would have resorted to retail therapy or window shopping. But being locked up at home this outlet was also available only in the virtual world, thereby lacking the sensorial experience. All this had a cumulative impact on human psyche.

However, to sustain themselves in the pandemic times, the brands had to reinvent themselves taking resort into multi & omni-channel, neuro and social media marketing. All this brought about an urban transformation in retail and other spaces. To summarise, the changes the lockdown brought about in spaces:

Lockdown one: first "Work from home" period taught us that we need separate him and she rooms. There is a point of time when everyone is wired and talking. They all need well-appointed rooms with proper acoustics, ventilation and lighting.

Once we learned to grapple with technology came the **Lockdown two**. With the food supply getting over the need for going to get the grocery arrived and then came the necessity of contained units. This is when we realized and relooked at our city planning. Character in neighbourhood became the prime focus.

Lockdown three came with larger learning‟s. Until now it was me and my family. This is the time the maids were coming back to homes, people had to go to offices for work. There was a fear "how do I protect my family". This is when the need for new space designs came into being. There was a need to have sanitization rooms at the entrance. Have more of touchless technology built in; talking lifts, touchless toilets, swipe card door locks, Sensor based lighting operations or all operations of fans and lights connected to your mobile phone would be the

new norm of homes: smart homes. Anything in the name of anti-bacterial started selling be it paints, furniture polishes, flooring tiles, kitchen table tops, soft furnishing like carpets, upholstery, bed linen and the like. The principle of self-cleaning was discovered in 1973 by the botanist Wilhelm Barthlott and his team called it the lotus effect. Today it‟s called as nanotechnology. Bengaluru-based nanotechnology startup: the CoronaOven; device which uses UV-C Light to destroy coronaviruses within 10 minutes was being used in homes and retail outlets.

Lockdown four saw major changes. The migrant labourers went back to their natives. The offices and retails were to open and challenge now was design of spaces in these areas. One of the most important points in Visual Merchandising is "customer is God". This statement was emphasized to attract customers. The customers would enter the shop that would lure them with empathy and assure them of safety. The aisle spaces were being widened, apart from sanitization protocols. Movement passages were defined. Number of customers at a time inside the store was regulated. Queue boxes through floor graphics helped in social distancing. This was mostly in FMCG product category. Few of the solutions discussed pre-opening were upping the HVAC systems to meet the requirement of air changes in the retail space. Electrical infographics, floor graphics, wayfinders and shelf talkers reduce in-store staff interaction. Omnichanel marketing would be a must for all retailers even big Indian brands like Bata are looking at adopting it. The stores might just remain to be experience centres. However, self-check outs and contactless payments to avoid human interaction may be the new design. Emotional design will be a big thing and a new norm of space design, be it retail, office spaces or urban and public spaces.

During lockdown the handloom and handicraft industry was the worst hit. Swadeshi became the buzz word post honorable PM‟s concept of Make in India. But would the consumer leave the comfort of the brands they endorse to adopt the Swadeshi is yet to be assessed.

The aim of this research was to observe the measures taken by the Indian retailers through personal observations, including visual documentation and interviews with store managers of about 50 stores across India. The paper also collected and collated information from approximately 700 Indian customers who have made transactions in apparel stores (offline) post the second wave of pandemic in India. The sample comprised of a mixed demography belonging to age groups 18 & above, and from various towns and cities of India. The data was collected as a guided classroom assignment to cover stores across India. Based on observations, interviews with store personnel and customers and surveys these points came forth. Apparel and lifestyle brands comparatively saw less or no customers in store. The Standard Operating Procedure (SOP) was realigned to have restricted entry for people wearing mask. Temperature check and offering sanitizer was mandatory and then the personal information was also noted down. Few stores use „Occupancy app‟ to keep a track of number of customers in the store at any given point. COVID warning posters can be seen around the store and in trial rooms. Work force reduced in store. The attire of sales personal was modified with extra protection layering to assure the customer of safety. Workers equipped with masks. They reduced chairs and reclamation areas, limited number of dresses for trial rooms. Alternate trial rooms were closed. Companies turned towards virtual trials which might become the new norm. The trial rooms

were sanitized after every use. One of the most interesting things in the store were the in-store displays using mannequins wearing masks conveying how necessary it is and has become a part of our lives today due to COVID. Sanitizers were placed at entrance door, billing counter, outside trial rooms, etc. where there is a need for touching different surfaces and cleaning is necessary. The cashier place is also being sanitised every four hours including the ED's machine, mobile tabs, the system etc. The entire garment which was tried by the customers underwent robust sanitization and ironing. In some stores it is put it in a quarantine bin for 12 hours, following which the garment is sanitized inside out. There is an increase in frequency and intensity of cleaning procedures. For payment they are avoiding cash and card and are encouraging the customer to pay using UPI instead. Few stores have “corona protector machine" for purifying the air. Some use sanitizing machine wherein instead of spraying the clothes with sanitizer, it is placed inside this machine for sixty seconds to clean it without causing any damage to the garment. Few brands went a mile ahead to reach out to their loyal customers through WhatsApp video calls and sending photos over. They had tele-calls/messages every day to about fifty to sixty customers out of which about one or two also ended up visiting the store and some also purchased clothes over WhatsApp itself. They also had a return and exchange policy of 30 days, so customer was welcome to try the garments at home and return them in case required. The next study the brands did was to change the strategy of stocks. Comfort fits collection and "active-wear" outgrew the formal sections in store. There was a change in customer psyche from touching and checking out various items to online research and offline purchase making omnichannel the new reality of fashion brands. Few brands did try online shopping options but they didn't get any response, so they are relying on platforms like Myntra and Amazon for selling their goods online. The festive season inspite of all odds saw an upward sale. The brands are turning towards AR, VR and AI to augment sales and understand or tap customer psyche.

Few of the visual references of brand preparedness for COVID 19:

Figure. Brand‟s welcome to the customers post lockdown 4

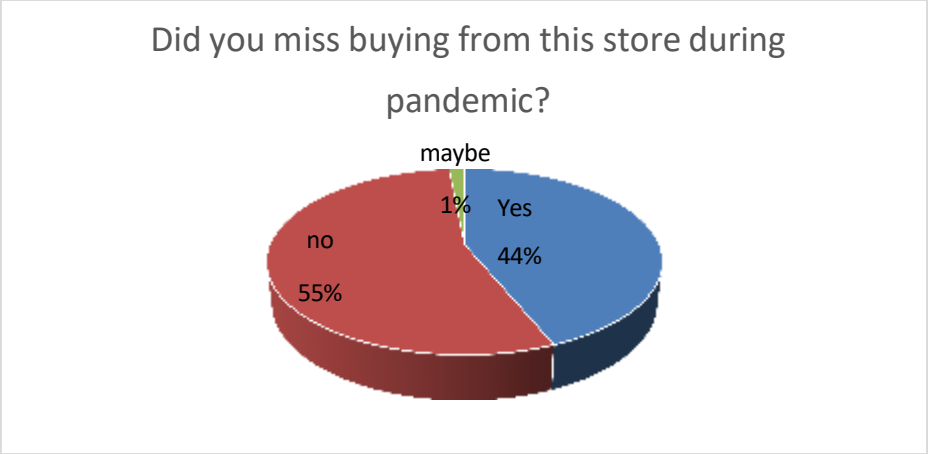
Figure 2. Health and hygiene care for customer

Figure 3. Mannequins with masks as reminders of COVID 19

Figure 4. Temperature check at entrance

Figure 5. Floor graphics for social distancing

Being locked up at home people had become dependent on online retail therapy. That became a challenge to many of the local brands to acclimatize from traditional to multi, omni-channel and social media marketing. This is also validated by the survey result:

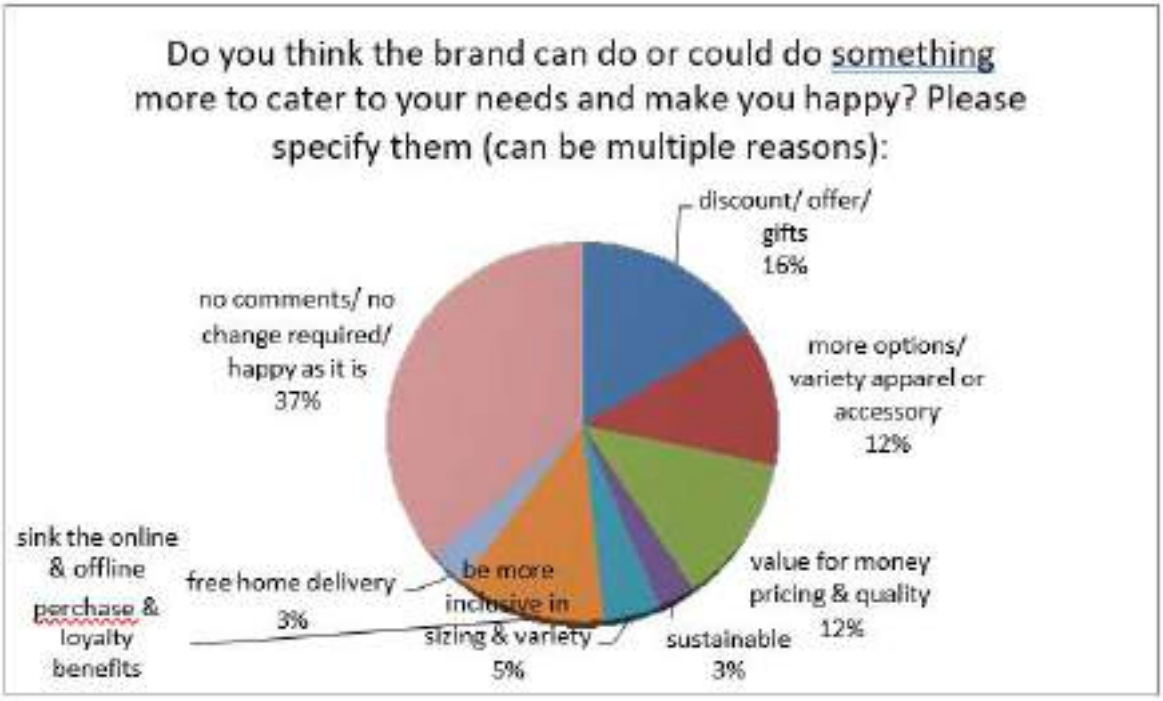


GRAPH 1: Human psyche regarding buying online vs. store

The survey was done pan India and it is interesting to note that people did not buy apparel and lifestyle accessories. There were umpteen reasons for the same: wanted to buy offline, apparel was not an essential commodity and its online delivery was also affected, online delivery did not reach out to towns and villages of India and most importantly loss of jobs and uncertainties of jobs.

GRAPH 2: Compensation for buying

Genius loci, resilience and sustenance would be the future. The brands need to look at a holistic approach: including psychic, physical and human components. It needs to look at customer satisfaction and happiness at both tangible and intangible level. These are some of the reasons for customer's desires for various brands whose names have been concealed.



GRAPH 3: Expectation from brand to make the customer happy

Conclusion:

The future of retails lies with AR, VR and AI. These three in place, reading customer preferences and dissatisfaction would become easier. Brands should work towards the same. However, when choosing a technology, be informed of its impact at all levels and apply them in moderation.

Review the appropriateness of the decision from time to time. Allow and accept changes as said by Skud of Play architecture. Human beings need to connect more psychologically rather than connecting just physically. Value relationship and work towards welfare of people rather than concentrating on acquiring only material wealth and "Plan for safe socializing rather than socially distancing and make buying an experience". These have been the observations of changes in spaces as a result of COVID 19.

Acknowledgement:

Since it is a new area, most of the matter has been primary data collected through webinars, interviews at stores, observations and surveys of customers. This huge number was possible with the help of students who are stationed at various parts of India due to the pandemic. I wish to thank and acknowledge each one of them.

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Dyeing for likes: a netnographic study of natural dyeing in the United Kingdom

Author

Beth Pagett,
Nottingham Trent University, Nottingham, UK

Corresponding Author: beth.pagett2020@my.ntu.ac.uk

Key Words

Craft, sustainability, more-than-human, dyeing, social media

Abstract

Before chemical dyes were first synthesised in the 19th Century, natural dyes created from flora and fauna had coloured textiles for thousands of years. As we look to mitigate the climate crisis by shifting to more sustainable modes of living and seek reconnection to nature, natural dye crafts are once again becoming popular. Natural dyes can produce stunning colour palettes created from a diverse and accessible variety of natural sources, using a multitude of different skills and techniques. The craft connects practitioners to their surroundings, linking them to other species and ecologies and offers an alternative vision for the production and consumption of textiles. This research seeks to understand contemporary dye craft practice in the UK, explore its sustainable potential and illuminate the human-nature connections that occur when we make 'with' plants. It focuses particularly on how closer engagement with the more-than-human might enable us to cultivate pathways towards a future that is more socially and ecologically sustainable. This paper presents the findings from the first phase of research: a netnography of natural dyeing in the UK. A selection of social media posts from Instagram, Twitter and Facebook were collected to represent each season over the course of a year and thematically analysed. The aim of this phase was to reveal more details about contemporary dye craft practice, including the techniques, purpose, resources, groups and people involved. Social media platforms create spaces for dyers to share methods and outcomes, resources, best practice and troubleshooting. The imagery and information shared on social media illustrates the ways in which dyers are engaging with their surroundings and the natural world through crafting. Within these social media spaces, botanical knowledge is being transferred from expert to novice and peer to peer, as dyers discover the qualities of plants through processes of experimentation and share their results with others. Additionally, dyers on social media express keen interest and concern about topics related to sustainability, often integrating these into their practice. The knowledge gathered in this phase of research was intended to inform the next stages, which include a survey to understand dyers' introductions to and motivations for natural dyeing, followed by a series of interviews with dyers and participatory visits. Further, this phase has begun to uncover the human-nature interactions that are occurring in the craft.

Introduction

Before chemical dyes were first synthesised in the 19th Century, natural dyes created from flora and fauna had coloured textiles for thousands of years. Natural dyes can produce stunning colour palettes created from a diverse and accessible variety of natural sources, using a multitude of different skills and techniques. As we look to mitigate the climate crisis by shifting to more sustainable modes of living and seek reconnection to nature, natural dye crafts are once again becoming popular

This paper presents the key emerging results from a study of social media posts about natural dyeing. It forms the first phase of my PhD research which seeks to understand contemporary dye craft practice in the UK, explore its sustainable potential and illuminate the human-nature connections that occur when we make 'with' plants. There is particular focus on how closer engagement with the more-than-human might enable us to cultivate pathways towards a more sustainable future.

Methods

Through analysing social media posts, I sought to learn more about how the craft is being practiced today, for example the plants that dyers are using, where and how they practice and the imagery and messaging that are being conveyed about contemporary natural dyeing.

Online platforms create spaces for natural dyers to share techniques and knowledge about the craft with each other. Dyers can access guides, methods, dye recipes, see samples of dyed fibres and textiles, watch content related to the craft and interact with a community of like- minded people, across a variety of different formats and platforms. This user-generated information is easily accessible and offers a window into dyer's current practice.

Netnography is a "qualitative, interpretive research methodology that adapts traditional ethnographic techniques to the study of social media" (Kozinets, 2019). It is an approach pioneered by Kozinets in 1995 and was primarily applied to consumer marketing research. Since then, numerous academic fields have sought to use methodological approaches incorporating data derived from online platforms including social media to further understanding of issues related to their fields (Williams et al., 2013; Hine, 2015). A limitation to obtaining data from social media is that it excludes those dyers who take part in the craft but either do not use or are not inclined to share their practice through social media. The demographics of social media users also varies across platforms; for example, although Facebook is the most used social media website across all age groups, 16–24-year-olds use Instagram more often than Facebook (Statista, 2022). These demographic variations amongst users will undoubtedly have influenced the type of content created and shared on each platform.

In total, I selected 150 social media posts to be included in the analysis and they were sourced from Twitter, Instagram and Facebook. I identified posts through a series of targeted searches using keywords and hashtags or through dedicated groups and filtered them to include only UK based accounts. The posts were collected across the months of September, December, March and June; to reveal how the practice changes throughout the year. I first captured the posts as screenshots and removed any identifying information (and will not directly quote the data). I then

coded the data in Atlas.ti and conducted a thematic analysis to allow me to identify, analyse, organise, describe and report the themes and patterns present within the dataset (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006; Nowell et al. 2017).

Emerging results & Discussion

Botanical Knowledge

Much of the content shared on social media related directly to plants and the natural world. Post authors demonstrated a wide range of knowledge relating to plant cultivation and preparation for dyeing, alongside results (commonly including images of dyed fabric samples) of dyeing with specific plants. Many contributors possessed deep knowledge about a plant's qualities and life; for example identifying when a fruit was ripe and what indicators suggested this, such as looking for colour changes. Others were able to recommend specific plant species to dye with and report their own experiences of engaging with them, offering advice and support on how to deal with them to achieve desired results. These examples highlight some of the encounters with the more-than-human that are integral to this craft.

Further, many dyers spoke of their enjoyment tending to their plants and finding a sense of hope and joy in their gardening activities, confirming that gardening was beneficial to their wellbeing. Visual imagery often included samples of dyed fibres/textiles arranged with the plants they'd extracted the dye from. These compositions drew attention to the relationship between the material artefact and the plant, which had become entwined and transformed through the process of dyeing.

In total, over 50 different plants or dye sources were referenced in the social media posts and Table 1 illustrates the ten most frequently cited. They demonstrate the enduring appeal of key historical dye stuffs, including Madder, Weld and Indigo. This information also provides an insight into which plants dyers are using in contemporary applications of the craft, these could be dye stuffs they are growing themselves, foraging for or purchasing.

Dye Source	Frequency
Madder	13
Indigo	8
Weld	8
Coreopsis	6
Marigold	6
Avocado	5
Onion Skin	5
Woad	5
Chamomile	4
Japanese Indigo	4

Table 1. A list of dye sources/plants and frequency of mentions in social media posts

Through social media, botanical knowledge is being transferred from peer to peer and expert to novice. Dyers are discovering the qualities of plants through processes of experimentation and practice and they are sharing their knowledge and dyeing results with others, spreading awareness of the craft and plant life. It's thought that there is a tendency for people to overlook the importance of plants, often referred to as 'plant blindness", a term coined by Wandersee & Schussler (1999). Raising awareness of the "fascinating aspects" and "importance of plant of life in the wider community" (Jose, Wu & Kamoun, 2019) through initiatives such as education (and I suggest, natural dyeing) is one way to overcome this tendency, and this knowledge is also thought to be significant in creating a more sustainable future (Sanders et al., 2015; Thomas, Ougham & Sanders, 2021).

Seasonality

Through collecting a sample of posts across the year, the seasonality of the practice was illuminated. The most evident displays of which were shared on Instagram in the form of visual imagery that shifted alongside the seasons; lush green foliage and blooming dye gardens at midsummer gave way to bark and lichen collected from crisp winter forests. The commentary accompanying the Instagram images on occasion referenced a dyer's need to plan their practice to account for the changing seasons. The slow nature of natural dyeing is also highlighted in the changing seasons as dyers work in partnership with nature: in spring dyers ask for advice and share plans for the growing season ahead, accompanied with imagery of seeds, then the first emerging shoots. They must wait patiently until the summer or autumn (sometimes of the next year) to use them in their practice.

Dyers were also able to observe and identify changes in a plants' dyeing qualities due to seasonal changes in sunlight, e.g. explaining how the strong summer sunlight had developed the dye pigments in plants they'd used.

Localism

Of the locations referenced, the most common were gardens, local areas and the home. Additionally, many dyers shared images of their dyeing 'setup': often dye pots on kitchen stoves in homes or camping stoves set up in gardens. Dyers spoke of venturing out into their local areas, searching for specific plants to make a colour they had in mind, or sampling the different vegetation to see what colour palette their local area could provide them. In contrast, social media provides a platform to share these local encounters with a like-minded, welcoming and far-reaching community. This theme of localism and small-scale production harshly contrasts the global dimensions of the fashion system and is associated with movements such as Fibershed, an organisation developing regional soil-to-soil textile economies (Burgess & White, 2019), of which natural dyeing is a key component.

Sustainability

Alongside the information about the dyeing process and the natural world, messages of sustainability are being communicated too. For some, natural dyeing was an opportunity to upcycle or rejuvenate existing clothing, whether that be garment dyeing old or second-hand clothing or dyeing thread to be used for mending or embroidery. Waste reduction and textile production with a low environmental impact were also something that dyers aimed for in their practice. For example, two dyers were concerned with reducing waste from the dyeing process and questioned what they could do with leftover dye baths or ingredients. Some suggestions included composting leftover dyestuffs or repurposing the dye bath for other fibers. Some of the plants/dyes mentioned e.g. onion skins and Avocado are sourced from food waste and one post featured natural dyeing as a strategy within a wider campaign aimed at a local reduction in food waste.

The relation to practices such as mending, upcycling, waste reduction and recycling suggests that natural dyeing is linked to other forms of alternative consumption. These different perspectives on textile production and consumption are crucial as we seek to address the disastrously damaging socio-environmental impacts of the current fashion system (Fletcher & Tham, 2019; Niinimäki et al. 2020).

Conclusion & further work

The social media analysis has revealed that natural dyers possess and develop detailed knowledge of plants through their practice and that they are embracing a seasonal, slow and local approach to making. In addition, dyers on social media are willing and able to share their knowledge and experience with others, furthering the practice and helping new dyers to navigate an expansive and complex craft in an accessible and amenable way. Through natural dyeing, practitioners are taking part in alternative ways of producing and consuming textiles.

This research phase has begun to uncover the human-nature interactions that are occurring in the craft by identifying the plants, collection practices, seasonal changes and methods that dyers have experienced and shared online. To develop a more detailed understanding of *who* dyers are, *how* and *why* they practice, a survey was launched in June 2021 seeking to expand on the knowledge of contemporary dye craft practice gathered in phase one. This will be followed by a series of interviews with dyers and participatory visits with an aim to focus on connections to/embodied interaction with plants.

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COLLABORATION AND THE REIMAGINED SURVIVAL OF THE CO-OPERATIV: an analysis of the challenges in sustaining a small business textile weaving industry in Botswana

Authors

Anne Peirson-Smith and Maureen Sindisiwe Kalane*,
Nottingham Trent University (NTU), University of Botswana*

Corresponding Author: anne.peirson- smith@ntu.ac.uk

Keywords

Botswana, Oodi weavers, textile craft industry, trade and development, Global South

Abstract

This presentation will focus on the complexities of the evolution and implementation of the local textile weaving industry in Botswana, a country located in Sub-Saharan Africa. In a move to reduce commodity dependency on the local, national and international vulnerabilities of its main export activity typically based on diamonds and beef, Botswana, a country of 2 million people, has attempted to develop and recalibrate its textile and garment industry sector over the past decade to diversify its export offerings and boost employment, especially in rural areas. The results of these trading efforts have displayed fluctuating outcomes on account of both macro- and micro- factors, gender dynamics, in addition to wider structural issues. The land-locked geographic location of Botswana, for example, yields challenges for textile and garment industry development given the lack of a seaport or a reliable source of natural fibres, thereby increasing dependency on its neighbours such as South Africa for wool and yarn supplies. Given that the textile and garment industries are often labour intensive, low skilled and rely on profit margins attached to the sourcing of cheap gendered (invariably female) labour, ethical issues inevitably emerge across the supply chain. Calls for a more equitable economic order based on fair labour and fair trade have emerged in response though the use of local co-operatives and corporate social responsibility driven support from local companies and some international bodies. In addition, the need to rethink the dominant neo-capitalist growth and profit formula linked to economic success also has gained traction in broader debates about the contemporary globalized textile and garment production system. In specific terms, this presentation will examine the case of the Oodi Weavers a largely female run textile co-operative situated in Botswana. This analysis will question if localized or regionalized textile initiatives are more relevant, ethical, balanced and sustainable as an alternative to a neo-colonial export-dominated approach in the interests of protecting and fulfilling real human needs located within local communities.

Introduction and Context

This paper focuses on the complexities of the evolution and implementation of the local textile industry in Botswana, Sub-Saharan Africa. In a move to boost local commerce and reduce commodity dependency on the local, national and international vulnerabilities of its main export activity typically based on diamonds and beef, this country of two million people, has attempted to develop its textile and garment industry sector over past few decades to diversify its export offerings and boost employment, especially in rural areas. The results of trading efforts have displayed fluctuating outcomes on account of both macro- and micro- factors, in addition to wider structural issues. Given that the textile and garment industries are often labour intensive, low-skilled and rely on profit margins attached to the sourcing of cheap (invariably female) labour, ethical issues inevitably emerge across the supply chain.

Calls have emerged for a more equitable economic order based on fair labour and fair trade in response though the use of local co-operatives and corporate social responsibility driven by support from local companies. In addition, the need to rethink the dominant neo-capitalist growth and profit formula espoused by the Global North, linked to economic success in 'glocal' spaces, also has gained traction in broader debates about the contemporary globalized fashion system. In specific terms, using a case study of a weaving cooperative, the Oodi Weavers, this paper questions if localized or regionalized textile and clothing initiatives are more relevant, ethical, balanced and sustainable as an alternative to a neo-colonial export- dominated approach operating in the interests of protecting and fulfilling real human needs located within local communities in the Global South, or if a hybrid community based and culture-oriented development initiative offers more sustainable solutions.

Small is beautiful?

The notion that small businesses offer a viable, preferable alternative to larger scale commercial operations in a globalised and industrialised world has gained traction and increasing relevance across the past two decades (Schumacher, 1973), while also projecting forwards into concerns about managing a disrupted post-Covid future. Prescriptive business and management approaches suggest that smaller commercial units are, and will be more creative, agile and efficient enabling innovative approaches to doing business resulting in high quality outputs and are embedded with the ability to adapt and survive in volatile markets (Roper, 1997). While the utilisation of local labour and resources adopting alternative business models, such as communal ownership and cooperative systems, are considered by some as preferable future alternatives as an antidote to a centralised global capitalist system driven by dominant producers operating across inefficient, fractured supply and value chains. This latter approach, in foregrounding concerns for people and planet before profit, has long been a hallmark of development aid initiatives in the Global South.

At the core of national cultural formation lies a tension between positive socio-economic change aimed at elevating and assuring the quality of life for local communities premised on better living standards for local communities versus preserving the social stability and equitable ownership of local culture. In the desire for economic growth social and cultural equity has

been sacrificed by developing countries located in the Global South. This situation is pressured by external forces driven by ethnocentric and discriminatory assumptions that falsely considered imported commercial approaches to be superior, less resistant and assured modern forms of progressive development based on the promise of economic success and behavioural change in the absence of tangible operational structures, or even where indigenous systems exist, including technologies, institutions, or knowledge systems.

Meanwhile, social scientists and educators have foregrounded the need to adapt values and beliefs through training, upskilling or re-socialisation programmes in the interests of innovation, progression and modernity. The economic essentialist versus cultural adaptivity approaches represent extremes, in both theory and practice has a more viable approach located somewhere between the two on a sliding scale of local cultural adaptation (Kosters, et al. 1996).

The development literature polarises into two camps with the development agency view on the one hand premised on using local traditional culture and its varied manifestations as a means of activating development strategies in the indigenous-culture-for-development approach (Kidd & Coletta, 1980). On the other hand, scholars and local groups operating at ground level oppose this approach as being exploitative of local culture and serving external interests, preferring to promote a popular education/structuralist approach (, whereby local community groups determine how culture could be used and developed, thereby avoiding unequal power relations and manipulation by dominant global structures.

The cultural-functional continuum offers more viable, holistic, people-centered solutions at least for initiatives locating the community at the centre of development and as the main unit of intervention, founded on an understanding of traditional, local cultures, formal and informal associations and the flow and interface of influence between grounded socio- cultural systems and an accommodation of the links and gaps between cultural and structural change.

Analyses introducing sustainable change into existing social systems globally across time, space and place consistently highlight the importance of incorporating local cultural patterns and environmental considerations at the risk of developmental initiatives. The foundational concern of the paper is to highlight the importance of preserving and adapting local culture in terms of knowledge, skills, technologies, values and attitudes that legitimise and validate the role and lives of the local inhabitants in development projects that can inform, educate, engage and empower in enabling the expression through the creation of products that communicate symbolically and express different versions of perceived reality (Rogerson & Rogerson, 2011), as in any form of material production such as the traditional textiles in the Oodi weavers case. Equally, material production is also considered to be a critical resource for trade and development and an outlet for cultural heritage (DeMotts, 2017).

Oodi Weavers Case Background

The Lentswe- la-Odi (Rocky Hills of Oodi) Weavers were founded as a Swedish Aid Project in 1974 in the village of Oodi by experienced weavers and aid workers, Ulla and Peter Gowenius, with the intention of providing economic development opportunities intended to

generate income and engender economic self-sufficiency and support for the wider village of 2000 people, building on a local artistic traditional of craft artefacts depicting local life by training the community to spin, dye and weave material artefacts such as tapestries, rugs, mats, wall hangings and blankets. Following approval from the village Chief Lechwe and the Botswanan Government, and financial support the couple themselves and the Botswana Christian Council the largely female workforce of weavers was trained, and the free-standing and vertical shuttle looms built by village men (Mushonga, 1977). The land-locked geographic location of Botswana, devoid of a seaport or reliable source of natural fibres, was then dependent on its neighbour, South Africa for wool and yarn supplies which were carded, spun, dyed and woven in the village (Terry, 2000).

Methodology and data collection

The case analysis is based on a site visit from one of the research team based in Botswana who interviewed the workers in their own language, supplemented by company records and reports dating from the company's inception in 1970s to elicit their perceptions of how the company had evolved and their role in that development based on their own lived experiences. Data was transcribed and analysed according to themes that emerged in framing the Oodi Weavers story to date and to interrogate the effectiveness of local development based on creative labour and material outputs and the role of cultural accommodation, gendered empowerment, collaboration and leadership.

Findings and Discussion

Gendered strength: economic, creative and knowledge capital

The remaining female workforce, many of whom had been there since the start of the company were proud of their past achievements as a successful weaving cooperative, creating employment, contributing to tourism and disseminating the high-quality material culture of Oodi for both the export and domestic markets alike. They reflected on the strong sense of community in the factory among the Oodi weaving sisterhood and the sense of creative achievement that had been afforded in spinning, weaving, dyeing and creating the colourful tapestries that embodied local and regional stories and legends. The technical and creative textile competencies in addition to the accounting, business and managerial skills imparted by the original founders, and acquired by some workers were valued, while they also acknowledged that salaries had provided financial support for their families and a sense of purpose and achievement in their lives overall. The workers acknowledged that in its heyday in the 1980s and 1990s, and showroom were a hive of industrial output by the 40-50 staff satisfying demand for their unique, local woven craft artefacts (Etherington, 1982).

Collaborative support and cooperative freedoms

The workers acknowledged that from the outset external collaboration had kickstarted the trade and development initiative yet had worked as they saw it from inside-out, from the founders to later assistance from the 1990s, including the Japanese Development Assistance Programme, which upgraded the looms and introduced new textile design methods, to input of an American Peace Corp. volunteer who through marketing efforts to tourists and regional retail outlets had enabled a fourfold expansion of the business with resulting promotional media coverage, all collaborators had followed the lead of the founder in being culturally and community-led and focussed enabling the workers to acquire skills that matched their individual competencies and ambition and encouraged them to make sense of their lives in the aesthetic content of the woven tapestries and pieces based on mythic legends and contemporary political events. Equally, workers had been encouraged to take responsibility for the creation and management of their business operations via a cooperative system, enabling the workers to collectively buy out the business, encouraged by the Swedish and Botswanan governments when the Swedish founders left once their investment was recouped. However, the weaving Cooperative is not without its problems, including the shift in the pay system from a daily fixed rate based on production hours and final work quality, judged by peers, to a piece rate based on the number of metres of textile produced each month.

Recognising cultural and business challenges

Despite representing a trade and developmental success story premised on enhancing local culture as community-controlled development, issues have accompanied the evolution of the weaving cooperatives. Primarily, this was a recognition that without external leadership for management, design, prosecution and marketing the cooperative lacked direction and the ability to thrive. The weavers are a diminishing ageing group now whittled down to as handful of dedicated workers, many of whom have been there from the outset, creating their textiles more slowly given the inefficient looms and the lack of capital flow to invest in pricey raw materials, such as wool, for production. Equally, many of the looms are inactive and the workers are not paid a full or living wage, with income from sporadic special orders being divided among the workers, with proprietary accounting systems being long forgotten and a cash-only business limiting online retail engagement, while pricing is an issue with uncertainty among the Cooperative about the current value of products and associated price points. The labour-intensive, handmade textile production process lacks longevity and is not attracting a younger workforce to train and employ. The latter are now more educated and gravitate to urban professional jobs or work in government departments in Gaborone or larger factories in Francistown with higher wages and assured income and career progression.

Conclusion

While the future for the Oodi Weaving Cooperative remains very uncertain, its longevity to date is a testament to the motivation and sustained efforts of a committed, core working team

of women weavers, whose creative and technical labour espouses their personal identity, increasingly in name and possibly because they have no workplace alterative. Offers to buy out the company have been met with resistance by the worker Cooperative determined to retain their independence from external intervention, which has also caused tension among the remaining workforce which further weakens its market position. The original small-scale, community-centered industrial experiment at Oodi was founded on consciousness raising, combined with technical, business and creative upskilling having survived four decades, albeit now in diminished form. In sum, it represents the potential, but increasingly compromised, sustainable power of material culture to attract attention and admiration, while consequently generating economic, educational and development support for a small-scale, traditional craft community when connected-up and working collaboratively.

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THE CHALLENGE OF SUSTAINABILITY TEACHING IN FASHION: a method merging practitioners and researchers

Authors

Silvia Pérez-Bou, Pedro Mir, Patricia San Miguel and Teresa Sádaba,
ISEM Fashion Business School, University of Navarra, Marquesado de Santa Marta 3, 28027 Madrid, Spain

Corresponding Author: sperezb@unav.es

Keywords

Fashion sustainability, learning by doing, innovation, co-creation, educational design

Abstract

Sustainability is becoming a major issue in teaching and research in several industries and universities syllabus. The article is an outcome of a key element of the University of Navarra's strategy for 2025 that includes good practices through teaching in sustainability. Authors ideated a project to elaborate teaching material (that might serve as a basis for research) on sustainability in the fashion industry, with the special executive program called The Right Fashion and its students. This program enables to have an overview 360º of the different aspects that may contribute to more sustainable production, distribution, and consumption, and to tackle the main challenges. The project uses a learning-by-doing methodology that can be implemented when participants are at the same time, professionals and students. The dialogue and discussion among this kind of student are a valuable asset to improve the teaching activity and the level of the classes. This paper shows the work in progress of a project that is being carried out at ISEM Fashion Business School to create both with the students and professors teaching material about sustainability in fashion, based on practical cases, that may serve to enrich the academic conversation and the industry practices and policies. The project began with the compilation of the final works presented by the students in the edition of 2019. These works are serving as an element of discussion for the students of the edition of 2022 who, at the same time, are preparing new cases as their final programme's projects. The projects are elaborated by the students with the guide and support from their professors during the programme. The experience is the elaboration of the material co-created by professors and students, having into account the specificity of these students (most of them working on sustainability positions within the fashion industry). Therefore, learning by doing is also a useful path for improving the teaching experience. As the project is in progress, this is a developmental paper. This material could be nourished by creating a database with ideas and materials from other universities working on the same subjects. Presenting it at the IFFTI Conference may provide the opportunity to create synergies among researchers' communities.

Introduction

Teaching sustainability to fashion industry practitioners is a challenge because of the novelty and the quickness of the changes, the scarcity of academic and updated business cases, and, overall, the number and variety of subjects that need to be addressed.

At the time of writing this paper, Harvard Business Publishing offered 1,565 cases related to sustainability, from which only 24 referred to fashion companies. Even recent publications about fashion business cases (Burns et al., 2021), dedicated 7 out of 43 cases to sustainability. Although this material available offers good possibilities, a lot of topics are not covered: health and safety of products, reputation, risks and crisis in upstream factories, extended producer's responsibility, etc.

The universities are preparing new professional profiles for the fashion industry and the learning process has to be managed according to these new challenges (Marques and Moschatou, 2017:1). Some experiences of generating bonds between companies and academia have been applied until now with good results. Lutenberg (2020) offered to his master's students to develop proposals from SMEs as their final project, while interacting with the companies, and it proved to be beneficial for both SMEs and students; although it was not referred to the fashion industry but to SMEs looking for electronic engineers.

Learning by doing involves self-experiences, acquiring independent learning skills and practices (Noorkartina et al., 2015), and exposure to the business environment makes students more confident about their own abilities of becoming entrepreneurs (Linan et al., 2011).

The fashion industry is facing the challenges that sustainability arises involving multidisciplinary teams, as well as managers trained with a broad scope. Sustainability was, after digitalisation, what fashion executives most cited in 2021 as an area of growth (BoF, 2021) and what would allow companies to turn potential financial, social or environmental risks into opportunities Arici & Lehmann, 2020).

This developmental paper aims to share the project that is being developed at ISEM Fashion Business School to co-create teaching materials to train practitioners for a more sustainable and responsible fashion. The material is prepared as case studies, as they are a powerful tool to learn and apply concepts introduced in courses to real-life situations and dilemmas faced by professionals and companies (Burns et al., 2021:4). To share it with other academics in this initial phase allows the project to be improved with the comments and feedback from them.

Project Justification

a. Scope of the project:

The Right Fashion Programme at ISEM Fashion Business School offers its Degree of the University of Navarra, entitled "Expert in Sustainability in Fashion Companies", consisting of fifteen ECTS (European Credit Transfer and Accumulation System, where each ECTS credit is equivalent to 25 working hours).

This programme is the result of many discussions with professionals of the fashion business (having occupied Sustainability Manager positions), academics (with diverse backgrounds coming from different universities), manufacturers and providers, from July 2017 on. It can be defined as a programme offering a 360º overview of the sustainability challenges, upstream and downstream the value chain in the fashion industry.

This program has already been offered during three academic years with an excellent reception among professionals in the sector. Thirty students have followed it in past editions, and fifteen are following in 2022. The time to make a qualitative leap and start preparing teaching material (that might be used as a research base) has come. This teaching material is aimed not only for the students of the programme but for the rest of the academic community and to be transferred directly to the business tissue.

a. Description of the situation to be improved:

This programme is aimed to train professionals from fashion companies directly concerned with sustainability at the level of management, design, operations, purchasing, etc.

In the first edition, students were asked to develop a project based on a real case, applying the concepts learned during the course. As a result, ten case studies were presented with solutions to real problems that occurred in their companies or others. To name just a few: how to resolve the crisis caused by the fire at a supplier factory in Bangladesh; how to handle the complaint of a customer who has received an online order with clothes with bloodstains; which was the reputational impact on fashion brands after the collapse of Rana Plaza building in 2013; what to do when jeans have produced permanent blue stains on a child's knees, etc. In the second edition of the program, due to agenda issues, this type of presentation was not planned. The students of the third edition of the programme in 2022 are working on individual or groups projects in which apply the knowledge acquired, as a relevant element of the process of training.

The approach of The Right Fashion program (addressing sustainability from scientific parameters -including experimental, social and ethical sciences- and with a 360º vision), and the participation of professionals of the fashion industry as students, provide an exceptional opportunity to develop training material, among teachers and students, which can serve as a basis for future courses and to influence the academic and general conversation on the subject, which sometimes lacks depth or has biased approaches.

b. Proposed measures:

The first step is to make a compilation of the projects presented at the first edition of the Right Fashion, with the consent of their authors and the necessary adaptations (e.g., see if they allow their brands to appear or not, if there is confidentiality, etc.). This work of collecting previous projects from 2019 is parallel to the one that the students in 2022 are doing: they started in January to elaborate individual or group projects on sustainability, tackling their concerns or aspirations, under the guidance of a professor from the program. The idea is to build on the

creation of original and updated material, to be published as a manual, or to constitute a repository of cases, etc., working together students (professionals of the fashion industry) and professors.

This means foreseeing dedication on the part of some professors to the direction of these works and a later task of selecting and editing them in a meaningful context.

c. Objectives and measurable results expected

The objectives are to prepare at least twenty cases on sustainability among the projects presented by the students in 2019 and those that will be presented in June 2022. The first edition will be prepared during the second semester of 2022. A first trial of the cases presented in 2019 will be done with the students taking the programme in 2022, to check it they are practical, complete, etc., or they need improvements. The same process will follow the material prepared during 2022: it will be used with the students of the Right Fashion Programme in 2023, in order to test the material and to add further enhancements.

How Will the Achievement of the Project Objectives be Measured?

The proposed objectives are easy to measure because they consist of the elaboration of teaching and learning material. The usefulness of having this material could be measured with a focus group with the students of the 2022 edition at the middle of the program (in March, after having used the cases of 2019), and with a satisfaction survey at the end (once they have also written their own cases in June 2022). During the 2023 academic year, once prepared the material and made it available to the upcoming students for that edition, the usefulness of the same could be measured with the students of that edition, using it as teaching material.

Means and Tools to Implement and Develop the Project

Dedication time is required both from the project director to compile previous material of 2019 and from the professors to guide and direct new projects in 2022. There is also the need to ensure that new student's projects cover different aspects related to current sustainability challenges. The material would be published digitally for students and an attempt would be made to disseminate it academically, through articles in journals or communications at conferences.

Temporary Planning

To describe the phases and establish the chronogram of the project, we need the continuity of the Right Fashion programme during some academic courses:

Phase 1: Collection of the projects developed in 2019 and consultation with the internal department of our university on Quality and Innovation regarding intellectual property issues, permissions, etc. To use these materials in the preliminary edition with the students taking the Programme in 2022 (January 2022 – July 2022).

Phase 2: Right Fashion 2022 students start their projects, with the guide of their mentors during the programme (January 2022 - June 2022).

Phase 3: Presentations of the final projects of the students 2022 (June 2022).

Phase 4: First edition of the projects complied during these programmes and preparation of the material for its dissemination (July - December 2022).

Discussion

This material result of the collaboration of fashion professionals (designers, buyers, managers, etc.), and professors in the context of The Right Fashion Programme, aims to be useful for teaching sustainability in High Education and longlife learning. As the students (professionals) choose real challenges and problems they need to face to in their current works, the cases they may write with the professors will be updated material to enrich the process of learning and teaching. This material could be enlarged with the collaboration of other universities well connected with fashion companies.

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THE IMPACT OF COVID-19 ON FASHION CONSUMER BUYING PERCEPTION

Author

Sushil Raturi,
Professor, Department of Fashion Management Studies, National Institute of Fashion Technology, Mumbai, India

Corresponding Author: sushil.raturi@nift.ac.in

Keywords

Covid-19, Buying behaviour, need based buying, value for money, home grown brands, basic fashion categories, essential and non essential products.

Abstract

The Pandemic in the form of COVID-19 has created a situation in social , economical and business sectors which was never thought of and never experienced. The COVID-19 crisis which started in India in the second week of March 2020 affected all the citizen in multiple fronts be it physical, emotional, social, spiritual, financial. The Indian retail business has also been hit hard by the pandemic. In this period of lockdown and ease of lockdown the discussion on how customers will behave post COVID-19 in terms of their fashion buying perception where broadly classified in two categories .There are customers who believe that post lockdown or post easing of lockdown consumers will be engaged in sensible buying, more inclined towards need based buying i.e. fulfilling their basic essentials rather than aspiration buying. While the other category of customers is those who believe customers will be back to normal i.e. endless and mindless buying. But this outcome was on the basis of discussion, brainstorming with a select group of individuals as customers, business practitioners and it presents only a qualitative outline of the impact of the current Pandemic on customers and retail business. In the absence of quantitative data the outcomes cannot be validated. Thus an in-depth study was conducted to determine how the fashion market dynamics has changed in COVID 19 situation (during lockdown, easing of lockdown and post lockdown) as compared to pre Covid-19 situation and to understand Impact of Covid-19 on the buying behavior of Indians as customers. The study was conducted in India across major retail growth centers and primary data was collected from 5500 fashion customers using questionnaire method of data collection. The study clearly brought out that post COVID-19 customers buying perception for fashion product changed in terms of their inclination towards online shopping; value for money home grown brands and basic fashion product categories.

Introduction

The pandemic in the form of COVID-19 brought challenges for the fashion Industry business globally. The lockdown and maintaining of COVID -19 protocols resulted in changes in consumers' daily lives and consumption pattern. Due to this a shift in types of commodities bought by customers were observed wherein more inclination towards essential product and less towards non essential and discretionary purchases were observed (Arora , 2020; Knowles et al., 2020). Buying of clothes became discretionary purchase, resulting in huge loss to the fashion industry.

Census Bureau data released in mid-April 2020 indicated that clothing sales dropped by 50.5% (Callahan, 2020). According to McKinsey , 2020 due to the pandemic the fashion industry's economic profit dropped by 93% in 2020.

Researchers have also pointed out at opportunities brought by the pandemic for brands as it has produced rapid, sustained shifts in environments, markets, and consumers' needs and wants (Knowles et al., 2020).

Under a normal circumstances it is difficult to gain attention of consumers' and influence their buying pattern and preferences but when disruptions occur in their life they explore change in consumption patterns , needs , wants and buying behaviour and are more prone to new interventions by brands (Andreasen, 1984; Moschis, 2007).

The pandemic gave an opportunity to study consumer changes in lifestyle and consumption patterns with reference to fashion business wherein they might have practiced improvisations, and developed new spending patterns and consumption habits in clothing consumption while going through the extended lockdown and slow reopening (Kirk & Rifkin, 2020; Sheth, 2020).

During restrictions on moving out and social distancing due to pandemic social media platforms were the medium to share and purchase their essentials and other consumptions (Depoux et al., 2020).

Meanwhile, the COVID-19 outbreak gave researchers scope to research on use of social media data to examine public perceptions, beliefs , issues related to pandemic (Brough & Martin, 2021; Nabity-Grover et al., 2020; Naeem, 2021).

Research studies in past have investigated how consumers change their consumption patterns and buying behaviors during expected life events and transitions (Koschate-Fischer et al., 2018; Lee et al., 2001; Mathur et al., 2003) and unexpected life events like natural disasters and social crises (Liu & Black, 2011; Liu et al., 2012).

Sneath et al. (2009) researched on Hurricane Katrina affected consumers and found that the disaster-induced stress led consumers to impulsive and compulsive buying behaviors as coping responses to manage their emotional states, recoup losses, and restore their sense of self. In case of financial stress caused by economic challenges or a lack of resources, consumers cope with hardship by changing their established purchasing patterns to reserve resources. Lee et al., 2001; Mathur et al., 2008 have found that consumers tend to be less wasteful by weighing and discussing their purchase decisions more often with their spouses, becoming more

knowledgeable about various products and brands, and judging products and services more wisely.

During Pandemic researchers have identified different shopping patterns i.e panic buying, hoarding, rejecting (e.g., in-store shopping), changing discretionary spending and shifts in consumer mindset and focus on function, loss of interest in status-driven purchases, and interest in how the companies behind the brands are treating their employees (Knowles et al., 2020).

A research study by Sheth , 2020 brought out that the pandemic has significantly disrupted consumers' fashion clothing consumption. Since there were no occasions happening the purchase of such product category was not happening.

The current study is about a view point to examine consumers' responses to fashion product shopping post COVID-19 global pandemic and see whether it significantly varies with consumers fashion product shopping in pre COVID -19 era. The researcher formulated research questions for the study : 1.) Is there a change observed in consumers buying behaviour with reference to format i.e offline and online in pre and post covid -19 era. 2)Was there a shift in fashion buying in terms of brands in the pre and post COVID-19 era 3) Was there a shift in fashion buying in terms of essential and non essential fashion product categories in the pre and post COVID-19 era.

On the basis of Research questions formulated , the Research Objective was developed as follows:

Research Objectives

To study Indian customers' Fashion buying behaviour in Pre COVID-19 era and Post COVID-19 era

Hypothesis

On the basis of research objective hypotheses were formulated which are as:

H1:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping.
H2:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands .
H3:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories .

H4:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping.
H5:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands .
H6:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories.

Methodology

The researcher thought about study in March 2021 and data collection was done during May – July 2021 . Primary Data was gathered using Online Personal Interview as a mode of data collection using structured questionnaire .The major source of secondary data in the review of literature were research papers published in National and International Journals. The sampling type for the viewers' was Non Probability Sampling method. Within Non Probability sampling method, judgmental sampling method was used. The sample size for viewers' survey was 5750, of which after editing 250 responses were processed for analysis. The sampling frame comprise of individual male and female in the age group of 18-50 years, residing in metro cities and are in the social and self esteem needs of Maslow Hierarchy of needs. The Primary data from viewers were collected from Delhi, Mumbai, Chennai, Bangalore and Hyderabad as per Table 1 below.The rational of choosing the sample from these cities are during pandemic these cities accounts for more than 50% cases and are also major fashion consumption centres and fashion retail growth centres.

S.No	City	Number of respondents
1	Delhi/ NCR	1500
2	Mumbai	1500
3	Bangalore	1500
4	Chennai	500

5	Hyderabad	500
	Total	5500

Table 1. City wise Sample size for Viewers survey

The researcher has used structured questionnaire with close ended questions, Likert scale questions and respondents profile in terms of demographic, geographic, psychographic and behavioral characteristics. This sample is true representation of the samples chosen from the cities as mentioned above.

After developing questionnaire and before starting the survey, a pilot test was conducted to find out whether respondents are comfortable to answer the questions. It was also tested to see if they understand the questions in terms of language and technicalities. The pilot testing was done by interviewing 100 customers whose profile matches with the profile of the respondents who were in the sampling frame of the research study. On the basis of problems found out while filling the questionnaire, changes were made and a final questionnaire was prepared for the Interview. The data analysis was done using frequency table, means and t test using SPSS 18.0 Version.

Analysis

The customers' perceptions were studied to determine influence of COVID-19 on their fashion buying behaviour. The opinion of viewers was sought using five point Likert scale. The analysis of the opinions of the respondents on these five attributes is presented in Tables below.

	Pre COVID-19		Post COVID-19	
Customers Inclination towards online shopping	Frequency	Percent	Frequency	Percent
Strongly Disagree	2159	39.3	360	6.52
Disagree	1289	23.4	440	8.00
Neutral	423	8	1000	18.20

Agree	730	13.3	750	13.64
Strongly Agree	899	16	2950	53.64
Total	5500	100	5500	100

Table. 2 Customers Perception on "Customers inclination towards online shopping in Pre and Post COVID-19 era"

As shown in the table above more than 60% of the respondents were in disagreement to the opinion that Customers were more inclined towards online shopping in Pre COVID-19 era while 66% of the customers were in agreement that they became more inclined towards online shopping post COVID-19

Customers Inclination towards Value for money homegrown brands	Pre COVID-19		Post COVID-19	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	3370	61.3	260	4.7
Disagree	965	17.5	290	5.3
Neutral	421	7.7	355	6.5
Agree	230	4.2	1644	29.9
Strongly Agree	514	9.3	2951	53.6
Total	5500	100	5500	100

Table. 3 Customers Perception on "Customers Inclination towards Value for money homegrown brands in Pre and Post COVID -19 era"

As shown in the table above more than 75 % of the respondents were in disagreement to the opinion that Customers were more inclined towards value for money homegrown brands in Pre COVID-19 era while more than 80% agreed that Post COVID-19 they became more inclined towards value for money homegrown brands.

Customers Inclination towards Basic Fashion categories	Pre COVID-19		Post COVID-19	
	Frequency	Percent	Frequency	Percent
Strongly Disagree	2423	44.1	322	5.9
Disagree	1765	32.1	722	13.1
Neutral	799	14.5	721	13.1
Agree	216	3.9	1113	20.2
Strongly Agree	297	5.4	2622	47.7
Total	5500	100	5500	100

Table. 4 Customers Perception on customers Inclination towards Basic Fashion categories in Pre COVID -19 and Post COVID-19

As shown in the table above around 76% of the respondents were in disagreement to the opinion that Customers were more inclined towards Basic Fashion categories in Pre COVID-19 era while more than 65% agreed that Post COVID-19 they became more inclined towards Basic Fashion categories..

The discussion of frequency tables above clearly indicates that COVID-19 has influenced the buying behaviour of respondents as has been clearly brought out in the 3 tables above where there is clear difference in their perception towards the three statements in pre and post COVID -19 era . But the above difference in perception in these 2 era needs to be statistically validated hence the above result were also tested using Mean values of the opinions. The scales used were 1 to 5 (where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is Strongly Agree). A mean value above 3 indicates that the opinion is averaged towards the agreement on the opinion.

The following table indicates mean values in Pre COVID-19 and Post COVID-19 era

Statements related to Influence of COVID-19 on customers buying Attitude	Pre COVID-19	Post COVID-19

	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Customers are more inclined towards online shopping in Post COVID-19 era compare to Pre COVID -19 era	5500	2.40	1.14	5500	3.9	1.09
Customers are more inclined towards Value for money homegrown brands in Post COVID-19 era compare to Pre COVID -19 era	5500	1.80	1.07	5500	4.2	1.17
Customers are more inclined towards Basic Fashion categories in Post COVID -19 era compared to Pre COVID-19	5500	1.9	1.02	5500	3.90	1.09

Table 5. Customer perception –mean value in Pre COVID -19 and Post COVID-19

As can be seen from the table above in all the three statements in Post COVID-19 era the mean value is above 3 which is an indication of agreement of the respondents to the statements that:

- Customers are more inclined towards online shopping in Post COVID-19 era compare to Pre COVID -19 era
- Customers are more inclined towards Value for money homegrown brands in Post COVID-19 era compare to Pre COVID -19 era
- Customers are more inclined towards Basic Fashion categories in Post COVID -19 era compared to Pre COVID-19

However , in Pre COVID-19 scenario the mean values for all the 3 statements are less than 3 which indicates that customers are in disagreement to these statements.

The opinions were finally tested for significance. To test the opinions for the significance, the following hypothesis were used.

H1:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping.

H2:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands .

H3:In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories .

H4:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping.

H5:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands .

H6:In Post COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories .

Test Value =3			
	T	Df	Sig. (2-tailed)
In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping	-11.119	5499	.000
In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands	-12.137	5499	.013
In Pre COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories .	-12.229	5499	.000

Table. 6 T test for Fashion customers perception on Fashion buying in Pre COVID-19 era

Test Value =3			
	T	Df	Sig. (2-tailed)
In Post COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping	16.123	5499	.001
In Post COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands	14.111	5499	.011
In Post COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories .	13.339	5499	.002

Table. 7 T test for Fashion customers perception on Fashion buying in Post COVID-19 era

Results

On the basis of the T test results above in Table 6 and Table 7, the following can be interpreted for the hypothesis.

- In Pre COVID -19 era Fashion Customers were not significantly inclined towards buying Fashion Product through online shopping.
- In Pre COVID -19 era Fashion Customers were not significantly inclined towards buying Value for money homegrown brands.
- In Pre COVID -19 era Fashion Customers were not significantly inclined towards buying Basic Fashion categories.
- In Post COVID -19 era Fashion Customers were significantly inclined towards buying Fashion Product through online shopping
- In Post COVID -19 era Fashion Customers were significantly inclined towards buying Value for money homegrown brands.
- In Post COVID -19 era Fashion Customers were significantly inclined towards buying Basic Fashion categories.

Thus it can be interpreted from the results above using frequency , means and T test results that in Pre COVID-19 era Fashion customers were not significantly inclined towards online shopping , Value for money homegrown brands and Basic Fashion categories but in post

COVID-19 they significantly inclined towards online shopping , Value for money homegrown brands and Basic Fashion categories.

Discussion and Conclusions

In this study, the influence of COVID-19 on customers Fashion buying behaviour was examined. There are many studies done during pandemic and after pandemic on influence of pandemic on customers buying of FMCG, electronics and specialty product category but lack of research about the influence of COVID-19 on customers Fashion buying behaviour in context of Indian retail Industry in different parts of India was not found . Thus researcher undertook this study and developed the research paper.

The author reviewed the research work done by various researchers in this area and compiled the same in the form of review of literature. On the basis of review of literature, the gap was identified and research objectives , hypothesis and research methodology were formulated. This was followed by primary data collection where customers were interviewed through structured questionnaire to capture their buying perception of fashion product category in Pre and Post COVID-19 era.

The findings brought out that there is a significant influence of COVID-19 on customers buying behaviour with reference to their inclination towards online shopping of fashion products, inclination towards basic fashion categories and inclination towards value for money home grown brands.

The Indian retailers and Fashion brands should realize that the fear of pandemic has significantly influenced the fashion consumers buying behaviour and hence they should make significant changes in their business models in terms of retailers making its products available online if not at present. Also the retailers should add basic fashion product categories more in their merchandise mix. The home grown brands which are considered by customers as value for money brands should be encouraged by retailers and give them significant space in their shelf and in online format.

This study is equally encouraging for the start up as research have brought out that customers are getting inclined towards value for money home grown brands. This is the right time for entrepreneurs to enter into fashion business by creating economical, basic fashion categories which is conceptualized, developed and produced at home.

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KnitWell: recording emotional state through creative, open-ended knitting practice

Author

Emily Joy Rickard,
Nottingham Trent University, Nottingham, UK.

Corresponding Author: EJRICKARD@gmail.com

Keywords

Knitting, Craft, Wellbeing, Storytelling, Visualising Mental Health

Abstract

Research into the effect of craft practice on well-being suggests that craft has a positive impact on self-belief, self-worth, and well-being. This could explain why the UK is embracing a crafting revolution during the Covid-19 pandemic. KnitWell, a practice-based project, uses a 'free knitting' approach which explores choices of yarn, colour, gauge, and stitch in an open ended and creative way. This 'free knitting' approach is used to create a knitted journal, as an intentional parallel of initiatives which use 'free writing' with the aim of improving mental well-being. Somebody exploring the KnitWell approach might knit once a day for a month, to capture their emotional state at the time of knitting like a form of daily journaling. This doctoral research investigates the KnitWell methodology with 12 participants who undertake three month-long phases of activity, creating a daily knitted journal for a period of one month in each phase. The research is further complemented by autoethnographic enquiry by the researcher. KnitWell poses the question: what opportunities and limitations can this style of knitting offer as a means of recording an emotional state and what (if any) effect this activity may have, when undertaken daily, on mental well-being? Separate to this project, the researcher has several different experiences within the knitting industry, these include owning a yarn shop and developing classes for knitting and crochet, 2013-16, designing hand knit patterns, working as Brand Marketing Executive for Blacker Yarns, 2018-19, having hand knit designs published in leading books and knitting magazines internationally. This paper investigates two autoethnographic KnitWell activities which take place over differing intervals. The data includes: 'knitted journal' artefacts, photographs of the knitted journals and written journal reflection documenting thoughts on the opportunities for self- expression that each knitted journal project offers. In this paper, the researcher sets out to discuss the flexible use of stitch and colour to communicate emotional state, by exploring the approach taken to 'free knitting' within each of the two activities. Finally, they reflect on how this type of working differs from traditional fashion knitwear design practice and shines a light on the role of the designer through artefacts and methodology.

Introduction

Over the last 18 months, throughout the Covid-19 pandemic, knitting has reached new heights of popularity (Klass, 2020; Wood, 2020). Most academic research associating knitting and well-being concentrates on two specific elements. The first element is, the physical act of knitting, investigating whether the repeated forming of basic knit stitches has a calming effect on the body (Corkhill et al., 2014; Court, 2020). The second element is, knitting in a social setting as a purposeful leisure activity (Mayne, 2016). My research explores the potential of a different facet of knitting for well-being: KnitWell. KnitWell involves the creation of a Daily Knit Journal (DKJ) that explores a particular aspect of knitting practice within an approach called 'free knitting'. Free knitting explores the choices one can make within knitting, such as yarn, colour, gauge, and stitch choice, in an open ended and creative way. Therefore, KnitWell sits between the two conventional modes of knitting within practice and research: the approach is more creative and complex than the repetitive forming of identical basic stitches, but more open-ended and exploratory than the practical projects typically undertaken by leisure knitters.

This paper begins with a short overview of my background as a knitter and the development and scope of the KnitWell methodology and then presents an autoethnographic enquiry into the KnitWell methodology along with reflections on keeping a Daily Knit Journal.

The Story of a Knitter (Researcher)

Like many, I was taught to knit at a young age by my grandmother, but I was too impatient to stick to it. However, this changed when, at 20, I was invited to my grandmother's knitting group one evening in 2010. Walking into a warm living room with smiling faces and the dull sound of needles clicking in the background, I felt at home. I think back to that evening many times, as it changed the course of my journey in fashion and textiles, including at the time, my undergraduate degree in Fashion Design.

Moving forward, in 2013, with the help of the Prince's Trust and a 'Win a Shop' competition run by Nailsea High Street, my own business Ewe Knit 20 was established. Ewe Knit 20 gave me the opportunity to build a thriving community of crafters in the local community of Nailsea, UK. Whilst engaging with this community, it was brought to my attention that for several people, knitting was a form of release; it gave them the opportunity to focus on something other than what was going on around them.

With the knowledge and insight gained from Ewe Knit 20, I went on to complete a Masters' degree at Nottingham Trent University, UK in Textile Design Innovation in 2018. I used this as an opportunity to investigate more formally the role of knitting as an act that can play a therapeutic role in the everyday lives of individuals.

Figure 1. Examples of MA case study knitting (Rickard, 2018)

Independent of my research, I have several different experiences within the knitting industry. These include developing classes for knitting and crochet (2013-16), designing hand knit patterns, working as Brand Marketing Executive for Blacker Yarns (2018-19) and having hand knit designs published in leading books and knitting magazines internationally. When designing hand knit patterns either to self-publish or publish within magazines there are several necessary requirements to generate a successful design submission. This design process epitomises a conventional design practice that most fashion and textiles designers will recognise. KnitWell's design practice breaks away from this convention and is discussed in more detail below.

The KnitWell Project

The KnitWell methodology has been created as part of my doctoral research which invites 12 participants to take part in three iterative phases of activity, creating a DKJ for a period of one month (28 days) in each phase. Participants are issued with a yarn palette of varied texture, colour and thickness that is intended to enable them to express their emotions and cater for different moods. The research is complemented by autoethnographic enquiry by me - the researcher - which includes activities like those undertaken by the participants, but over differing intervals, with additional elements of exploration and reflection. The focus of the autoethnographic enquiry (Muncey, 2010) is directed at methodically exploring the capabilities of knitting within stitch, colour, texture, gauge, and shape, and how these aspects can be used as a tangible, tactile tool to record an individual's emotional state.

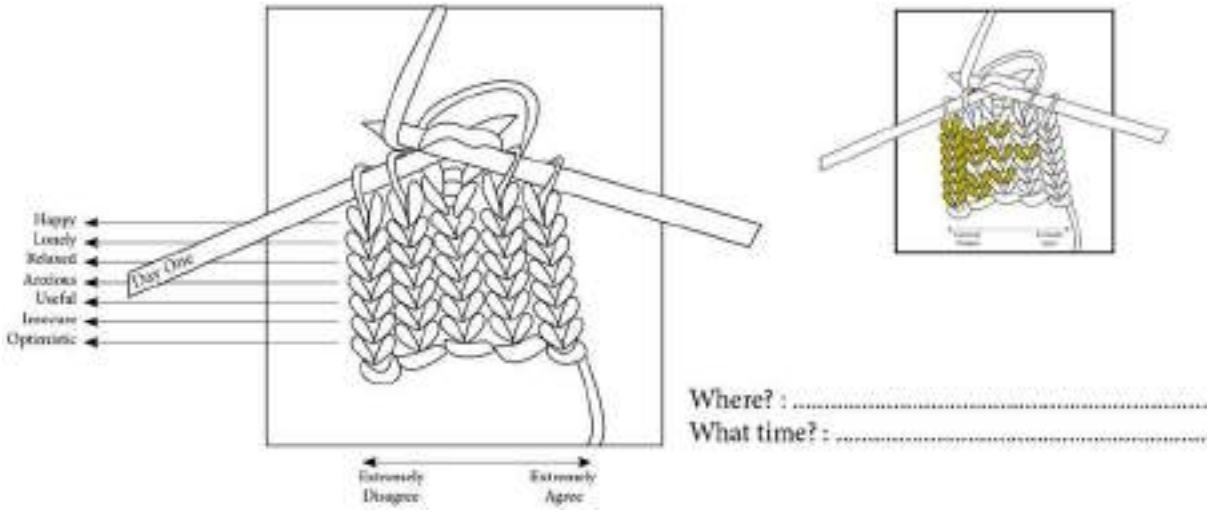

Figure 2. The Daily Wellness Knit Scale (DWKS) and to the right an example of how to complete the DWKS.

The reason for undertaking this autoethnographic enquiry is to test out the methodology, which allows me the additional benefit of analysing elements of the DKJ from a more intimate perspective. I am still at the early stages of KnitWell and within this paper I will present some initial analysis and findings.

The autoethnographic activities under investigation are two DKJs, which sit alongside the participant study. The DKJs follow the same approach as the participant study and use the same yarn palette. Throughout Phase 1, the focus of the DKJ was to use knitting to reflect on emotions from the day. Phase 2 followed the same knitting outline as Phase 1 but was accompanied by written reflection on the day and why specific stitches and colours were chosen. During Phase 1 and 2 a Daily Wellness Knit Scale (DWKS), Figure 2, was required alongside the knitting each day. The purpose was to give insight into the emotions and mood of the day, and how or if there are any similarities between the DWKS and the stitch/yarn choice respectively.

The two autoethnographic explorations include quotations from the written diary that I kept alongside the DKJ and reflections from my research journal. There is a detailed focus on stitch patterns such as I-cords, German short rows, and slip stitches.

Figure 3 shows Phase 1, completed over 28 days in May 2021. Figure 4 shows Phase 2, completed over 28 days during July – August 2021. Through inclusion of a written diary in Phase 2, it can be argued that it aided my understanding and reflections on specific days. However, these written reflections were very personal in some instances and not necessarily to be repeated here. Therefore, like Phase 1, the DWKS was crucial to interpreting the general mood from day to day when looking back at the knitting.

Figure 3 Phase 1, Daily Knit Journal, 28 days, May 2021. The Daily Knit Journal features: German short rows to change direction in the knitting, marled yarns and several I-cords protruding from the edge of the knitting and travelling over the top of previous days' sections

Figure 4. Phase 2, Daily Knit Journal, 28 days, Jul. - Aug. 2021. The Daily Knit Journal features: German short rows to change direction in the knitting (which creates areas of negative space), slip stitches and bobbles which distort the natural linear course of knitting

The focus of each DKJ has been established and now I will concentrate on specific elements of knitting that can be seen within them, for example I-cords. Traditionally, I-cords are known for how they create a narrow tube of knitting normally used for straps or edgings. Many will recognise the technique from French knitting dollies. I have found that I-cords allow space for the idea of breaking the horizontal line within knitting. It is also possible to create a 3D fabric with I-cords by working over the top of previous days as featured in Figure 2. By taking the DWKS into consideration it is possible to suggest that this 3D aspect allowed me – the knitter, to work back into previous days if the mood lingered, or if there was a need to connect back to it for example, if the same thoughts were lingering; this is evident on a few days in Figure 2.

From a layman's perspective, German Short Rows are seen to add shape and a different dimension to knitted fabric. However, as a researcher, they are very interesting to me. They pose questions like:

- Why have they been used?
- Have they been used to test different stitches?
- Has something happened to warrant a change in direction?

Additionally, by changing direction German Short Rows break the horizontal, linear line which is often formed within knitting. Are they used to reflect the fact that thoughts and feelings never quite travel from A to B without obstruction?

Figure 5. Phase One, Daily Knit Journal, May 2021. This highlights sections of German short rows in the knitting and multiples cast off edges which create steps.

Part of the KnitWell process involves the knitters looking back at the piece of knitting and identifying if there is a part that they feel more connected to. Figure 5 highlights aspects from the first DKJ that stand out to me as a researcher. It is not because – as a knitter – I remember the day necessarily, but both these sections use similar stitches: they use German short rows to change the direction in the knitting and then I have also created steps. "These were days where I felt progress during some part of the day and then something hindered that. The age old saying, one step forward and two steps back springs to mind" (EJR Research Journal, 2021). Both days are also marled with a baby yarn; one with pink cotton and one with mustard mohair. The use of baby yarn in both makes me think of my family. Looking back now, I can say it has been

quite a stressful year and being far away from them is difficult, and they are always on my mind; through stitch and yarn choice I feel like that is reflected here.

When contemplating the second DKJ, Figure 4, there is one piece that stands out, Figure 6. Aided by reflective notes in this phase I can say that I was having a "crisis of identity" (EJR Written Diary, 2021), which seems extreme; however, "questioning my place in academia, in relationships and in life" (Ibid, 2021) is a common exercise. This piece is a repeat of my name, Emily Joy Rickard, over 35 stitches. The repeat is shown in letters here: e-m-i-l-y-J-O-Y-r-i-c-k-a-r-d-e-m-i-l-y-J-O-Y-r-i-c-k-a-r-d-e-m-i-l-y. Emily and Rickard are plain knit stitches whereas Joy is purled which creates this contrast in the fabric, "my hands were moving, needles knitting stitch after stitch before I realised what I was doing. Sometimes, I repeat my name in my head to ground me, remind me who I am" (EJR Research Journal, 2021) and for this to appear in the knitting was a surprise to begin with, as "I simply was not aware I had done it" (Ibid, 2021).

Figure 6 Phase Two, Daily Knit Journal, Jul. - Aug. 2021. This highlights 35 stitches that are a repeat of my name, Emily Joy Rickard.

Reflections

The DKJ has offered me the opportunity to knit my feelings and to help me take time to formulate words to express myself. Knitting allows me to think through how I am feeling. The stitches form and then I can see myself in them. I can discuss yarn choice, stitch choice, direction and more. Figure 6 is a great example of this:

- "Yarn choice – marled neon acrylic with teal mohair. The teal mohair is a favourite colour of mine and is comforting to use. The neon acrylic makes me uncomfortable. The two together support this feeling of being lost and questioning direction.
- Stitch choice – knit and purl. Each stitch is a letter of my name, grounding myself in every stitch.
- Direction – this is a long thin piece of knitting, as the stitches and colour did the talking for me today." (EJR Written Diary, 2021)

Through self-assessment, it is evident that there is a difference between the meaning behind stitch and yarn choice. The yarn choices are more tactile, for example, what "feels nice running through my fingers" (EJR Written Diary, 2021). There are also memories connected to colours and yarn types that stitches are less connected to, whereas stitch choice focusses more directly

on mood and what happened during the day. There is evidence of this within the German Short Row explanation above and shown in Figure 5.

To the untrained eye, both Figures 3 & 4 look like interesting pieces of knitting, but it is not possible to read into them. The viewer may appreciate the colours and stitch choice, they may even make personal connections. However, each stitch is locked into the knitter's mind, it is only under invitation that we can divulge meaning. There is a safety here. It is not possible for someone to read the diary aloud. This diary is in code. Safe. This is an insight I will pursue with my participants.

An Unconventional Design Practice

Unlike my formal University training in Fashion and Textiles, where I was taught to experiment and that every experiment needed a technical file and a purpose for exploration, or even my own knit design work, where I start with a mood board to draw inspiration, KnitWell is about self-expression, developing a vocabulary of stitches. It is an exploration into the self, there is a freedom to explore without the pressure of why.

The purpose of the autoethnographic element to KnitWell is so that I can experience what my participants experience. KnitWell is a process I am designing to invite people to participate. I have designed the structure using my knitting knowledge. The Reknit Revolution by Amy Twigger Holroyd (2017) is an example of another project that similarly relies upon the researcher's knitting knowledge to create a structure for others to work within. Furthermore, the structure of KnitWell is designed to allow people to use their knitting practice themselves and achieve that sense of safety, self-expression, and reflection.

Conclusion

The aim of this paper was to investigate two autoethnographic KnitWell activities. Through self-assessment and questioning every choice I made, it is evident that there is meaning behind stitch and yarn choice that sometimes share the same definitions and other times stitch may mean one thing and yarn another. However, it is evident that together, both yarn and stitch choice communicate to the knitter an idea of their emotional state; yet to the untrained eye, it remains a mystery. There is a level of protection here for the knitter and is significant in terms of presenting an alternative method of journaling.

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BIOTECHNOLOGY, BIO-FABRICATION, BIO FASHION: from living organisms to garments

Author

Elif Selamet,
Istanbul Moda Academy

Corresponding Author: elif.selamet@istanbulmodaacademy.com

Keywords

Living organisms, innovation, biotechnology, biofabrication, sustainability, fashion industry.

Abstract

From the outside, the fashion world promises bright lights, glamorous clothing, and accessories, but the side of the coin we don't see is pretty dark. When we evaluate the fashion industry in terms of both environmental pollution and the working conditions of the workers in the supply chain, unfortunately, a dark picture emerges. We started to realize, albeit late, how expensive the products that we produced cheaply actually cost us and our world, and then we started to find solutions to reduce the pollution problem. "Biofabrication", also called the 4th industrial revolution, is one of the solutions we have found to reduce the dark side of fashion. Talking about fabrics made from natural materials is not a new innovation, however, talking about a new textile material that can be produced from living organisms naturally in biology laboratories, that represents an alternative for making garments and accessories, is a fairly new and groundbreaking innovation for the fashion world.

In the new generation society, where sustainability gains weight and where the "place of production" and the "quality" information on product labels are taken care of, as well as how and under what conditions they are produced, designs and designers have also adapted to the new era. Bio fashion products obtained from biotechnology have many features that will contribute to the environment, from cleaning with natural factors to being composted and disposed of in a harmless way.

The logic in biotechnology is to use living organisms to produce natural resources rather than just to consume them. In today's world, where the fashion world is the largest consumption source and the most polluting industry, the fabrics produced with biofabrication allow designers to raise awareness of this excessive consumption of natural resources and make people more responsive to the environment, in short, it aims to change one of the world’s most polluting industry from the inside.

Introduction

First of all, its name is not heard much nowadays; but it is a scientific invention, which is expected to become widespread in our future within 10 years, with the characteristics of the 4th industrial revolution. Despite the fact that it is a new technology since it was brought into the world before the end of 2000s. The term biofabrication was first used in 1994 to describe "biomineralization", a naturally occurring form of biofabrication (Fritz et al., 1994:49).

Mironov, predicting that biofabrication could significantly transform traditional production methods and resources in the future; He defined the term biofabrication as "the production of complex, living or non-living biological products consisting of raw materials such as living cells, molecules, extracellular matrices and biomaterials". Biofabrication continues to acquire prevalence because of least expensive gear and more proficient procedures. This mentioned technique is used not only in textile but also in health and it helps medical services in alternative ways, for example, by providing tools to aid sedative screening and drug remediation, paving the way for custom assembly strategies, 3D printing, more compelling drugs for damaged joints and organs. The main reason for the use of this technique in fashion is that the fashion industry is the most polluting industry in the world after the oil industry.

> The fashion industry is the second largest polluter in the world just after the oil industry. And the environmental damage is increasing as the industry grows. accounting for 10% of global carbon emissions and 20% of industrial water pollution.
>
> Charpail, M. (2017) What's Wrong With the Fashion Industry. Sustain Your Style. Available at: https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry [20 November 2021].

The concept of sustainability, which has emerged with global warming and the decrease of natural resources, has triggered awareness about the consumption of products used in our daily life, and we can even say that "being sensitive" has become mandatory today. Now, it has become a necessity for almost all products in our environment to be produced ethically and be sustainable, thus, it has become necessary to design the effects of clothing, which is one of the products with the highest consumption rate among other sectors, on the environment as a whole, starting from the raw material, including the production process, until the end of its useful life. In this context, although "recycling" applications in the ready- made clothing industry are still more popular than bio-fabrication, the opinions that recycled products are not a long-term solution have gradually increased. For this reason, designers, scientists, researchers, and companies have turned to the search for environmentally friendly production models and material use as an alternative, starting from the harm of petroleum- based synthetic materials to nature. This mentioned technique, which was also called the "fourth industrial revolution", increased the interest in biodegradable materials and enabled the development and

diversification of methods that can be used in clothing production, and the widespread use of bio-fabrication in the fashion industry. Besides everything, it also offers us a wide overview of what can be done with biology applied to design while taking durability into account.

Unfortunately, it is known that the use of this epoch-making technique in the industry is still insufficient. Considering this inadequacy, the subject of study has been determined in order to introduce the types and production methods of bio-textiles that can be used in clothing production, to raise awareness and to contribute to their dissemination.

The Pollution Issue of The Fashion Industry

The fashion industry produces the world's 10% of CO2 emissions meanwhile the textile industry generates a large number of greenhouse gases due to the energy it uses for the production, manufacturing, and transport processes of millions of garments. In the other respects, falling clothing prices and overproduction of clothing allowed people to buy more clothing, resulting in more textile waste. The average number of clothes per person in the world now exceeds the number of clothes our grandparents owned.

In today's world, clothes have become something that is consumed and thrown away very quickly, so we are producing more and more textile waste. A family in Europe throws 30kg of clothes every year. Only 15% is recycled or donated the rest directly goes to landfill or is increnited. There's more than $500 billion worth of textile waste every year, which comes from disposed of materials, under-used garments, and an absence of appropriate reusing measures. A new report by The Pulse Of The Fashion Industry expresses that fashion style adds to four percent of the universes yearly waste. In most of the textile producing countries, the textile factories dump their waste directly into rivers without any prior treatment.

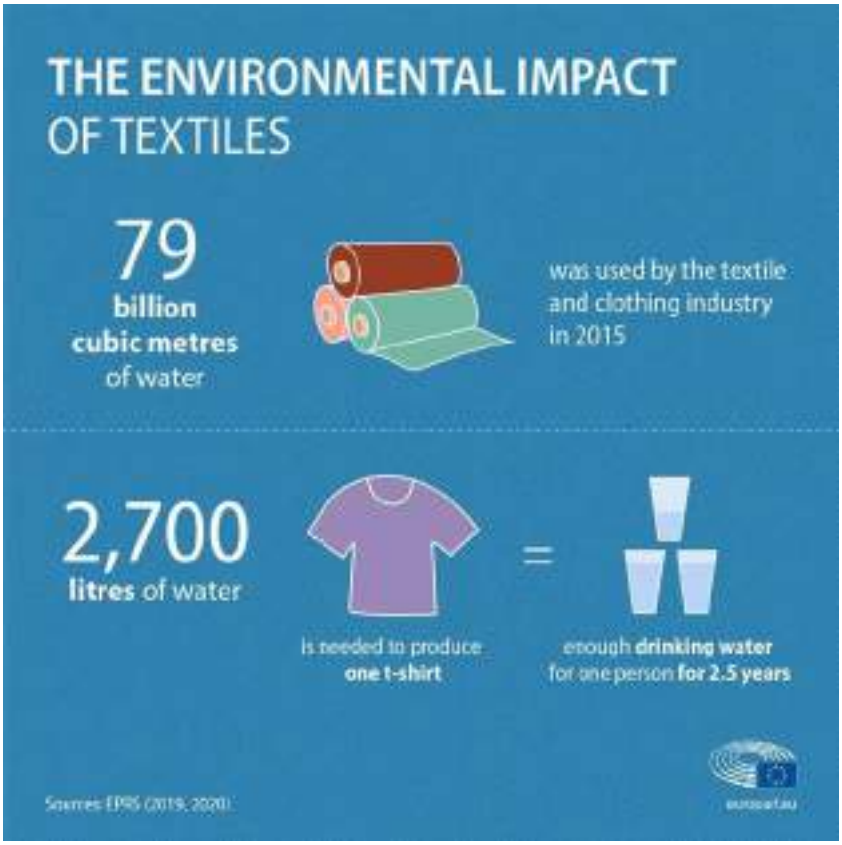

Figure 1. European Parliament, EPRS (2019, 2020)

The water consumed to grow India's cotton exports in 2013 would be enough to supply 85% of the country's 1.24 billion people with 100 litres of water every day for a year. Meanwhile, more than 100 million people in India do not have access to safe water.

-Leahy, S. (2015). World Water Day: The Cost of Cotton In Water-challenged India. The Guardian. Available at: https://www.theguardian.com/sustainable-business/2015/mar/20/cost-cotton-water-challenged-india-world-water-day [20 November 2021].

On the other hand, in order to produce a t-shirt, it is necessary to consume as much water as a person's need of water for an average of 2.5 years. This valuable resource, which we lose day by day due to cotton production, which is the most important raw material of the textile industry, is getting smaller, and dramatic ecological consequences such as toxic chemicals from detergents poison rivers (Figure 2) and the desertification of the Aral Sea may occur. (Figure 3)

Figure 2. Toxic Foams of The Yamuna River, India, CNN

Figure 3. A comparison of the Aral Sea in 1989 (left) and 2014 (right), NASA

These contain poisonous substances like lead, mercury and arsenic among others all incredibly destructive to eco framework and individuals who live on the bank of streams. Pollution likewise reaches the entire ocean and then spreads to the planet.

How Can We Solve This Pollution and Why Do We Need Bio-Fabrication?

Humanity is faced with two main problems today; the first is the depletion of our precious natural resources nearby and the second is the increasing environmental problem with pollution. However, there are solutions and alternatives that nature offers us to reduce these problems. The first step is to develop awareness and a willingness to change, and then all we have to do is listen the living world, because it offers answers for us to find a solution to this problem, all we have to do is to observe and listen to the world and our environment.

The assets are decreasing quickly and regular strands, for example, cotton requires a significant number of them for handling. Oil-based manufactured filaments are not the most harmless to the ecosystem and the time has come to search for supportable, roundabout style options while creating strands and textures. About 60% of our clothing is made using artificially produced and non-biodegradable materials, but bio-fabrication involves making clothing using inheritably engineered organic assets and readily dissolves in soil within 30 days. To handle the issue of pollution, innovators have also adapted a biodegradable, practical, body-compatible product to the fashion industry.

Fashion designer Suzanne Lee talks about how using bacteria and fungi to make textiles will revolutionize manufacturing in her TED Talk speech. Bio-fabricated materials can be produced in a shorter time than conventional materials and consume fewer resources to manufacture, thus generating less waste and being biodegradable.

> Instead of processing plants, animals or oil to make consumer materials, we might grow materials directly with living organisms. Bacteria, algae, fungi, yeast: our latest design tools include those of biotechnology.
>
> Lee, S. (2019) Why "Bio-fabrication" Is the Next Industrial Revolution. TED Talks. Available at: https://www.ted.com/talks/suzanne_lee_why_biofabrication_is_the_next_industrial_revolution/transcript [17 August 2021].

Biofabrics materials incorporate materials developed from creatures like living microbes, green growth, yeast, creature cells, or organisms root structures. These organic entities can be developed in labs by taking care of them substrates, transforming them into 'natural fiber plants'. It likewise gives more noteworthy adaptability as the design, thickness, shading, and surface of the completed material can be modified into the DNA of the cells of the microorganism. As a little something extra point, biofabrics are the vegetarian option in contrast to false calfskins as they score better on supportability and furthermore kill the requirement for creatures at any stage. To explain the benefits of bio-fabrication in simple terms, it eliminates waste, it's sustainable, it eliminates traditional textile inputs like dyes, pigments, pesticides and water, can be produced faster than other garments, it's eco-friendly chemical and it's also bio-degradable.

We have to biofabricate our future. From the jacket we wear to the chair we sit on, all manufactured products should not compromise anyone's health or the sustainability of our planet. If materials cannot be recycled in nature or composted naturally, we should reject them.

Through Bio-Fabrication Journey Growing garment process

The point where sustainable fashion has come with biofabrication is now very advanced, a tennis dress can be produced from spider web (Figure 4) or a leather bag can be produced from mushroom. Products produced by biofabrication do not contain petroleum substances and can be biodegraded in the soil within 30 days, eliminating the slaughter of animals in their production, allowing the production of vegan leather, a more sustainable alternative to many artificial leathers currently on the market. In addition, no arable land is needed for the cultivation or cultivation of biofabrics, or pesticides or large amounts of chemicals and water are required for its processing.

Figure 4: The Adidas x Stella McCartney Biofabric Tennis Dress is made using Microsilk, dezeen.com

> Biofabrication is harnessing the potential of such organisms as bacteria, yeast, algae, mycelium [the multi-celled fungus responsible for mushrooms] and mammalian cells to cultivate complex structures that can be processed afterward.
>
> The United Nations, in 2018.

Fungi (mushrooms) are experts in destruction and transformation. Some types of mycelium have the power to digest toxins and turn these poisons into healthy energy. Mycelium can also break down plastic, destroying one of our most dangerous and toxic substances. For example, the fungus pestalotiopsis microspora can live entirely on polyurethane (the main component of plastic) and can even decompose plastics into new, safe fungal tissues.

Figure 5. Mycelium, ttbook.org

The thickness, color and texture of products produced by biofabrication can be programmed into the DNA of microorganism cells.

These microorganisms feed on substrates such as corn or sugar from algae and begin to multiply, turning them into biological fiber factories.

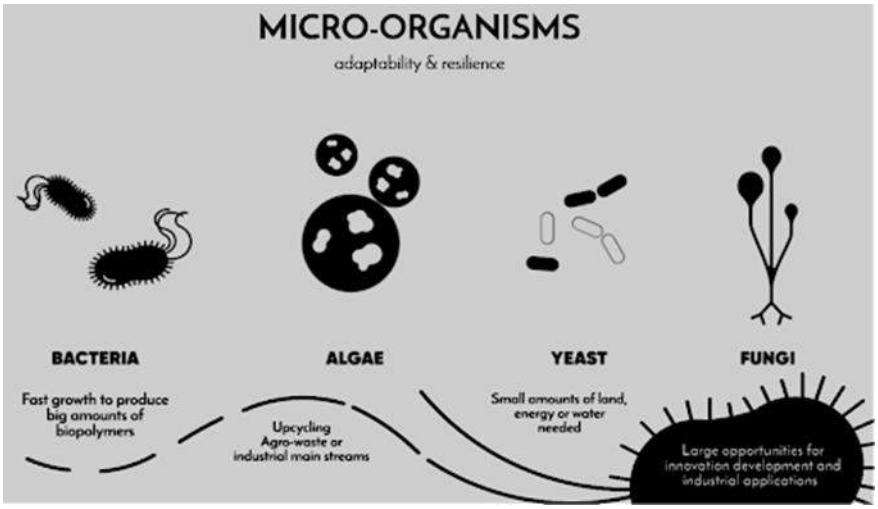

Figure 6. Necessary microorganisms for biofabrication, ted.com

The field of Biofabrication is employing all kinds of living organisms, from bacteria, yeast, fungi, algae and mammalian cells, to grow ingredients or materials for fashion. We can create leather-like materials using microbes that turn sugar into cellulose. If there is a living organism that can not only synthesise a material for you, but organise that into a finished structure, there are huge efficiencies to be gained there. There's no limit to the supply of microbes. Microbes will multiply so long as they are given sufficient nutrients to multiply.

Lee, S. (2019) Why "Bio-fabrication" Is the Next Industrial Revolution. TED Talks. Available at: https://www.ted.com/talks/suzanne_lee_why_biofabrication_is_the_next_industrial_revolution/transcript [17 August 2021].

Bio-Fabricated Textiles and Dyeing

Biofabricated products are inexhaustible, shut circle, and have an essentially more modest ecological impression than customary materials.

Figure 7. Algiknit, materialdriven.com

Biotextiles are only one strand of biofabricated materials, with numerous applications past the universe of style from bio-fabricated development materials to veggie lover meat substitutes developed from mycelium, with numerous biofabrication organizations offering a scope of materials to different industry areas. Also, it is not simply garments and textures which are being made thusly, yet colors as well. The structure, thickness, shading and surface of the completed material would all be able to be modified into the DNA of the cells of the microorganisms. These life forms are taken care of utilizing substrates, for example, sugar got from corn or green growth transforming them into organic fiber plants.

UK based Faber Futures, and Netherlands based TextileLab and Kukka are utilizing normally pigmented microscopic organisms to make compound free colors, which can be applied to both customary and biofabricated materials. Their living colour project is additionally take into account the chance of various shadings, which change the tone on request.

Living colour project

They presented this project as an alternative to the toxic synthetic textile dyes that pollute the World. Living Color is a biodesign research project that explores the possibilities of natural textile dyeing with pigment-producing bacteria.

Figure 8. Natural textile dyeing with bacteria that produce pigment, livingcolour.eu

Mycoworks

The community of designers, engineers and scientists called MYCOWORKS, which produces leather from retaliation, has also produced a nature-friendly resilient leather that can be produced quickly and that does not use animals in its production. Since the material is a strong, flexible, durable and cultivated product, it can be produced in the desired pattern, texture, length and thickness. Since it is a biodegradable material, it does not harm the environment as waste.

Figure 9. Vegan leather sample, mycoworks.com

Modern meadow

Zoa, by Modern Meadow is another biofabricated animal-free leather brand. Garments made from yeast-produced collagen protein derived from yeast. New properties such as patterning and lighter-weight options and a variety of textures and colours will also be available.

Figure 10. Vegan leather sample, Inc. Magazine

AlgiKnit

Algiknit Inc., the LVMH Innovation Award 2018 Finalist, is a US-based company that produces yarn from Kelp. As with all this biofabrication technique, algae grows extremely fast and does not require any arable land to grow, and it also has the added benefit of sequestering carbon. It experiments with varying shapes, knit structures and naturally-dyed formats of their biomaterial, which is derived from abundant biopolymers.

Figure 11. Kelp (large Algae) are the source of Alginate, the biopolymer used by Algiknit to create their Bioyarn and bio-based textile, materialdriven.com

Figure 12: Seen here is AlgiKnit's transformation of their biomaterial from paste, to monofilament (yarn) and then a knit panel for bio-based textile, materialdriven.com

Spiber

Japanese company Spiber produces a protein fiber called Brewed Protein, based on the DNA used to produce spider silk. It is incredibly strong yet light and flexible, with all the ingredients that make it ideal for sportswear and technical applications. It is possible to imitate anything from protein, delicate filament fibers to leather and fur alternatives, as well as tortoiseshell and horn imitations.

Figure 13. Dress from spiderweb, thebridge.jp

Figure 14. Spiderweb yarn, spiber.jp

MycoLab

Myco Lab, as they refer to themselves, is Australia's Leading Environmental Consulting and Laboratory specializing in environmental Mycology.

Figure 15. Vegan leather made out of fungal symbiotic complexe, animal free product (Natural colour), fungus-sapiens.com

Figure 16. Symbiotic complexe to replace cellophane or pliofilm, fungus-sapiens.com

Figure 17. Vegan leather made out of fungal symbiotic complexe, animal free product (naturally colored and engraved). Thinner than animal leather and more resistant, fungus-sapiens.com

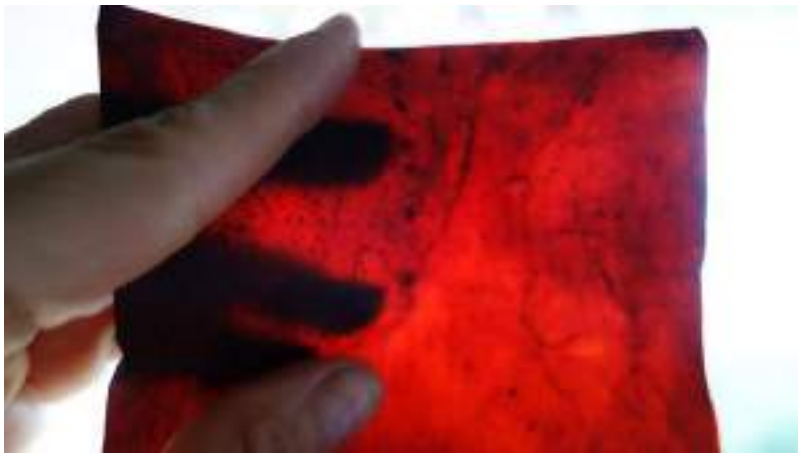

Figure 18: Vegan leather made out of fungal symbiotic complexe, animal free product (naturally colored), fungus-sapiens.com

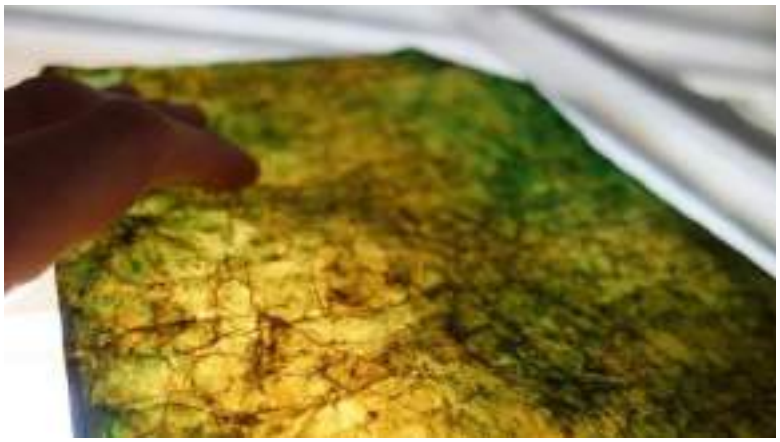

Figure 19. Vegan leather made out of fungal symbiotic complexe, animal freeproduct (naturally colored), fungus-sapiens.com

The BioLace

In this Project, plants could be genetically engineered to produce both food and textiles at the same time, claims Carole Collet, researcher of innovative textile technologies and TFRC Deputy Director at Central Saint Martins College of Art and Design in London. Through her BioLace project, she biologically reprograms plants to produce both fruits and lace samples from their roots.

Figure 20. The plants are transformed into living machines that need only sun and water to operate, dezeen.com

Figure 21. Spinach roots, dezeen.com

Le Qara

2019 Global Change Award Winner Le Qara is another lab-grown vegan leather alternative. Derived from microorganisms from flowers and fruits, it is breathable and biodegradable and can be made to mimic any skin texture and thickness.

Figure 22. Vegan leather bag, ucsm.edu.pe

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A CUT ABOVE THE REST: context, criticality and craft of creating a Saree blouse

Author

Taruna Vasu,
Unitedworld Institute of design, Ahmedabad, India

Corresponding Author: taruna@unitedidesign.com

Keywords

Creator, Custom Tailoring, Indigenous, Saree Blouse

Abstract

The saree blouse or choli is a critical indigenous apparel in the closet of an Indian woman worn usually with a saree or a lehanga (traditional full length skirt). The range of fit and form options for this traditional, tailored and customized garment are wide and the "Creator" of the blouse is chosen with immense deliberation and trials. From a humble home based tailor to the Designer, Indian women have a wide range of options to decide and choose from to get a blouse custom-sewn.

The craft of creating a well-made blouse is a highly revered and complex skill learnt through an unstructured apprenticeship model and perfected over years as each creator develops their own tricks of the trade through trials and error. The research aims to seek insights into the diverse narrative of how the creators evolved their skills, the contexts of their practice, key attributes, fit and design preferences, challenges in the making of the blouse and myriad experiences through structured interviews.

Introduction

The Saree blouse is a traditional, tight-fitted and midriff baring upper garment often worn with a saree or a lehanga. The blouse is the garment worn over the bosom by the women of Indian subcontinent and has evolved through ages being called as the angia, cholaka, chola, choli, cholika, kacali, kanchalika, kuppasa, kanchuka, polka, ravikkai, ravikalu, samvyana, stanamshuka, stannottariya, tai, uttarasangha, udaramshuka, uttariyavas etc (Goswamy, 2000; Roy and Nilesh, 2013; Sood and Pant 2020). The blouse has evolved from a breast band, bustier, angia, choli to the modern day blouse imbibing the values of various cultural amalgamations by the indigenous Mauryas, Guptas, Cholas and Rajputs adapting to foreign influences of Kushans, Turks, Mughals and lastly the British in India. (Vasu, 2012)

The early 20th century design of blouse evolved from variations of regional costume to an urban loosely fitted blouse with longer sleeves and modest necklines, a symbol of the nationalist Indian woman. Post- Independence witnessed variations in blouse styles and influences of the western fashion images distilled and promulgated by Indian cinematic icons. The young modern woman of today is spoiled for choice in details and styles that are hugely influenced by the popular culture and designers of the 21st century. Despite the options and variations of fashion, the classic Indian blouse since the last century is identified as a midriff barring, fitted and contoured bodice with four darts in the front (waist, bust line, side seam and armhole) and one dart in the back (waistline), often fitted with a front yoke at empire line, set-in sleeves and round or U-shaped deep necklines (Alis, 2018; Pandya, 1991; Sood and Pant,2020; Varghese, 2015; Vasu, 2012).

The Indian woman in her quest for sourcing styles, emulates her western counterpart as she browses through designer stores, popular culture references, malls and online fashion. However when it comes to sourcing a saree blouse, she seeks her reliable “darji” or “masterjee”- the Indian tailor to custom create her desired blouse with the style, details, fabric, embellishment and cost of her choice. The “Creator” of the saree blouse is most revered and trusted with the blouse as a professional with a special place in the daily fashion needs of the blouse/choli wearing women (Roy and Nilesh, 2013). Each blouse is custom- made diligently with a detailed explanation of the details, design, fit preference and measurements with the expectation to create the blouse at a cost and speed concurrent with ready-to-wear clothing. This dichotomy of a custom-made luxury at an affordable cost is something the blouse creator has perfected making them indispensable. The research seeks to look at the journey, experience and diversity of creating a blouse from the perspective of the people involved in the creation.

Methodology

The data collection for the research was done through a structured questionnaire created for an interview. The sample group for data collection included Forty Creators of blouses who were interviewed elaborately either in person or through a web based video. The tailors and pattern masters were selected through convenience sampling and twenty-seven respondents were interviewed in person in their workplace in Ahmedabad. Thirteen Designers were selected through purposive sampling and the interviews were conducted over a web based video link.

The designers were in various geographic locations across India. The structured questionnaire was replicated and shared over a google form for the designers and a hard copy of the questionnaire was shared as reference to tailors and pattern masters and the responses were recorded by the researcher in a response sheet.

Knowing the Creator

The ethnic wear segment in India dominates 83% of the market (Gugnani, 2014) and sarees have the largest share in this market with a 53% stake (Ranavade and Karolia, 2016). The irony however remains that despite the huge volume and scale of blouse, creating a blouse still remains predominantly a customized affair. The market of ready-to-wear blouses is on a gradual rise as women struggle to source a good sari blouse tailor, face inconvenience and find the process energy and time consuming (Kashyap, 2006; Ranavade, 2017; Sobti, 2017). Hazarika (2013) quotes the problems with ready to wear solutions as expensive (72.6%), absence of growth features (56.9%), improper fitting (50.3%) and inferior quality of fabric (25.4%). The Indian Blouse wearer is extremely particular about the fit and finishing of the blouse and hence the significance of the tailor continues to sustain (Kashyap, 2006; Sood, 2016; Wilkinson, 2005).

The Indian Blouse Creator could be the friendly home-based female dress-maker, a 'darzi/masterjee' who runs from a small shop in the vicinity, an entrepreneurial woman who has a team working for her or a professional designer who work from their fashion studios. Their role is to assist the identity conscious women to understand the demographics and psychographics of their consumers as they provide them options and suggestions for designing the blouse (Roy and Nilesh, 2013)

The Creators interviewed for the research included 15(37.5%) home-based female tailors, 12(30%) male pattern masters and 13(32.5%) designers with an equal distribution of female and male respondents at 50%. The median experience of the creators is in the range of 21 – 25 years and most respondents belonged to west India (70%), followed by north (17.5%), east (7.5%) and south (5%). The range of their highest qualification includes Graduates (22.5%), 8^{th} grade (20%), 12^{th} grade (20%), 10^{th} grade (17.5%), post- graduate (10%), Diploma (7.5%) and 5^{th} grade (2.5%) and none who was illiterate or a doctorate.

The Indian fashion system has evolved largely through an apprenticeship model where making of the blouse is a craft transferred from a master to apprentice. 55% of the respondents claim to have learnt informally and 45% learnt formally with awards ranging from certificate (12.5%) to master's degree (2.5%) with most respondents having a Bachelor's degree (27.5%). These blouse makers mirroring the traditional ethnic wear

segment work mostly in an unorganized set-up (Rakesh and Rajitha, 2014) with a staggering 85% creators being self-employed and 77.5% creators working in an organization with less than 10 employees.

The motives to be a creator were varied with most responding to interest (45 %) and tradition (22.5%) apart from recommendation from relatives, finding a guide, financial stability,

entrepreneurial opportunity. Only 32.5% respondents claimed to have learnt formally from an institute, with the rest stating to learn from family (30%), an expert mentor (22.5%) or experience over many places (15%). An interesting revelation by 12 of the 13 pattern makers from Ahmedabad was that they all belonged to the 'darzi' community where tailoring was a hereditary profession with most feeling pride and profited to continue the legacy.

Constructing the Blouse

The blouse traditionally is a constructed apparel with 3 pattern pieces namely front (cut 2), back (cut 1 on fold) and sleeve (cut 2) (Pandya, 1991). The art of precisely measuring, drafting, cutting fabric, sewing and finishing with frugal layout planning (Krishnakumar, 2014) renders the process as highly specialized and revered. All the tailors and pattern masters created only in Indian wear for consumers. Apart from Indian women's clothing only 37.5% have the children's wear expertise, 15% with proficiency of women's western clothing and 10% has know-how for Men's wear, thus making Indian wear with blouses an extremely niche category.

All female tailors interviewed worked from home with space ranging from an entire room to a small segment of the room. The pattern masters worked out of modest spaces in local market shops squeezed with machines, a drafting table, and a rack or two. The designer's in contrast had splurging multi-room studios in up-market locations. All the designer's and pattern masters possessed the single needle lockstitch machine, however amongst tailors working from homes, only 35% using the single needle lockstitch machine, the rest used domestic full throttle or half-throttle machines.

The stark contrast in equipment and location cascaded into the price charged by makers for creating a blouse. The maximum amount charged for a plain blouse by the tailors is lower than 120 Indian rupees, the pattern master's quote from 150 to 250 rupees and the designer charge in a range from 251 to 4000 rupees. The price for creating a bridal/special blouse by the tailor ranges between 200 to 500 rupees, 500 to 1500 rupees by the pattern master and anywhere between 1200 to 10000 rupees by the designer. This huge disparity for a similar product is highly dependent on the customer's experience, expertise and brand equity of each creator.

Blouse Design and Trends

The blouse has evolved through time immemorial and the conversation with respondents about the designs reveals certain shifts over the past few decades. The erstwhile angias and cholis were backless blouses with ties at the back, dropped shoulders, rectangular pieces with gathering in the breast section and gussets at underarms, thus fitting the body like second skin (Hollingworth, 2012, Jha and Narang, 2013). The bollywood inspired blouses in the last century witnessed styles such as halter necks, tube tops, katori cut, elbow sleeves, raised necklines etc (Annapoorani, 2013; Khar and Ayachit, 2013; Sood and Pant, 2020). Sood (2016) considers the 21st century blouse to be experimental with variations in necklines, sleeve lengths, and bodice lengths.

The creators responded to an elaborate survey on preferences of blouses styles and details on a 5-point Likert scale. The detailed results of the survey with the aggregated score for options of blouse styles, bust shaping techniques, closures, details, blouse and sleeve lengths, sleeve and neckline styles are presented in the table

Blouse Style						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
Simple blouse with yoke in front	0	12.5	7.5	42.5	37.5	4.05
Backless blouse	27.5	25	20	25	2.5	2.5
Kurti style blouse	42.5	25	27.5	5	0	1.95
Choli cut blouse till empire line	40	32.5	22.5	5	0	1.925
Peplum blouse	50	15	30	5	0	1.9
Empire line blouse	62.5	10	12.5	15	0	1.8
Kanchli style blouse	50	30	15	5	0	1.75
Jacket Style Blouse	57.5	12.5	30	0	0	1.725
Angarkha styled blouse	52.5	35	10	2.5	0	1.625
Cape styled blouse	62.5	20	10	7.5	0	1.625
Cropped blouse	62.5	15	20	2.5	0	1.625
Corset Blouse	67.5	17.5	5	10	0	1.575
Strapless Bustier blouse	67.5	17.5	5	10	0	1.575
Knotted blouse	75	12.5	10	2.5	0	1.4
Draped blouse	75	12.5	10	2.5	0	1.4
Bra Styled blouse	82.5	7.5	7.5	2.5	0	1.3
Bust Shaping Techniques						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
4 Dart fit with yoke	2.5	12.5	37.5	37.5	10	3.4
Princess fit blouse	10	10	25	45	10	3.35
4 dart fit without yoke	2.5	20	27.5	45	5	3.3
Katori blouse	10	12.5	7.5	42.5	2.5	2.4
Single dart/French dart	35	32.5	25	7.5	2.05	2.05
Half Katori blouse	50	27.5	17.5	5	0	1.775
Choli cut	62.5	27.5	7.5	2.5	0	1.5
Gathering at center front	82.5	10	5	2.5	0	1.275
Closures						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted**

						Average
Hooks	0	2.5	2.5	52.5	42.5	4.35
Concealed Zipper	22.5	27.5	30	10	10	2.575
Doris	27.5	37.5	17.5	15	2.5	2.275
Basic Buttons	10	67.5	20	2.5	0	2.15
Potli Buttons	35	42.5	2	2.5	0	1.9
Fancy Buttons	42.5	32.5	20	2.5	2.5	1.9
Tie-knots/Bows	67.5	10	20	2.5	0	1.575
Exposed zipper	62.5	30	5	2.5	0	1.475
Snap Buttons	70	17.5	10	2.5	0	1.45
Slip on	77.5	15	2.5	5	0	1.35
Details						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
Huge Margin	0	0	7.5	7.5	85	4.775
Bra Strap	7.5	7.5	27.5	15	42.5	3.775
Doris/Fabric piping cords	2.5	15	27.5	52.5	2.5	3.375
Tassels	5	15	37.5	42.5	0	3.175
Bust Cups	22.5	17.5	27.5	32.5	0	2.7
Frills and Ruffles	12.5	57.5	27.5	2.5	0	2.2
Bold/Creative motifs at back	25	45	20	10	0	2.15
Slits	32.5	42.5	20	5	0	1.975
Pockets	62.5	27.5	2.5	5	2.5	1.575
Gussets	75	10	12.5	2.5	0	1.425
Blouse Length						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
14" to 15"	0	0	5	82.5	12.5	4.075
12" to 13"	17.5	30	32.5	20	0	2.55
16" to 20"	25	35	35	5	0	2.2
Abdomen length	55	27.5	17.5	0	0	1.625
Hip Length	77.5	15	5	0	2.5	1.35
Beyond Hip length	87.5	7.5	2.5	0	2.5	1.225
Sleeve Length						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
10" to 11"	2.5	0	22.5	70	5	3.75

5" to 7"	0	25	35	37.5	2.5	3.175
8" to 9"	7.5	27.5	27.5	32.5	5	3
2" to 4"	5	30	37.5	25	2.5	2.9
Sleeveless	12.5	55	22.5	10	0	2.3
12" to 16"	27.5	40	20	10	2.5	2.2
17" to 19"	42.5	35	12.5	7.5	2.5	1.925
More than 23"	70	22.5	5	2.5	0	1.4
20" to 23"	45	30	2.5	5	0	1.325
Sleeve Style						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
Set-in Sleeve	0	5	7.5	45	42.5	4.25
See through Sleeve	32.5	30	20	17.5	0	2.225
Puff Sleeve	22.5	42.5	32.5	2.5	0	2.15
Cold Shoulder	35	42.5	15	7.5	0	1.95
Ruffle Sleeve	50	17.5	25	7.5	0	1.9
Peekaboo Sleeve	30	55	10	5	0	1.9
Fit and Flare Sleeve	42.5	37.5	17.5	2.5	0	1.8
Petal Sleeve	50	35	10	5	0	1.7
Churidaar sleeve	62.5	15	17.5	5	0	1.65
Bell Sleeve	60	20	17.5	2.5	0	1.625
Sleeve with cuff	67.5	15	15	2.5	0	1.525
Bishop Sleeve	70	20	7.5	2.5	0	1.425
Raglan Sleeve	75	12.5	12.5	0	0	1.375
Cowl Sleeve	75	20	5	0	0	1.3
Neckline Style						
Name	**Never**	**Rarely**	**Sometimes**	**Mostly**	**Always**	**Weighted Average**
Deep U Neckline	2.5	2.5	15	67.5	12.5	3.85
Medium U Neckline	0	10	12.5	72.5	5	3.725
Boat Neckline	17.5	22.5	30	27.5	2.5	2.75
Deep Square Neckline	20	25	30	22.5	2.5	2.625
Deep round neckline	27.5	17.5	22.5	32.5	0	2.6
Medium round neckline	17.5	35	22.5	22.5	2.5	2.575
V neckline	12.5	37.5	40	7.5	2.5	2.5

Sweetheart Neckline	17.5	30	42.5	7.5	2.5	2.475
Jewel/round neckline	20	42.5	15	20	2.5	2.425
Square neckline	20	35	30	12.5	2.5	2.425
Matka Neckline	27.5	25	35	12.5	0	2.325
Nehru Collar	40	25	27.5	7.5	0	2.025
Plunging V Neckline	50	22.5	12.5	15	0	1.925
Key hole Neckline	45	32.5	20	2.5	0	1.8
Raised Neckline	72.5	10	10	7.5	0	1.525
Shirt Collar	70	15	10	5	0	1.5
Scalloped Neckline	70	15	10	5	0	1.5
Halter Neckline	72.5	12.5	12.5	2.5	0	1.45
Spaghetti Straps	77.5	5	15	2.5	0	1.425
Peter Pan Collar	72.5	17.5	10	0	0	1.375
Strapless	82.5	5	5	7.5	0	1.375
One-shoulder Neckline	77.5	15	7.5	0	0	1.3

The classic simple blouse (4.05) with 4 darts and yoke in front (3.3), front opening with hooks (4.35), huge margins at side seam (4.775), bodice length 14” to 15” (4.075) with a set- in sleeve (4.25) with sleeve length of 10” to 11” (3.75), deep U neckline at back (3.85) and medium U neckline in front (3.725) emerges as the most prominent and preferred style for blouse. The results reveal minimal variation of silhouette or style with backless blouse, kurta style blouse, choli cut empire blouse trailing the simple blouse significantly.

The predominant bust shaping technique following the 4 dart with yoke is the princess fit blouse, 4 dart blouse without yoke and the katori blouse. The creators reveal the presently waning katori blouse was most preferred in Gujarat few decades ago replaced now by the blouse with yoke. The princess cut is a western influence adapted and mastered by creators only in the recent years. Preferred closure apart from hooks explored in blouses are concealed zipper at side seam and doris or piped fabric extensions for tying to hold a backless or angarkha blouse. Elaborate tassels and bust cups which were negligible earlier are significantly on the rise as experienced by creators. Pockets are sewn in blouses for mostly elder women and are on the verge of extinction in the current Indian blouse.

A major shift remarked by creators is the recurrence of the sleeve length 10” to 11” and the gradual decline of the interim dominance of the short sleeve. Sleeve pattern is mostly unexplored with the rare occurrence of see-through sleeves or puff sleeve. Cold sleeve and peekaboo sleeve as a trend are on the decrease of popularity. The women continue to wear deep U and round necklines with the occasional variations with the V neck, square, sweetheart and

matka neck mostly to break the monotony. Boat neckline and jewel neckline are the only fuller necklines with reasonable prevalence.

Conclusion

The creation of the blouse and the relationship between the wearer and the creator is a bittersweet experience for both the stakeholders. Perceiving the blouse from the lens of the creator demonstrates immense passion, engagement and pride in the creators as they master the classics and experiment with the modern cuts and influences. The increasing rise of the internet image brought in by the consumer is the current challenge for the creators. Many creators themselves are seeking knowledge and inspiration from the internet as they surge ahead in their self-learning mode. The craftsmanship of sewing continues to be remarkably neat with great fitting and exactness (Gupta, 2016). If the creators continue to customize and adapt new patterns affordably, they are poised to continue their invincible position undeterred by the marginal rise of ready to wear blouses.

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INTERPRETING FASHION WITH BENFORD LAW: a probabilistic approach

Author

Deep Sagar Verma,
Assistant Professor, Department of Fashion Management Studies National Institute of Fashion Technology, Panchkula (India)

Corresponding Author: deepsagar.verma@nift.ac.in

Key Words

Benford's law, Probability theory, Mathematical Phenomenon, Fashion data, Blockchain Management and Metaverse

Abstract

Introduction-

Fashion is generally defined as one of the purest expressions of art, which is a manifestation of human endeavor, insight, perception, communication and self-realization. However, the underlying fact is that fashion is also a unique blend of science , mathematics and technology. Probability, a branch of mathematics concerning numerical descriptions of how likely an event is to occur, is highly helpful in understanding and predicting the uncertainties of the real world. Benford's law is an observation of the frequency distribution of leading digits in real life sets of numerical data. The law has been widely used in the field of accounting, geology, law, economics, psephology, science but probably not in the generous world of fashion.

Literature review -

There are plenty of literatures defining and explaining Benford's law which are somehow more usable and readable by staunch mathematicians and statisticians. Originally discovered by an American astronomer Newcomb in 1881 on the basis of repetitive distribution law in logarithmic tables, the law became famous after physicist Frank Benford demonstrated it in his research paper "The law of Anomalous Numbers" in 1938. Kruger and Yadavalli described Benford's Law as "counter-intuitive, difficult to explain in simple terms, and has suffered from being described variously as 'a numerical aberration', 'an oddity', 'a mystery' - but also as 'a mathematical gem''' (2017). Mark Nigrini, a professor and author of Forensics Analytics works majorly on Benford's law application.

Methodology-

An exploratory research design is expected to take place on the basis of secondary and syndicated data collection. Internal and external data would be collected from existing customer databases, social media, business/non-government, syndicated services and data warehousing and mining. Furthermore, collection of big data can be analyzed procured from retail/export firms. Designer's data may be also used to analyze the pattern of purchase and consumption.

Findings and Analysis-

The paper would establish a relationship between Benford's law and data generated from various Fashion houses including retailers and exporters. The analysis of trends and patterns would express the mathematical relationship of a pure art like fashion, which may be used for predictive calculations. It will open a new area of research for the fashion industry in sync with probability distribution. Upon successful completion of the establishment of Benford's law, trends studies would become substantially easier to interpret.

Discussion –

New approach of fashion studies could be ingrained and application of numerous untold concepts of diverse disciplines may be initiated.

Conclusion -

Interpretation of Fashion with Benford's law would be a paradigm shift in studying trends, patterns, business practices and social responsibilities.

Introduction

Fashion is generally defined as one of the purest expressions of art, which is a manifestation of human endeavour, insight, perception, communication and self-realization. However, the underlying fact is that fashion is also a unique blend of art, science, mathematics and technology. It also touches on the ways things are conceptualised and executed. As Shakeshpere wrote, "The fashion wears out more apparel than the man". Presently fashion is omnipresent in various forms. And so is the volume of business associated with it. With countless fashion houses, export and retail units and a huge unorganized sector, it attracts billion dollars businesses. The cut throat competition and changing technology make it more complex and challenging to comprehend. Big data analytics and implementation of statistical and mathematical tools try to define the business in a systematic way with proof. However the complexities of real time business are significant in nature.

Literature review

There are plenty of literatures defining and explaining Benford's law which are somehow more usable and readable by staunch mathematicians and statisticians. Originally discovered by an American astronomer Newcomb in 1881 on the basis of repetitive distribution law in logarithmic tables, the law became famous after physicist Frank Benford demonstrated it in his research paper "The law of Anomalous Numbers" in 1938. Kruger and Yadavalli described Benford's Law as "counter-intuitive, difficult to explain in simple terms, and has suffered from being described variously as 'a numerical aberration', 'an oddity', 'a mystery' - but also as 'a mathematical gem'" (2017). Mark Nigrini, a professor and author of Forensics Analytics works majorly on Benford's law application.

Why digits?

Probability, a branch of mathematics concerning numerical descriptions of how likely an event is to occur, is highly helpful in understanding and predicting the uncertainties of the real world. Many sub topics of probability have the capacity to define and create a model which could lower down the risks associated with business decisions or trend analysis. Fashion being highly volatile and riskier in nature requires a detailed understanding of art and science. Generally, fashion is always associated with the non-mathematical side; however, it is actually needed a lot to implement higher numerical calculations.

Benford's Law

While retail and fashion houses use various mathematical and statistical tools to understand, anticipate and deliver business, a very least known theory famously known as **Benford's Law** comes into the picture. It defines a pattern of numbers around everything in the world. It seems trivial at the first glance but as one goes deep into it, the astonishing results start coming in. It

shows the regularity in digits and explains the hidden science of so many theories including fraud in a system.

Also known as the l**aw of anomalous numbers**, or the **first-digit law, the credit of discovery** of it goes to a Canadian-American mathematician Simon Newcomb in 1881, when he found that only first few pages of the logarithm table are used and rest are less or not used. Later in the year of 1938, Frank Benford, a physicist, took twenty domains and multiple data sets to find a relationship with numbers. Further, it was forwarded by Ted Hill in 1995 with many more new experiments and the relationship between Benford's law and real life phenomena. Benford's law is an observation of the frequency distribution of leading digits in real life sets of numerical data. The law has been widely used in the field of accounting, geology, law, economics, psephology, science but probably not in the generous world of fashion.

A set of numbers is said to satisfy Benford's law if the leading digit *d* (d ∈ {1, ..., 9}) occurs with probability

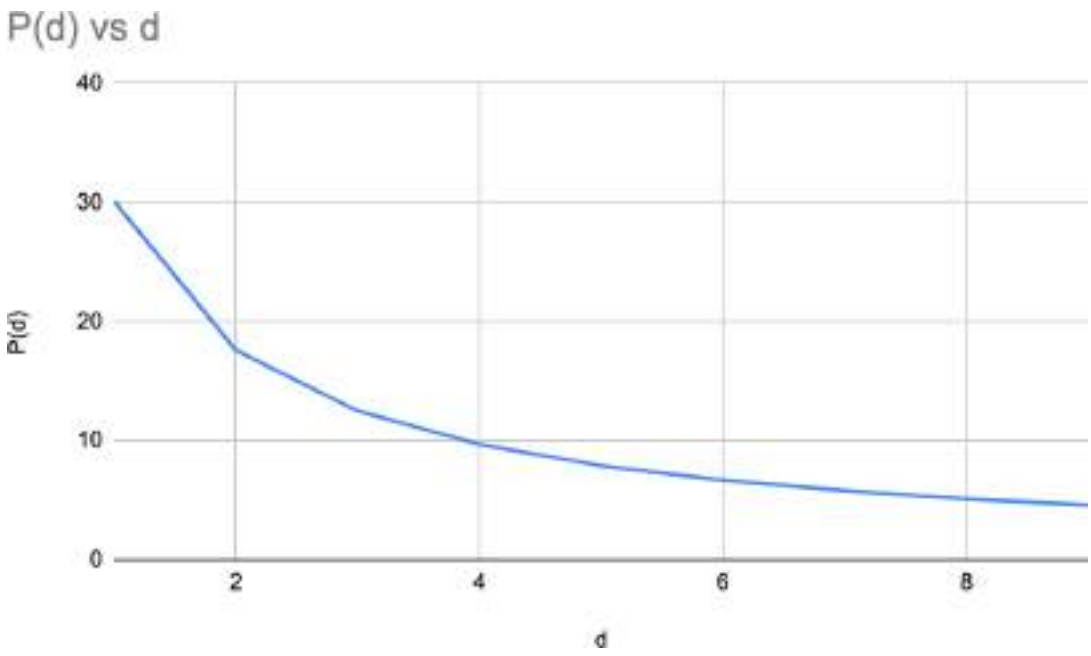
$P(d) = \log10 (d+1) - \log10 (d) = \log10 [(d + 1)/2] = \log10 (1 + 1/d)$

Title	1	2	3	4	5	6	7	8	9	Samples
Rivers(Area)	31.0	16.4	10.7	11.3	7.2	8.6	5.5	4.2	5.1	335
Newspaper items	30.0	18.0	12.0	10.0	8.0	6.0	6.0	5.0	5.0	100
Pressure	29.6	18.3	12.8	9.8	8.3	6.4	5.7	4.4	4.7	7.3
Mol Weight	26.7	25.2	15.4	10.8	6.7	5.1	4.1	2.8	3.2	1800
Cost data	32.4	18.8	10.1	10.1	9.8	5.5	4.7	5.5	3.1	741
n1,n2,n3,...n!	25.3	16.0	12.0	10.0	8.5	8.8	6.8	7.1	5.5	900
Addresses	28.9	19.2	12.6	8.8	8.5	6.4	5.6	5.0	5.0	342
Death rate	27.0	18.6	15.7	9.4	6.7	6.5	7.2	4.8	4.1	418
Average of all parameters Including some natural phenomena	30.6	18.5	12.4	9.4	8.0	6.4	5.1	4.9	4.7	1011
Probable Errors (+ -)	0.8	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.3	

The leading digits in such sets have following distribution

d	P (d)	Relative Size of P (d)
1	30.1	
2	17.6	
3	12.5	
4	9.7	
5	7.9	
6	6.7	
7	5.8	
8	5.1	
9	4.6	

The graphical representation of the Benford's law is shown below:-



Application of Benford's law

It is a systematic digital analysis technology. This law also obeys Fibonacci series, one of the possible trade areas theories. Some of the following fields are widely applying Benford's law

a. Accounting Fraud detection - Many nations use it to detect Tax evasion and accounting fraud.

b. Analysis of Election Data - Anomaly election data detection is studied.

c. Economic Data

d. Pricing research

e. Genome data

f. Geological data

Methodology

Distributions that can be expected to obey Benford's law

- When the mean is greater than the median and the skew is positive
- Numbers that result from mathematical combination of numbers: e.g. quantity × price
- Transaction level data: e.g. disbursements, sales

Distributions that would not be expected to obey Benford's law

- Where numbers are assigned sequentially: e.g. check numbers, invoice numbers
- Where numbers are influenced by human thought: e.g. prices set by psychological thresholds ($1.99)
- Accounts with a large number of firm-specific numbers: e.g. accounts set up to record $100 refunds

A distribution is said to satisfy Benford's law, if its corresponding random variable does.

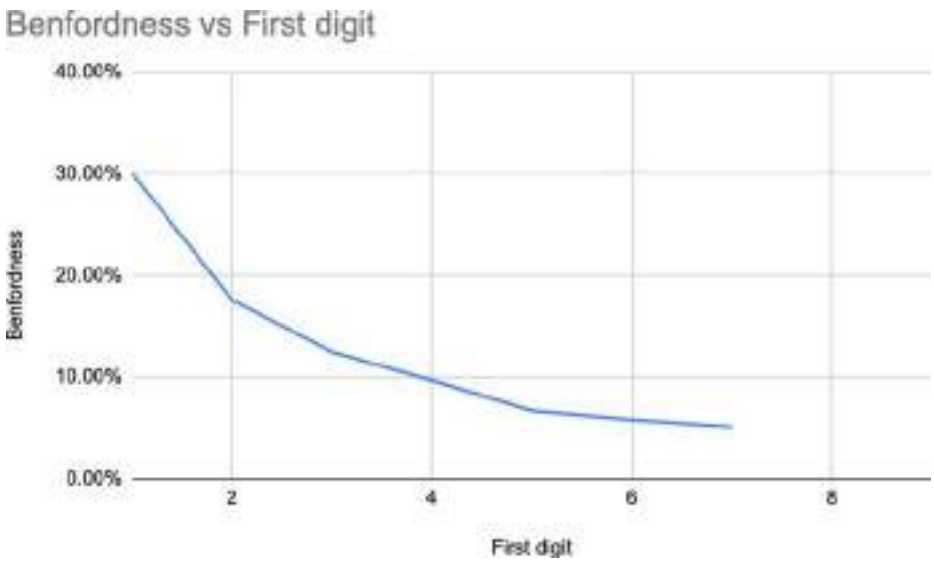
Inverse functions , Scale invariance, Mantissa distribution, Base invariance, Random probability distributions, Convergence etc, Fibonacci series etc.

As per Mark Nigrini's formulation of Benford's Law, the first and second digit tests are significant tests of rationality and are used to determine whether the data set appears reasonable.

Example 1 - Taking a sample data set of 10000 entries of the invoices of a retail store*, the first digit test appears like –

First digit	Benfordness
1	30.10%
2	17.61%
3	12.49%
4	9.69%
5	6.70%
6	5.80%
7	5.12%
8	4.58 %
9	3.02 %

*Fashion retail store of India (Name not disclosed)

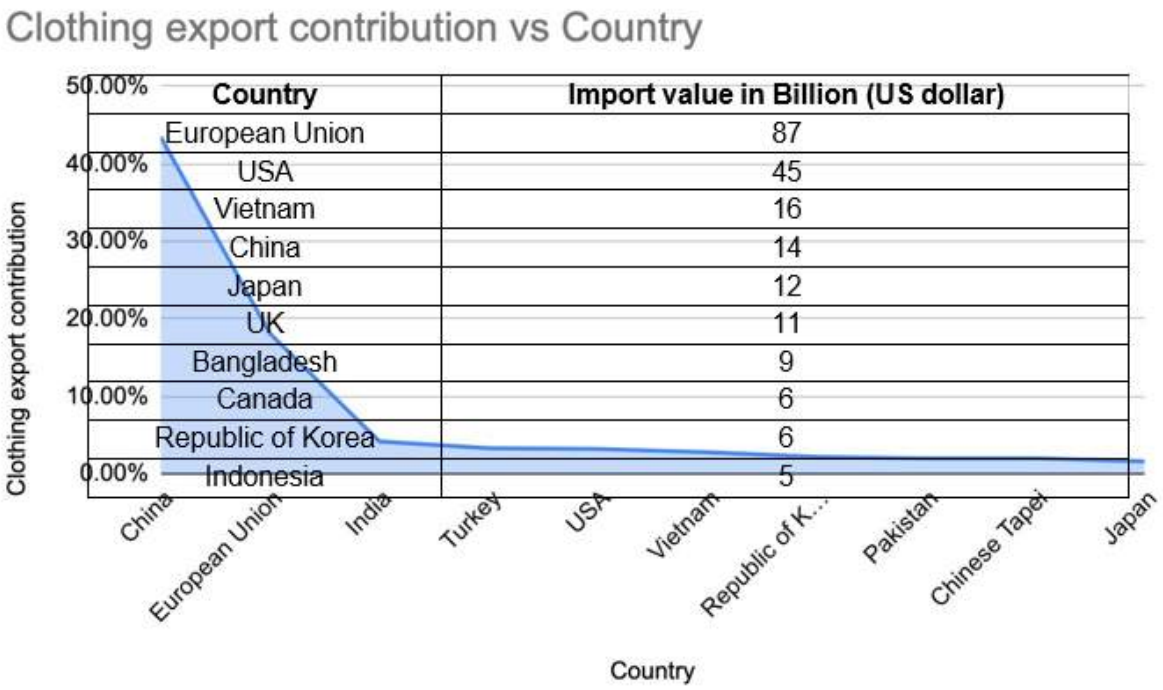


As per the graphical representation, the law of first, second and so on digits follow the law. It proves that the entries are in the right direction and no anomaly is found.

Example 2 - Share in world exports of the leading clothing exporters in 2020, by country

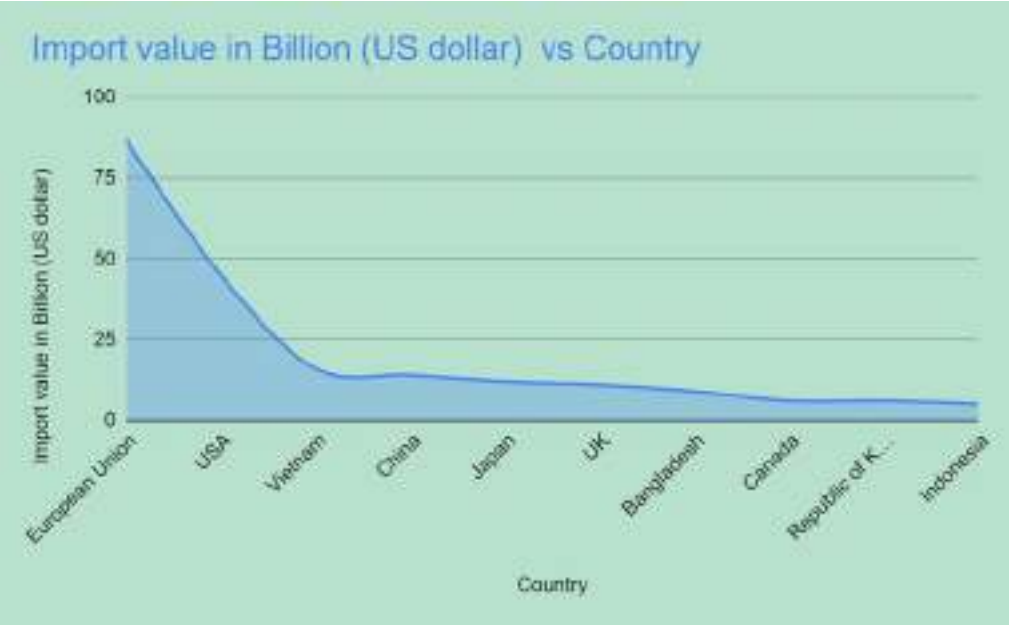
As per the statistica.com, following is the data of 2020, which also follows Benford's law-

Country	Clothing export contribution
China	43.50%
European Union	18.10%
India	4.20%
Turkey	3.30%
USA	3.20%
Vietnam	2.80%
Republic of Korea	2.20%
Pakistan	2%
Chinese Tapei	2%
Japan	1.60%



Country	Import value in Billion (US dollar)
European Union	87
USA	45
Vietnam	16
China	14
Japan	12
UK	11
Bangladesh	9
Canada	6
Republic of Korea	6
Indonesia	5

Example 3 Leading importing countries of apparel worldwide by value in 2020



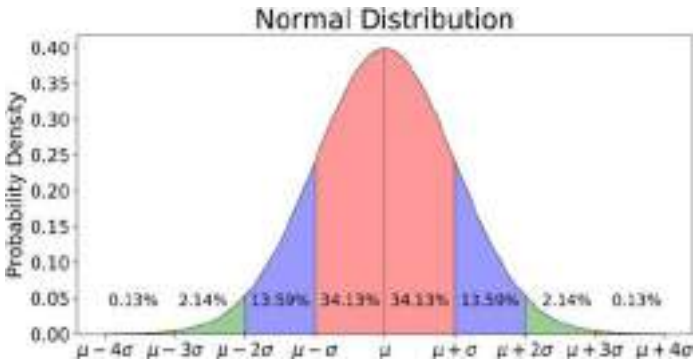
- Every single example with proper data of Fashion field follows Benford's law.
- A distribution is said to satisfy Benford's law, if its corresponding random variable does.
- Inverse functions , Scale invariance, Mantissa distribution, Base invariance, Random probability distributions, Convergence etc, Fibonacci series etc.

Benford's Law and contemporary Technology -

- Big data analytics - Consumer data, Trend analysis, Retail sales data, Supply Chain Management etc.
- Blockchain management - Decentralized system of a shared database. [Crypto currencies]
- Fashion Metaverse and its Crypto currencies

Big Data Analytics -

Normal distribution and other statistical tools are widely used in the area of predictive analysis of fashion big data analysis. The ubiquity of normal distribution applies in all kind of natural phenomena or observations.



Normal (Gaussian) Distribution

- Ubiquity in all kind of natural phenomena
- A probability distribution
- Symmetric
- Unimodal
- Analysis of data set

Benford's law

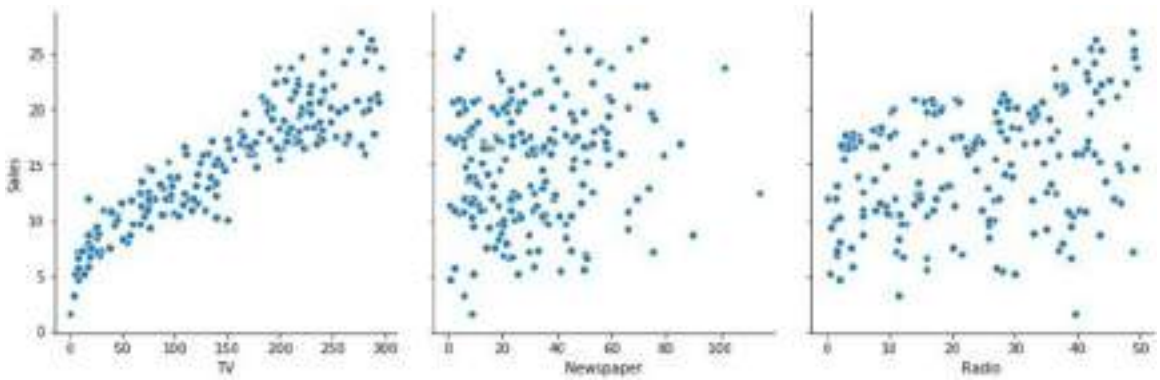
- Phenomenon of significant digits
- Detects patterns
- Catches anomalies or fraud detection

Regression Model Anomalies -

- Regression is used to study the relationship between two variables.
- We can use simple regression if both the dependent variable (DV) and the independent variable (IV) are numerical.
- If the DV is numerical but the IV is categorical, it is best to use ANOVA.

The dependent Variable is Sales and independent variables are cost of advertisement on TV, Newspaper and Radio. From the scatter plot it is clear that there is a positive correlation of dependent variable sales with TV.

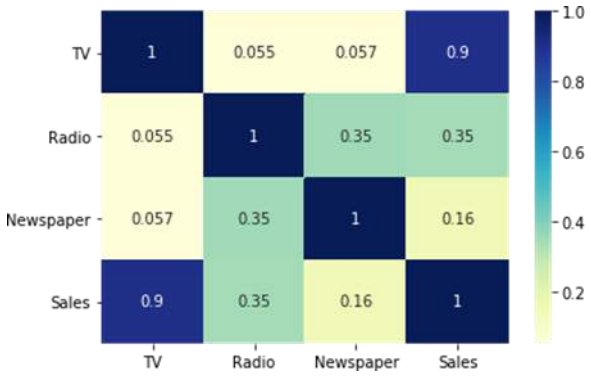
	TV	Radio	Newspaper	Sales
0	230.1	37.8	69.2	22.1
1	44.5	39.3	45.1	10.4
2	17.2	45.9	69.3	12.0
3	151.5	41.3	58.5	16.5
4	180.8	10.8	58.4	17.9



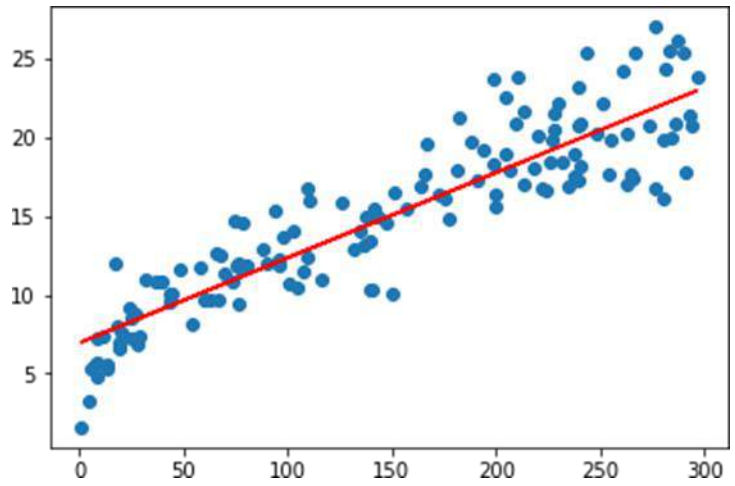
It is visible from the pair plot and the heatmap, the variable TV seems to be most correlated with Sales. So let's go ahead and perform simple linear regression using TV as our feature variable in our case:

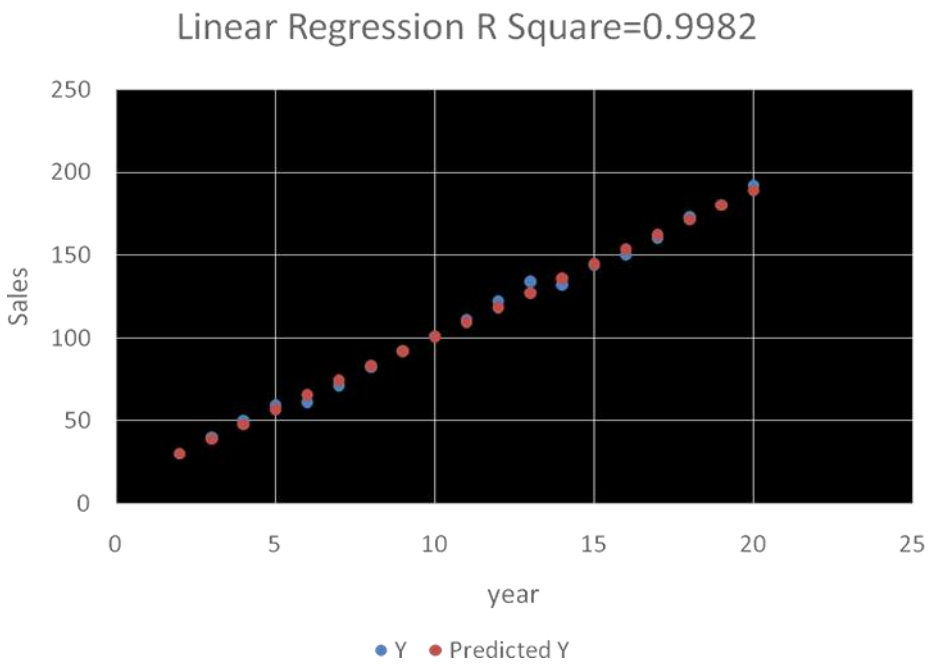
y=c+m1×TV C= constant m1 =Slope

From the regression model Sales=6.948+0.054×TV



Sales vs TV: Line of Best Fit





It is clear from the scatter plot and line of best fit that due to outlier there is a reduction of R squared with such a great extent. Only two outliers are reducing R square from 0.99 to 0.12. So scatter plot can easily identify the anomaly.

Fashion Blockchain Management

- Supply Chain Management
- Reduce Counterfeiting
- Increasing efficiency in production
- Entry to Fashion metaverse
- Fashion NFTs
- Cryptocurrency
- Virtual lands

All the big blockchain platforms by market capitalization that were not biased by any big scandal or lawsuit and that are still functioning three years after the observation time frame, such as Bitcoin (BTC), Ethereum (ETH), or OmiseGo (OMG), conform to Benford's law.

Findings and Analysis

- Establishment of relationship between Benford's law and data generated from various points
- New area of probability distribution could be explored
- Data Fraud detection

- Anomalies can be found
- Implementation in new technology like Blockchain management, Metaverse and respective crypto world
- Transparency and robust model of business can be adopted.

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Used data from kaggle.com (01/12/2021)

Statistica.com/statistics/1094515/share-of-the-leading-global-textile-clothing-by-country

DIGITISED FASHION SHOWS AND FASHION WEEKS IN THE COVID-19 AND POST COVID-19 ERA: the changing formats and meanings of mediating fashion

Author

Zhe Wang,
Lecturer in Fashion Promotion/Fashion Art Direction Manchester Fashion Institute

Manchester Metropolitan University

Ph.D. Awarded by University of Edinburgh in July 2020

Corresponding Author: z.wang@mmu.ac.uk

Abstract

The global COVID-19 pandemic that has spread across the world since 2019 has brought fundamental changes to the forms of fashion communication. These influences on fashion shows and fashion weeks in particular, as core fashion promotional vehicles, are highly noticeable. All fashion shows and weeks since the first established online fashion week, the Autumn/Winter 2020 season of Shanghai Fashion Week, have been promoted and broadcast online and all international fashion weeks (the 'Big Four' in particular) have been open to public audiences digitally via diversified forms such as films, livestreaming shows and events, and industry talks, rather than being exclusive to industry professionals.

The subject of the changing formats of fashion weeks has been widely discussed within the industry, drawing on the topics of the feasibility of fashion weeks in terms of sustainability, and the combination of womenswear and menswear, as well as the functions and meanings of fashion weeks for different types of brands. However, few academic studies have treated fashion weeks as an independent topic as there has been little fundamental or revolutionary change occurring in this field, especially in terms of formats and meanings. Contexts are now changing due to the global pandemic, which has triggered the further democratisation of fashion communication as fashion weeks are now all online and available to the public.

Under these circumstances, this paper will articulate, revisit and compare the different forms of online fashion weeks, as well as the corresponding fashion shows, from the start of Autumn/Winter 2020 Shanghai Fashion Week to the following fashion weeks in London, Paris and Milan in the Spring/Summer 2021 and Autum/Winter 2021 season, the 2020 and 2021 Paris couture week. By revisiting and analysing the changing vehicles and multi-disciplinary formats of online fashion weeks and the corresponding shows, this paper will identify the new functions and meanings of fashion shows and fashion weeks during and after the pandemic, further elaborating on the new democratisation and cosmopolitanising of fashion communication in this era.

Visual netnography will be the main methodological approach of this research as most of the data used for this paper will be online and visual data. As mentioned above, the first online fashion week, which was Autumn/Winter 2020 Shanghai Fashion Week, and the following fashion weeks for Spring/Summer 2021 in London, Paris and Milan, as well as the 2020 Paris couture week, will be the main sources of data for this paper. All the events in these fashion weeks, particularly fashion shows, will be the focus.

The conclusion of this paper will articulate the changing formats, functions and characteristics of fashion shows and weeks during and after the pandemic, pointing out the changing system of international fashion shows and weeks. With comprehensive digitisation and deeper engagement with the public, fashion shows and weeks are further remediating the regimes and discourse of fashion, demonstrating cosmopolitanism within the global fashion industry.

Introduction

The global COVID-19 pandemic that has spread across the world since 2019 has brought fundamental changes to the forms of fashion communication. These influences on fashion shows and fashion weeks in particular, as core fashion promotional vehicles, are highly noticeable. All fashion shows and weeks since the first established online fashion week, the Autumn/Winter 2020 season of Shanghai Fashion Week (hereafter referred to as 'A/W 2020 SHFW'), have been promoted and broadcast online and all international fashion weeks (the 'Big Four' in particular) have been open to public audiences digitally via diversified forms such as films, livestreaming shows and events, and industry talks, rather than being exclusive to industry professionals.

The subject of the changing formats of fashion weeks has been widely discussed within the industry, drawing on the topics of the feasibility of fashion weeks in terms of sustainability, and the combination of womenswear and menswear, as well as the functions and meanings of fashion weeks for different types of brands. However, few academic studies have treated fashion weeks as an independent topic as there has been little fundamental or revolutionary change occurring in this field, especially in terms of formats and meanings. Contexts are now changing due to the global pandemic, which has triggered the further democratisation of fashion communication as fashion weeks are now all online and available to the public.

Technology's role in showing fashion has long been explored and showcased by industry practitioners and documented and discussed by scholars (Duggan, 2001; Skov, L. et al., 2009; Evans, 2010, 2011; Sykes, 2015; Poletti, P. and McDowell, 2016; Stark, 2018). Triggered by the COVID-19 pandemic, with the emergence and rise of digital and online fashion weeks, the new practices of digital fashion have now been further developed, exemplified by A/W 2020 SHFW with its online interactive showcasing system incorporating shows and films with 'see now buy now' functions, as well as the following seasons in 2020 and 2021, seen through the rise of CG (shorten for computer graphic)-produced shows and films proliferated by Chinese designers. Other European fashion weeks, such as the London and Paris fashion weeks, have also been exploring new practices since the A/W 2020 season, transferring their orthodox showing systems to a more digitised and interactive format. For instance, London Fashion Week has seen androgynous showcasing, more live and socially engaged events with AR techniques being applied, and custom virtual showrooms, as well as 3D virtual maps with VR technology since the A/W 2021 season (Lalonde, 2021).

Under these circumstances, this paper will articulate, revisit and compare the different forms of online fashion weeks, the corresponding fashion shows in particular, from the start of Autumn/Winter 2020 Shanghai Fashion Week to the following fashion weeks in London, Paris and Milan in the Spring/Summer 2021 and Autum/Winter 2021 season, and the season of Spring/Summer 2022. What new disciplines have been explored and created in showcasing fashion digitally during the pandemic and how these new practices have revolutionised the orthodox perceptions of showcasing fashion are the main questions discussed in this paper. Furthermore, accompanied by the recent rise of the 'Metaverse' as an industry context earlier in 2021, the number of digitised fashion shows has risen rapidly, especially at SHFW and LFW

in the past two seasons. This paper also introduces how the concept of the Metaverse is influencing the format of showcasing fashion with further engagement with technologies.

Context and Literature Review (incomplete with future development specification)

As mentioned above, how the industry's engagement with digitisation is changing the formats of showing fashion, as well as the system of fashion weeks, is the key focus of this research, particularly the new practices. To research this topic, it is necessary to briefly review the prior research on digital fashion, as well as the formats and functions of shows and fashion weeks, especially those presented at the 'Big Four' fashion weeks.

With the expanding scale of international fashion weeks in terms of culture and commerce, the organisational structures of such fashion weeks are increasingly complex. The legitimate 'Big Four' fashion weeks have gained global recognition as the central focus of the fashion industry. They are highly influential in 'rendering and reproducing' the structure of the fashion field (Entwistle and Rocamora 2006, p.741). In the meantime, they have acquired mature operating systems and developed cultural characteristics embedded with each fashion city due to their hierarchical status and considerable cultural heritage in fashion. However, this hierarchical status has shifted with the emergence of fully digitised online fashion weeks triggered by the pandemic. As international fashion weeks have been the most renowned core platform for brands and designers to publish their new season's collections, the changing system and format of showcases will inevitably have a profound influence on the future of the industry's operating system as a whole. Being the core stage for emerging high-end or premium designer brands to build their brand identities and global images to boost their international sales, fashion weeks have also become one of the most crucial tools in driving the host city in becoming a globally recognised fashion city (Scott, 2001).

For designers' explorations in terms of digitising the formats of showing fashion, prior studies emphasise that from Issey Miyake to Iris van Herpen, as well as to Hussein Chalayan, as mentioned and studied by Duggan (2001), a number of 'science designers' have advocated for and invented new-tech fabrics and clothing construction techniques, as well as new techniques in showing fashion. These designers view technology as 'a break from the confines of traditional art-making, and both recognize the physical process as the actual work' (Rush, 1999: 48). Apart from fashion shows, both the academic field and the Western industry have long discussed the future of fashion weeks and the possibilities of completely digitising a fashion week or a fashion show (Jones, 2019; Ding et al., 2020), yet these virtual discussions have not become reality until SHFW 2020. Furthermore, completely digitising a fashion week and creating an interactive digital system for it with a series of theatrical fashion performances in which audiences can be immersed through a social platform in the cyberspace via smartphones has never appeared throughout the whole of fashion history from the modern to the contemporary period since the A/W 2020 SHFW. As a microcosm of the fashion industry (Entwistle and Rocamora, 2006), a fashion week can represent the most up-to- date situation of its domestic fashion system, from manufacturing and design capabilities to international hierarchical positions, on both the commercial and cultural levels. Whether this

groundbreaking change brought about by the pandemic can expedite the democratisation of the whole industry is unfolded and discussed in the following core analysis sections, with emphasis on the new practices being created in digital fashion weeks.

For digital fashion research in general, the most recent studies have investigated post- digital artisans (Openshaw, 2015) and the revolutionisation that AI technology has brought to the fashion industry, from design and production to consumption (Perry et al., 2013; Luce, 2018; Arribas, V. and Alfaro, 2018). Technology connecting art and science, as well as helping to revolutionise the way that people engage with the fashion industry, are topics that have been discussed in the field of fashion in these studies. However, few have shed light on the changing format of the digital reproduction of fashion and the rendering of the structure of the industry through fashion weeks. Adding this to the fact that the current era involves image productions (such as shows and fashion weeks) being revolutionised by new technologies and the rise of the Metaverse, the importance of discussing the future in terms of how fashion is shown and mediated becomes clear. This paper explores this topic with a series of follow-up studies introduced on mediating fashion in the post-pandemic era within the context of the digitisation of fashion images.

To be continued...

Future development specification:

In this literature review, prior research on democratisation of fashion will be further explored, especially on discourse regarding the interconnections between the democracy of fashion and the interplay of technology and aesthetics. This serves as the theoretical foundations of the core analysis following the new disciplines of showcasing fashion brought by the online fashion weeks, especially in terms of how it has changed the format of mediating fashion through further democratisation. In this way, from a theoretical perspective, this paper will deepen the underdeveloped structures on the topic of mediating and democratising fashion.

Methodology (incomplete with future development specification)

Visual netnography (Rose, 2016; Belk and Kozinetz, 2017; Kozinets, 2019; Ong et al., 2021) is the key method applied throughout this research, which is feasible due to the nature of this online cultural ethnographic research. Most of the data collected for this research is online visual data, including photographs and videos collected as part of primary research or from secondary resources, such as the official websites of the London, Paris and Milan fashion weeks. As mentioned above, the first online fashion week, which was the Autumn/Winter 2020 Shanghai Fashion Week, and the following fashion weeks for Spring/Summer and Autumn/Winter 2021, as well as the Spring/Summer 2022 season in London, Paris and Milan, are the main sources of data collected for this paper.

Visualised events, such as fashion shows, films and online immersive showrooms, are the main resources of data collected for this paper. As this research is being undertaken to investigate

the changing practices for showcasing fashion that incorporate the digital design genre and technologies in order to discuss the new interpretations of mediating fashion, the shows, films and events are selected for this research based on one criterion, which is that the format or methods of showcasing fashion, either commercially or aesthetically, need to be a new practice that has never existed or rarely been seen in the previous orthodox fashion weeks. For instance, live-streaming is not a key focus as a part of the digitisation of fashion weeks in this paper as it has existed for over 20 years since SHOWstudio introduced it in 2000 (Bartlett et al., 2013; Diaz Soloaga and Garcia Guerrero, 2016), although it is still a core method of digitising fashion weeks. Within these boundaries, the data collected could be separated into the following two categories.

Firstly, for the shows and films, they need to incorporate the digitised genre in terms of design and production, such as the application of CGI techniques or 3D designs, image capturing, body scanning, and VR, AI or AR technologies, not just a videographed traditional fashion show or events being displayed online. Secondly, the events selected for this research are mainly online immersive show spaces for brands and showrooms that have completely digitised the conventional commercial system of fashion weeks, which are traditionally seen in physical spaces.

More explicitly, a breakdown of the visual data collected through primary or secondary research is given in the following table (to be developed in the season of A/W 2022):

Fashion Week and Season	**Shows and Events**	**Visual Data Collected or being Collected**
A/W 2020 to S/S 2022	*The Parallel Universe*	Image Clips, Videos
SHFW	Shows of Designer Brands: Angel Chen, Xuzhi Chen, Roderic Wong, Fengyi Tan, Window Sen and Jiapei Li	Photography, Image clips, Video Recording, Shows Videos
A/W 2020 to S/S 2022 LFW	DiscoveryLAB	Image Clips, Videos
	Designers and Brands: Victor Wong, INGRID KRAFTCHENKO REPLIKANT, Ravensbourne's class of 2021, Tiger of Sweden, JENS LAUGESEN X GENERICSENS 2.0	Photography, Image clips, Video Recording, Shows Videos
A/W 2020 to S/S 2022 PFW	Official Online Website and Showcasing System	Image Clips

	The Simpsons Balenciaga	Film, Image Clips
To be developed in the season of A/W 2022		

Future development specification:

The next season of A/W 2022 LFW, Paris, and SHFW will also be tracked as the netnographic data collected for this paper. The analysis method and data decoding processes will also be specified in this section.

The following analysis is unfolded in response to the core questions discussed in this article in two sub-themes. Firstly, to what extent is new technology being applied to show formats and what new practices have been created through these new formats? Secondly, how do these new forms of practices further democratise or remediate the orthodox regime of international fashion weeks' systems and what does this mean for future practices of communicating fashion businesses and images?

Core Analysis (incomplete with future development specification)

In response to the above-mentioned sub-questions, the core analysis will be unfolded into two sections. Firstly, virtual online showcasing systems will mainly analyse the online showcase and commercial system of the digitised fashion weeks regarding the new format of commercial fashion communication via a newly constructed showcase system. The emergence of newly created digital showroom systems was triggered by the pandemic and set up the new opportunities of the interplay between technologies and showcase regions seeing with the dissolving the geographic boundaries. Furthermore, the non-exclusivity of these spaces and activities as compared to the conventional physical showrooms in the prior insider-only fashion weeks and the developed democracy of fashion will be discussed under this context. The above- mentioned analyses will be exemplified with paradigm studies of the London Fashion Week's 'Discover Designer' system known as the DiscoveryLAB, as well as the Shanghai Fashion Week's 'The Parallel Universe', both being an immersive showcasing environment for audiences. Paris Fashion Week's online showcasing system will also be explored in this section.

The second section will be used mainly to introduce and discuss the CG shows and live-streamed performances as new disciplines emerge in digital fashion weeks. The brands' and designers' rising enthusiasm for these new disciplines will be exemplified with selected fashion shows, films, and live performances presented in the London and Shanghai fashion weeks. With increasing numbers of emerging designer labels, the industry is currently experiencing a turning point whereby fashion shows are further incorporating CG and 3D animations, as well as a new rising format of live performance embedded with a 'see now buy now' commercial

system. The increasing extent of multidisciplinary fashion showcasing will be fully introduced and the future of fashion shows and films will be discussed.

- Virtual Online Showcasing System

In A/W 2020 SHFW, the virtual online showcasing system was recognised as 'The Parallel Universe', created as an immersive phone-accessed digital series, embracing theatrical performances on a virtual platform. This was an entirely new way of showing fashion triggered by the unexpected worldwide outbreak of COVID-19 that involved theatrical performances and exhibiting systems completely produced digitally and open to the public audience through an interactive visual system. The whole system was gravity-detected while the audience watched using their phones in a virtual space (see Figure 4). When entering the series through the WeChat platform on a smartphone, it was divided into three spaces referring to three designers, namely, Xuzhi Chen's α space (see Figure 5), Roderic Wong's β space (see Figure 5) and Jiapei Li's γ space (see Figure 5).

Figure 4. The atrium for The Parallel Universe functioned as the shows' entry gateway as well as the online shop (images taken using Wang's iPhone from The Parallel Universe online system, and re-edited by Wang, 2020)

Figure 15. From left to right: the entry gateway to Xuzhi Chen's α space, Roderic Wong's β space, and Jiapei Li's γ space (images taken using Zhe Wang's iPhone from The Parallel Universe online system, and re-edited by Zhe Wang, 2020)

Future development specification:

Following the virtual online showcasing system created in A/W 2020 SHFW, LFW's virtual showcasing system of S/S 2021 will be reviewed and discussed. Some of the selected images in this section are as follows (see Figure 1-3):

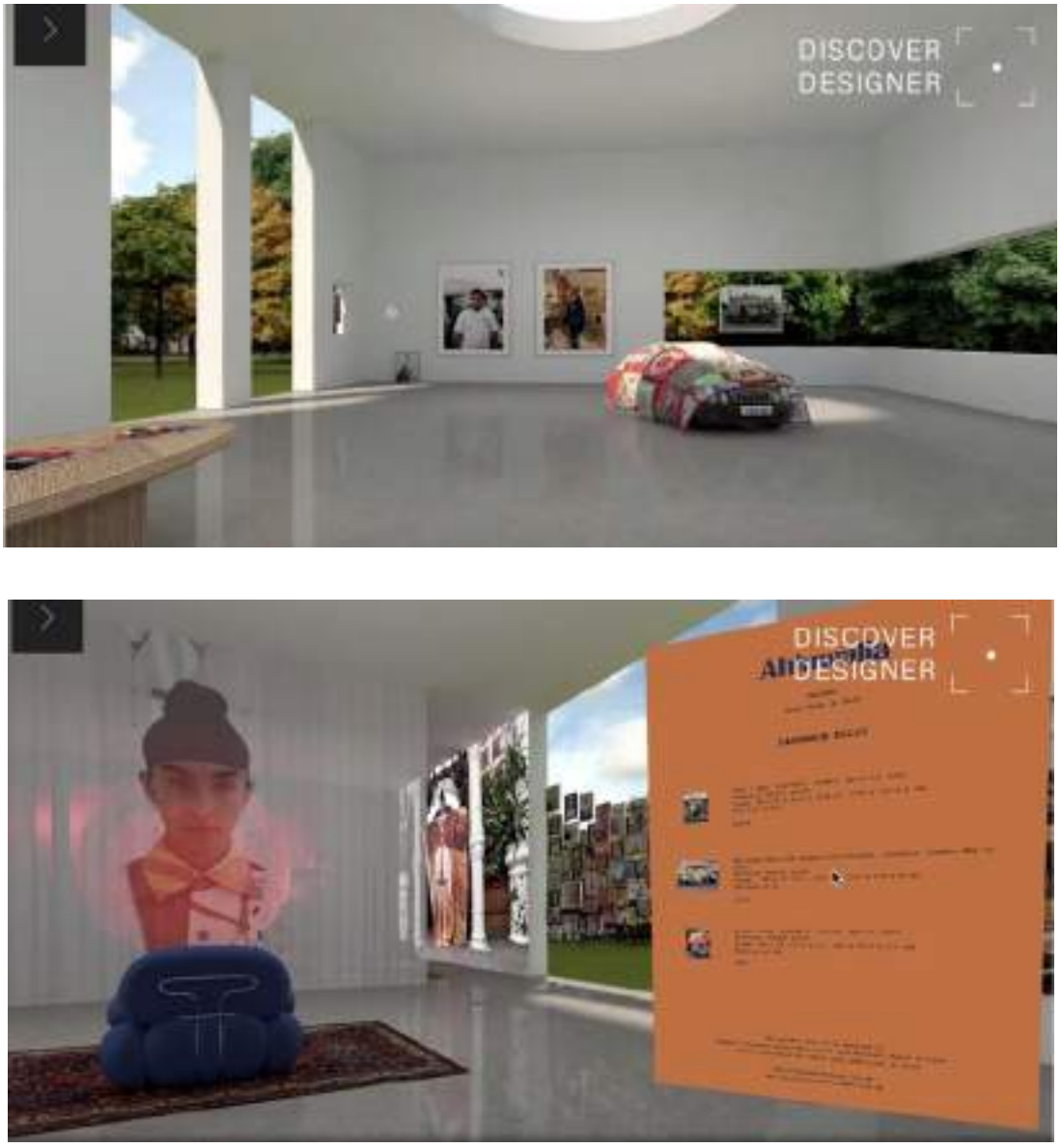

Figure 1-3. The London Fashion Week DiscoveryLAB (images from London Fashion Week)

This newly constructed online showcasing system has now substituted the prior conventional physical showroom system, aiming to construct a digital universe of fashion weeks. The future analysis in this section will be unfolded together with the discussion of the 'metaverse' as a general context and the future possibilities of its incorporation with fashion week's online showroom system. A critical analysis of the metaverse will be emphasised in this section and how the concept of most cutting-edge industry phenomena could be addressed or interconnected with this virtual showcase system will be discussed.

- CG Shows and Live-streamed Performance

The shows digitised and displayed through Labelhood for SHFW's A/W 2020 season that are discussed in this paper are the digital fashion performances by Angel Chen and Fengyi Tan. Xuzhi Chen mentioned in the above section, and Roderic Wong, who have presented their show with performance genre, was produced by the same creative studio named Hexagon Collective and delivered a digitised systematic fashion performance that could be viewed on mobile devices. This systematic performance, named 'The Parallel Universe' (Figure 5), was produced by three designers, Xuzhi Chen, Roderic Wong, and Jiapei Li. As one of the main organisers of SHFW that is commercially run to collect artistic emerging designers and delver new aesthetics to SHFW, XCommons collaborated with ICY Designer Platform for the explicit digital production. The ICY Designer Platform is a newly established designer platform launched in 2019 that specialises in digital production and exploring fashion's affinities with new technologies in both sales and presentation methods to showcase this series of virtual fashion performances.

Figure 6. The film of the digital fashion show and performance system The Parallel Universe co-produced by XCommons and ICY Designer Platform. It incorporated three IBC designers, Xuzhi Chen, Roderic Wong, and Jiapei Li for A/W 2020 SHFW (images copyright to Angel Chen, and were taken and re-edited from the show using Zhe Wang's iPhone, 2020).

Angel Chen's CG animated show (see Figure 7) and Fengyi Tan's 'see now buy now' digital physical theatre performance (see Figure 8) were both operated by Labelhood through live broadcasts. The live-broadcasted video was recorded on Taobao's broadcasting platform and could be viewed at any time that the audience wanted. The works, co-staged by XCommons and ICY Designer Platform, Roderic Wong's digital fashion show and film (produced by HC studio directed by Zhao) for instance (see Figure 9), were performed using one digital show and one promotional film, respectively, as part of The Parallel Universe series which was performed virtually rather than through a live broadcast. The access to this series was limited to one week between the 15th of April and the 22nd of April 2020.

Figure 7. Angel Chen's CG-animated performance video for the online A/W 2020 SHFW, photo copyright to Angel Chen and re-edited by Zhe Wang.

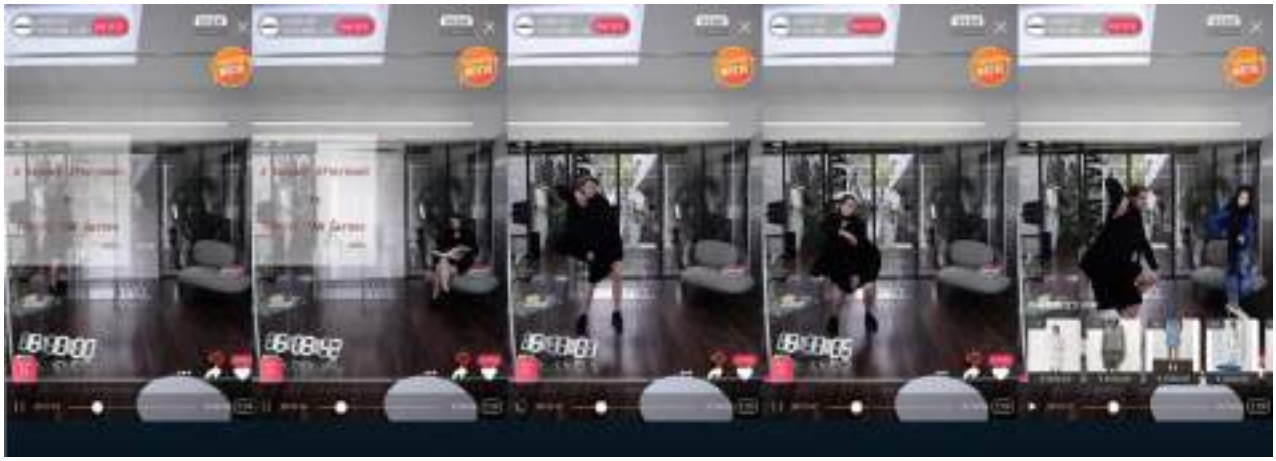

Figure 8. Fengyi Tan's 'See Now Buy Now' digital physical theatre performance video, staged by Labelhood and broadcast on the Taobao live broadcast platform (image taken from the video and re-edited by Zhe Wang, 2020).

Figure 9. Roderic Wong's fashion film co-staged by XCommons and ICY Designer Platform, which was directed and produced by HC studio. It shows the consistent identity of the accumulated new aesthetic collective initiated by Zhao and Jin. The physical theatre applied and followed by other IBC designers in showing fashion (images taken from the show using Zhe Wang's iphone, 2020).

Future Development specification:

Furthermore, the fashion industry's reflection on the concept of the metaverse via image production will be explored in this section. This will be exemplified by the 3D animated fashion film with the concept of metaverse as a context. AI Robert as characters presented by WindowSen will also be used as a new paradigmatic showcase format displayed at S/S 2022 SHFW. The selected images as data are shown as follows (see Figure 10):

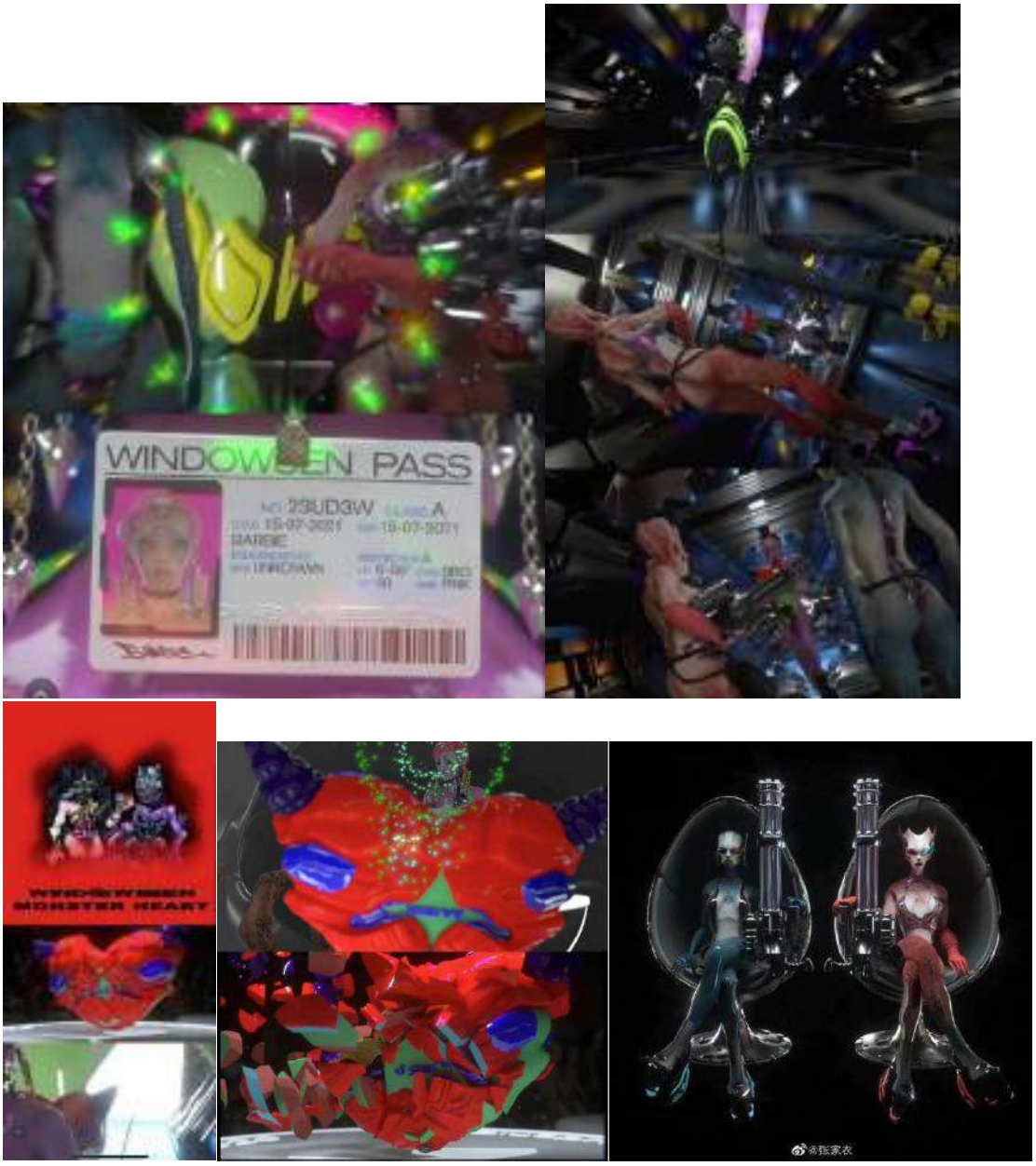

Figure 10: WindowSen CG and 3D animated fashion film ‘Monster Heart’ presented at S/S 2022 SHFW (images provided by WindowSen)

Furthermore, the CG shows presented at LFW and PFW will also be introduced and discussed, and Victor Wong’s film with the theme of ‘metaverse’ presented at S/S LFW will be selected with the following images used as visual data (see figure 11):

Figure 11. Victor Wong's fashion film '*Timeling*' presented at S/S LFW within the online showcasing system.

Triggered by the pandemic, these newly-emerged formats of shows and films with the digitisation trend and rising new technologies of AI, VR, and AR as well as the metaverse as context have revolutionised the format of mediating fashion. Most of these shows and films could be accessed by mass audiences, which has to some extent fundamentally broken the orthodox regime and hierarchical status in the conventional fashion weeks. This will also be further analysed in this section.

Conclusion (To be developed when all core analysis are completed)

The conclusion of this paper will articulate the changing formats, functions and characteristics of fashion shows and weeks during and after the pandemic, pointing out the changing system of international fashion shows and weeks. With comprehensive digitisation and deeper engagement with the public, fashion shows and weeks are further remediating the regimes and discourse of fashion, demonstrating cosmopolitanism within the global fashion industry.

By revisiting and analysing the changing vehicles and multi-disciplinary formats of online fashion weeks and the corresponding shows, this paper will identify the new functions and meanings of fashion shows and fashion weeks during and after the pandemic, further elaborating on the new democratisation and cosmopolitanising of fashion communication in this era.

To be continued...

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UNISEX FASHION: exploring the barriers that prevent marginal practices from becoming mainstream

Authors

Zijie Xu, Jack Coffin and Rosy Boardman,
University of Manchester, Manchester, UK

Corresponding Author: zijie.xu@postgrad.manchester.ac.uk

Keywords

Unisex fashion, mainstream market, gender identity, gender fluidity, male consumers, society and culture

Abstract

The incessant pursuit of novelty has recently seen some fashion brands develop unisex clothing lines. Unisex fashion does not make any strong associations with masculinity or femininity. As such, it can be worn by both men and women without communicating any specific gender identity. The emergence and development of unisex fashion challenges traditional gender norms because it allows men and women to wear similar or identical clothing, which may blur conventional gender boundaries and hierarchies. As such, it has the potential to reduce gender inequalities in society. However, only a small number of fashion designers and fashion brands have entered the unisex fashion market, making only limited forays. Therefore, unisex fashion is still a niche market in the fashion industry, and one which seems to be more appealing to female consumers and marginalised groups (such as the LGBTQ+ community) rather than mainstream consumers (particularly those identifying as male). More research is needed to explore the barriers that prevent unisex fashion from becoming mainstream and gender-diverse market. This research is in the developmental stage and seeks to adopt a qualitative approach to identify and analyse what kinds of barriers discourage consumers, especially male consumers, from accepting unisex fashion and allowing the market to become mainstream. The study also aims to address the link between society, culture, gender and fashion development, particularly focusing on the perceptions of millennials and Generation Z. In doing so, this research will develop theories of market mainstreaming, market development, and market system dynamics. Due to the privacy of individual gender identity and the social controversy of unisex fashion itself, the current research may not only help to inform the marketing strategy for the growth of unisex fashion brands and better understand the male consumers, but also contribute to the development of gender-neutral markets and gender-equal societies.

1. Introduction

Men's clothing became colourful after the Peacock Revolution in the 1960s (Pearson, 2020). More recently, we have seen the emergence of "metrosexual" in Europe (heterosexual men care about appearance and fashion) (Pearson, 2020) and "little fresh meat" in China (men with androgynous, effeminate and elvish features) (Chitrakoen, 2019). This indicates social changes are occurring and that men may be more open to unisex fashion. Unisex fashion is clothing that can be worn by both men and women without any specific gender feature (Oetojo, 2017). However, although unisex clothing attempts to embrace universalism, it seems to attract the interest of women more than men (Paoletti, 2015). Women are more willing to dress in a gender-neutral way in society (Sherman, 2014). Furthermore, unisex clothing caters to the fashion needs of marginalised groups due to its inclusivity (White, 2019). Research indicates that men would prefer not to deviate from conventional gender norms through their clothing practices (Sherman, 2014). Therefore, deep-rooted gender norms in society and culture make it difficult for unisex fashion to be accepted by the majority of fashion consumers, especially male consumers, which has prevented it from developing into a mainstream market to some extent (Sherman, 2014). Yet, existing literature tends to focus on the awareness of unisex fashion (Vasan et al., 2017), or more generally on the tension and triggers of mainstream market development (Scaraboto and Fischer, 2016). What is lacking is an understanding of the gendered barriers to mainstreaming in a market like unisex fashion. The present study aims to fill this gap in the literature by exploring the barriers that prevent unisex fashion from becoming a mainstream market, particularly the gendered barriers to mainstreaming that discourage male consumers from adopting unisex fashion.

2. Literature Review

2.1 Unisex Fashion

Unisex is usually described as "androgynous", "agender", "gender-neutral" and "genderless" (Bardey et al., 2020, p.2). It consists of clothing that is suitable to be worn by both genders (Oetojo, 2016). In the 1960s, the counterculture revolution, initiated by young Americans seeking a new way of life and expressing a new distinctive identity, officially put unisex fashion on the stage of history (Hill, 2018). Meanwhile, unisex fashion is also considered to be related to subculture, as the themes of youth subculture in the 1960s were androgyny and gender-blurring (Goulding et al., 2004). At present, the blurring of fashion styles among men and women seems to be on-trend (Abnett, 2016). Fashion designers (e.g. Hedi Slimane and Tom Ford), luxury fashion brands (e.g. Prada, Gucci and Jil Sander) and high-street fashion brands (e.g. ASOS, H&M and John Lewis) have embraced unisex fashion and applied it to their design and products (Saner, 2017; Jasman, 2018; Clark and Rossi, 2020). These all demonstrate that unisex fashion is gradually coming into the public insights and attracting more and more attention.

2.2 Mainstream Market and Unisex Fashion

New markets emerge to meet the unsatisfied demand of consumers in existing markets (Scaraboto and Fisher, 2013). As the new market is initially small and maybe culturally stigmatised, it hopes to develop and expand to become a mainstream market that is legitimate and culturally recognised and accepted by the majority of mainstream consumers (Humphreys, 2010; Wang et al., 2020). Existing studies demonstrate that market actors (human and non-human) such as producers (Wang et al., 2020), entrepreneurs (Schouten et al., 2016), social media, celebrities (Mckeown and Shearer, 2019) and so forth are likely to promote or hinder market development to varying degrees (Ertekin and Atik, 2020). Notably, consumers play an essential role in affecting market changes (Schouten et al., 2016). Despite being around since the eighteenth century and developing all the time (Ranathunga and Uralagamage, 2019), unisex fashion has yet to become mainstream (Chen, 2011). Moreover, millennials and Generation Z, who grew up with the Internet and social media, are more likely to discover, access and own fluid and non-binary concepts of gender (Diamond, 2020). For millennials, gender fluidity is introduced as a new concept of gender expression (Green and McCelland, 2019). Both genders enjoy shopping and fashion consumption (Nellikunnel et al., 2015). For Generation Z, consumption is a way of expressing their identity and the pursuit of moral truth (Francis and Hoefel, 2018). Research suggests that Generation Z agree that people should not be defined and limited by their gender (Elan, 2020). It is for these reasons that the present study will focus on millennials and Generation Z as the main target groups.

2.3 Gender and Unisex Fashion

Gender is a complex concept, usually accompanied by social, cultural and psychological meanings, and defined as being constructed by culture and society (Goulding and Saren, 2009). Fashion is considered to be closely related to the construction of gender, and people tend to visually express their gender identity and personality to the world through fashion consumption (Kacen, 2000). Fashion also reflects and supports gender fluidity and gender identity (Clark and Rossi, 2020). Research shows that in the past, women tended to spend a lot of time and money paying attention to fashion while men did not (Patterson and Elliott, 2002). Nowadays, the traditional social roles of men and women and people's perceptions of gender roles have changed through economic and sociocultural development (Shin and Koh, 2020). Men now purchase fashion products to follow trend, re-establishing the concept of masculinity (Al-Mutawa, 2015). Sandro (2020) states that fashion blurs the apparent boundaries between masculinity and femininity, acting as a political mediator between structural changes in society and the associated discriminatory resistance. However, the concept of unisex fashion embraces gender binary, which may lead to some gender controversies (Sherman, 2014; Mckeage et al., 2015). The main controversy is that the gender fluidity of unisex fashion can cause people to question their gender identity, especially for male consumers (Sherman, 2014). Hence, gender is considered as a possible barrier for preventing unisex fashion from becoming a mainstream market in this study.

2.4 Male Consumer and Fashion Consumption

Most research in the consumer culture area, especially in the field of fashion consumption, focuses on female consumers rather than male consumers (Bakewell et al., 2006; Gupta and Gentry, 2016; Branchik and Chowdhury, 2017), due to the fact that fashion consumption is traditionally regarded as feminine behaviour (Bakewell et al., 2006; Ourahmoune, 2016). However, with cultural and social developments, as well as the feminist movement, men have recently taken more interest in fashion consumption (Koksal, 2013). Furthermore, in post-modern society, consumption is the main means of constructing identity and is equally important for men and women (Koksal, 2013). Men have now started focusing more on their bodies and expressing their individuality by changing external conditions, for instance, plastic surgery and make-up (Workman and Cho, 2012), which drives the emergence of new concepts of masculinity – metrosexual in western culture and androgyny in eastern culture (Chitrakorn, 2019; Pearson, 2020). The men's fashion market has grown faster than the women's segment in recent years, with male consumers becoming as passionate about fashion as female consumers, making them a target for fashion brands (Amed, 2012; Statista, 2021). Nevertheless, research suggests that male consumers, particularly heterosexual men, are worried that fashion consumption challenges traditional gender norms of masculinity (Gupta and Gentry, 2016). This is because traditional male gender norms consist of hegemonic masculinity, with menswear often dull and infused with meanings of power and authority (Twigg, 2018). Fashion consumption can easily be perceived by men as a sign of homosexuality (Gupta and Gentry, 2016).

Existing research has primarily focused on a western context, with a lack of research on the Chinese context (Zheng, 2015; Kuo et al., 2021). Unisex fashion has been on the rise in China in recent years, with the gender fluidity of fashion being sought after by China's young generation (Luo, 2019; Luo 2021). Searches for genderless clothing on the Tmall shopping site surged by 150% (Mollard, 2020), and unisex fashion was one of the top 10 lifestyle trends keywords on Little Red Book in 2020 (Luo, 2021).

Furthermore, "little fresh meat", a unique and new concept of masculinity in China, is widely accepted by fashion brands (Chitrakorn, 2019). However, gender stereotype has always been a huge problem in China, and even in modern China some traditional gender norms still exist in daily life (Zhao, 2020). In particular, effeminate men, the popular androgynous male identity of "little fresh meat", are considered by some people to be a threat to the nation-state (Wen, 2021; Song, 2021). Nevertheless, many young Chinese netizens believe that this androgynous image reflects aesthetic diversity and represents social progress, and that masculinity should not be judged solely from the perspective of appearance (Wen, 2021). The young celebrities labelled as "little fresh meat" are particularly popular among China's young generation and are influencing Chinese male consumers to become more involved in fashion consumption (Song, 2021; Luo, 2021). Even so, Chinese male consumers are still under more pressure to try and adopt unisex fashion practices than female consumers (Luo, 2021).

Therefore, this study hopes to draw more attention to unisex fashion and market mainstreaming by focusing on the barriers to unisex fashion's development, as well as adding to paucity of literature concerning male fashion consumption. The current research is in a developmental

stage and will build on institutional theory to work towards an understanding of the barriers preventing unisex fashion from becoming mainstream. As such, it will make theoretical contributions to market mainstreaming, market development and market change. Institutional theory means the various actions that actors take to shape and change the institutional environment (Scott, 2013). Institutional theory emphasises that social norms, cultural understanding and shared expectations are the key sources of institution's structures, outcomes and actions (David et al., 2019). Institutional theory considers all actors that can influence the market and consumers, and the legitimacy of market development (Slimane et al., 2019). This makes it an appropriate lens to use to help researchers understand and explain the development of the unisex fashion market and its existing ambiguous gender controversy from social and cultural perspectives.

3. Methods

The initial plan is to adopt a qualitative approach to explore the barriers that prevent unisex fashion from becoming mainstream. Qualitative semi-structured interviews will be used to invite male fashion consumers who have not adopted unisex fashion to deeply understand why male consumers are reluctant to embrace unisex fashion and how market actors produce barriers to prevent male consumers from accepting unisex fashion. Millennials and Generation Z tend to consume across gender lines (Anyanwu, 2020) and are more willing to accept gender fluidity (Gosling, 2018) and will therefore be the participants for the present study. Given the popularity of unisex fashion in China in recent years (Luo, 2021), the current research has chosen China as the target country. Therefore, the target groups are millennials and Generation Z male consumers in China. The snowball sampling is planned to be used to reach approximately 30 participants for qualitative interviews (Morse, 2000) or until saturation point is reached. Discourse analysis will be adopted to analyse qualitative data and computer-assisted qualitative data analysis software (CAQDAS) such as Nvivo will be applied to help and manage data (Saunders et al., 2009).

4. Conclusion and Future Development

Focusing on the role of gender in market mainstreaming, this research will contribute to the marketing theories of market change, market-shaping, market dynamics and new market emergence. It will also develop the application of institutional theory to fashion marketing, exploring how gender logic in institutional environment guides fashion market actors to affect market change. Managerially, this research will help fashion marketers and retailers better understand male consumers in the fashion industry, which remains under-researched. Fashion companies and unisex fashion brands can develop and adjust their marketing strategies to facilitate the development and expansion of unisex fashion. Socially, researching unisex fashion will raise awareness of gender equality and gender diversity in culture and society.

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EXPLORING THE INTEGRATION OF BOTH HUMAN AND TECHNOLOGY SERVICE INTERACTIONS IN FASHION RETAILING

Author

Eden Zhang,
Doctoral Researcher, NTU, Nottingham, UK

Corresponding Author: eden.zhang2017@my.ntu.ac.uk

Keywords

Fashion communication; Smart servicescape; Co-experience; Experiential value; Phenomenological approach

Abstract

Rationale/Purpose

The past few years has seen a growth in consumers' interaction with fashion brands through a combination of various smart devices such as smartphones, laptops, virtual assistants etc. One of the reasons can be that in this digital age, brands seek a way to reach out to consumers digitally by applying strategies of digital marketing such as multichannel, cross-channel and omnichannel strategies. The concept of smart retailing has been shown by some scholars as an innovation for undertaking an omnichannel strategy, which contains the in-store use of smartphones and the use of in-store technologies. Accordingly, consumers are being encouraged to seek information and solution digitally as they are enabled to engage with the brand without human-based services.

On the other hand, in human-based services, more clearly frontline staff has been playing a pivotal role in a retailing and service contexts, by building relationships with customers and acting in a way to reflect brand identity. Retail stores can also be viewed as a sociable platform for consumer and salesperson in which human-based services are vital to an enhanced shopping experience and even offer more as it is a process of value co-creation. Especially in fashion sector, for fashion has its own philosophy with multi-dimensional value and huge emotional and experiential connotation towards consumers. It therefore differs significantly from other consumer products and people are keen to touch fashion products and consult with staff before purchasing.

These raise questions on the interpersonal interaction experience in a technologically enabled fashion store. Most relevant extant studies focus on consumer's adoption to technology, in-store technology-related interactive experience and consumer's preference for different channels. These studies are overly in-store technology-centric and seem to view the technological element as a stand-alone system investigating it through an isolated point of view,

rather than an integrating angle with the social interaction between frontline staff and consumers. Additionally, the voice from generation Z (1997-2012) calls for focus since they are believed to be brought up by technology and specialise in using it in every aspect of their life while being more willing to show their individuality.

Regrading theoretical aspect, Bitner (1992) cultivates a broad conceptualization known as servicescape aiming at the store environment in which consumer and staff communications take place and their experiences are formed. It is drawn on stimulus-organism-response (S-O-R) model which follows the earlier dominant paradigm in marketing and consumer research with a mindset that human experiences are measurable. However, recent years, the development of S-D logic calls for a reconsideration on service and value through a phenomenological lens and underscores a co-creation concept. This research is thus to explore the co-experience between consumers and staff in smart fashion store and the experiential value.

Design/methodology/approach

Phenomenological approach

Data collection method:

1 Diary as the main method for recording participants co-experience

2 Follow-up Interview as an additional method after reading participants' narrative

3 Autoethnography for store observation

Level of store: Flagship

Sample population: Gen Z

Sampling Strategy: Purposive Sampling

1. Introduction

For research context and rationale, please refer to Abstract Aim

To explore consumers' co-experiences with staff in smart fashion stores and their experiential value

Objectives

1 To evaluate the concepts: experience, co-experience, experiential value and develop a framework built on previous studies to underpin the process in-store experiential value formation

2 To update servicescape framework in terms of its flexibility and interactivity demonstrating technologically enabled servicescape served as an interactive platform to enhance the co-experience between actors

3 To explore co-experience between consumers and staff in smart fashion store through a phenomenological perspective via rigorous data collection and investigate consumers' co-experiences with staff to discover experiential value.

4 To develop better understanding on consumer-to-staff interaction experience in smart fashion store, plus practical insights into the working of frontline personal and the design of an interactive experiential fashion store environment

2. literature review

2.1 Consumption experience and experiential value

2.1.1 Experience in general

What do people describe when talking about an experience? The description actually centres around stories recounted from a certain moment in past few hours, on yesterday or in yesteryear (Jantzen, 2013). A friendly smile of a passer-by when heading to the office in the morning; a sudden noise disturbing one's deep meditation; a trip abroad during holiday; a fine dining or a bitter quarrel with the beloved one are all counted as experiences. Experiences occur in one's daily routine without being planned or designed and daily routine is mundane. Thus, these incident-like experiences are easier to remember and may even influence one's life profoundly such as a catastrophe or bliss (Jantzen, 2013; Zajchowski et al., 2017).

Regarding its semantic meaning in everyday life, the term 'experience' could be one of the few words that people use quotidianly but hard to give a clear definition since it is either a noun or a verb with multiple meanings based to different contexts in daily life (Collins, 2021; Cambridge, 2021). In terms of its conceptual definition in academia, the diverse meanings ascribed to 'experience' in different contexts have derived different conceptualisations in different academic disciplines such as natural sciences, philosophy, sociology, psychology and marketing (Pollio et al., 1997; Carù and Cova, 2003; De Keyser et al., 2015).

A holistic psychology view

Jantzen (2013) applies a psychological approach to delineate and comprehend the term 'experience'. To minimise the confusion and clearly distinguish between the noun 'experience' and the verb 'experiencing' in English, the author refers to its German equivalents: *Erlebnis* and *Erfahrung*. According to Jantzen (2013), *Erlebnis* is defined as a present volatile moment of sensing, feeling and knowing the ongoing situation and can be further divided into two subtypes:

1) the act of sensing and feeling;

2) the act of observing autobiographical knowledge;

Erfahrung is defined as "*a coming to know a fact*" which can be either objective or subjective and further divided into three subtypes based on different kinds of memory:

3) autobiographical knowledge (countable) dwelled in short or long-lived episodic memories;

4) practical skills (uncountable) dwelled in implicit procedural memories;

5) conscious knowledge (uncountable) dwelled in generalised episodic memories (Jantzen, 2013; Collins, 2021; Cambridge, 2021).

Accordingly, experience contains both *Erlebnis* and *Erfahrung* representing a state of mind. *Erlebnis* constitutes the act of having *Erfahrung,* namely 'experiencing' is a process to produce 'experiences' (Jantzen, 2013) and 'experiences' are the outcomes of the past experiencing process (Jantzen, 2013; Zajchowski et al., 2017). It is the two forms of experience: *Erlebnis* and *Erfahrung,* and the five subdivisions of experience that complicate this term, which are associated with past memories, present events and future imagination. Sundbo (2009) underlines that an experience is a mental journey in which the memory of things happened in past but continuously being kept in mind.

To illustrate, considering the first time visiting a smart fashion store (SFS), the high-tech shopping environment probably disturbs one's already formed knowledge of fashion stores (experience 5: conscious knowledge). This 'first time' visit is the process of 'experiencing 2' (the act of observing autobiographical knowledge) and 'experiencing 1' (the act of sensing and feeling the store environment). After 'experiencing 1' recurs many times, one may learn enough knowledge of a smart fashion store ('experience 5': conscious knowledge) and forget the first time of visiting. Becoming a hardened shopper/user in a specific smart fashion store implies adopting well to in-store technological devices and being familiar with the layout of the store. Learning to use those technological interactive terminal and become a hardened user implies how knowledge becomes skills through the transfer of different types of memory/experience: from 'experience 3': autobiographical knowledge (countable) dwelled in autobiographical memory to 'experience 4': practical skills (uncountable) dwelled in implicit procedural memories.

This instance demonstrates the linkage and transfer between these five types of experience in a linear manner and it starts with the experiencing process of the smart fashion store. Indeed,

when it comes to describing and investigating human experiences in a certain environment, the environment per se is often viewed as the external stimulus by which individuals' experiences are directed as their emotions change, according to Mehrabian and Russell (1974)'s stimulus-organism-response (S-O-R) model and atmospherics (Kotler, 1973). These environmental psychology frameworks approach human experience at individual level where experiences are measured by three emotional dimensions: arousal, pleasure and dimensions (Bakker et al., 2014). Based on emotional responses, experiences are evaluated (Bastiaansen et al., 2018). This environmental psychology standpoint is based on one of an assumptions belonging to Cartesianism which believes that human experiences are measurable and determined by "structural mechanisms" (Thompson et al., 1989). Additionally, In the early 1990s, drawn on Mehrabian and Russell (1974)'s S-O-R model, Bitner (1992) cultivates a marketing environmental theory named 'servicescape'. Although it still pays attention to the effects from stimuli in an environment towards human responses, servicescape nevertheless carries a broader angle covering not only emotional states but internal cognitive and interpersonal interaction among people within a place as well (Bitner, 1992).

Contrary to S-O-R model, Jantzen (2013) avers that experiencing is not only simply started with the process of responding to a stimulus. Rather, an experiencing process could also dwell in one's practical skills (experience 4) and conscious knowledge (experience 5), not only being elicited by one's actually executing the skill but also by one's thoughts, alongside Pollio et al. (1997) who argue that 'thinking' as a process of being aware of an idea is a kind of 'experiencing'. For instance, thanking about a scene of farewell or divorce may cast sadness, while dreaming about going shopping and wearing new garments could elicit enjoyment, which may become motivation for having real shopping experiences. Importantly, during the process of experiencing, one's autobiographical knowledge/memory (experience 3) of the past relevant events may also emerge spontaneously (Jantzen, 2013) and the remembered experiences can be influential or even more powerful dominating over the current experiencing process (Zajchowski et al., 2017).

As such, an experiencing process contains the act of sensing and knowledge gaining during the process. The sensing and feeling process may generate subjective knowledge which affects the experiencing one (Jantzen, 2013), while objective knowledge may engage or hinder the experiencing one emotionally and sensually (Kotler, 1973) who is simultaneously being affected by past autobiographical knowledge/memory (Jantzen, 2013). By comparison, although Mehrabian and Russell (1974)'s S-O-R model gives a detailed investigation of sensing and feeling process, it does not involve the three types of *Erfahrung/experience* in Jantzen (2013)'s work. In other words, although S-O-R model provides insight in emotional responses in a process of experiencing, it fails to capture the dynamic nature of human experience which changes over time. It is hence more like a snapshot aiming at a static moment, rather than a holistic point of view on human experience as the present sensing and feeling blends with the past memory and knowledge.

What is more, the five types of experience are interconnected. According to Jantzen (2013), the sensing and feeling process (experience 1) is associated with or impacted by former experiences consisting in practical skills (experience 4) and conscious knowledge (experience

5), which are developed before the current experiencing processes. When the current experiencing moment ends, it becomes a kind of past autobiographical knowledge/memory (experience 3). It may be remembered when one is experiencing something relevant in the further as a cycle (De Keyser et al., 2015; Zajchowski et al., 2015). The recurrence of autobiographical knowledge/memory (experience 3) may be developed into practical skills (experience 4) and conscious knowledge (experience 5) as an experiential learning process (Holbrook and Hirschman, 1982). Furthermore, during the current experiencing process, sensing and feeling (experience 1) often merge with knowledge gaining (experience 2) and could branch out to autobiographical knowledge/memory (experience 3), practical skills (experience 4), conscious knowledge (experience 5) or even a new sensing and feeling process (experiencing 1) (Jantzen, 2013). Thus, the five types of experience are intertwined together influencing the experiencing process and the presence is influenced by the past, which forms the future (Jantzen, 2013). Consequently, experiencing is a changing and ongoing process combining the unknow and therefore curious part with the known and hence presumed part. The unknown part becomes known later in retrospect with the emergence of new potential possibility for the further (Jantzen, 2013).

In the case of visiting smart fashion store (SFS), when one is shopping in SFS, he/she may recall the last time or earlier times when he/she was in this kind of commercial environment. If the one had an unpleasant journey before such as encountering an employee with bad service attitude or a service failure of in-store technology, he/she probably holds low expectations during the current visit. Also, one may already be familiar with the function or layout of the smart store. When it comes to preforming skills in using in-store technology, during the process, one may recall how to use these terminals from past memory. The user ability is hence impacted by the past, which in turn influences the current using process. Additionally, the current SFS journey will become past memory and continuously influences one's next visit to SFS in the further. Moreover, one's SFS experience is generated not only when actually presenting in the store, but also when one recalls the memory in the past or imagines a scene of SFS in the further. Therefore, the complexity of the term 'experience' is reflected by the "non-sequential nature" of the structure of psychological coherence and ramifications (Jantzen, 2013), rather than a linear structure. Yet the coherence of human experiences always involve the process of immediate feeling and sensing, a kind of bodily action, thereby being deemed to be corporeal and mental phenomena (Jantzen, 2013). Thus, human experience as the present sensing and knowing blends with the past memory and knowledge as well as the hope and worries of further.

The existential phenomenology perspective

There is another approach which investigates human experience based on the "*relationship between the people and their world*" (Pollio et al., 1997, pp. 4). According to Pollio et al. (1997), this standpoint has opened two avenues: one is for psychology known as *Gestalt* and the other is for philosophy known as *phenomenology*. Later, the viewpoint of phenomenology is integrated into the philosophy of existentialism to form a contemporary philosophical standpoint called *existential phenomenology* (Thompson et al., 1989), which is caused by a shared interest of the two academic streams on human experiences in the world in their

quotidian life (Pollio et al., 1997). It seeks a rigorous description of individuals' life from a first-person angle (Thompson et al., 1989), because "*for existential phenomenology, the world is to be lived and described, not explained*" (Pollio et al., 1997, pp. 5) and human experiences could not simply be understood by the directly observable behaviours. (Pollio et al., 1997; Helkkula et al., 2012). This philosophy differs significantly from abovementioned Cartesianism or mechanisms in marketing realm as human experiences under existential phenomenology are not as measurable and calibratable as it is under Cartesianism or mechanisms (Thompson et al., 1989).

In existential phenomenology, the key characterising property of the moment of experiencing is called 'intentionality', a concept which should not be confused with 'intention' (Pollio et al., 1997). When people intend to do something, it implies a planned agenda to be conducted (Cambridge, 2021), while 'intentionality', in phenomenology, is a kind of description of a "*configuration of person and world*" as the basic structure of the relationship between individuals and contexts they live (Pollio et al., 1997). For instance, in a commercial place like fashion store, person A does something which makes person B experience as annoying but then person A says that 'sorry, I did not intend to annoy you'. It means that person A had no plan to annoy person B. Yet, regarding intentionality, person A is experiencing person B's being annoyed, whereas person B is experiencing his/her whole world as annoying. Here intentionality as a description of the structure of the circumstance, although participants' individual engagement are different under the circumstance (Pollio et al., 1997).

Another instance considering one is browsing in a fashion store, at this moment, the store environment (e.g. the design style or artefacts) is likely what the one pays attention. Then his/her phone rings and at this very moment, the store environment suddenly fades away into background and the phone becomes the one's focus. This implies that although a circumstance may emerge with or without one's intention, form a first-person' view, experience is always being directed by some focuses as an intentional phenomena and the focus and the background are never sperate (Thompson et al., 1989; Pollio et al., 1997). As such, experience involves a relationship between the person as experiencer and some facets of his/her own world (Pollio et al., 1997) because one's experience is co-constructed by the subject and some events in his/her own world as a changing process in which one event fades away and another comes as the metaphor of "figure/ground" in Thompson et al., (1989).

The implication from the consideration of Intentionality is that since phenomenology views human experience as *"a relationship between the people and their world*" (Pollio et al., 1997, pp 4), 'their world' at the experiencing moment is formed from various entities including the experiencing one's own body, other individuals and objects, nature or even abstract ideas. In other words, every person's own world consists of different kinds of *otherness* (Pollio et al., 1997) and people gain knowledge about who they are based on their encounters with these *otherness*. Therefore, in a specific circumstance, one's consciousness reveals who they are and what is important for him/her (Pollio et al., 1997). For example, in the same SFS, person A being attracted by a technologic terminal and person B totally ignoring the terminal are likely two very different persons. This also implies that human experiences are closely associated with the context, thereby being neither completely positioned 'inside the person' nor

completely ‘outside the person’ (Thompson et al., 1989). It is fundamentally related to the context the one presents.

Moreover, in existential phenomenology, individuals’ experiences can never be examined apart from a socio-related framework such as language and culture (Pollio et al., 1997), a kind of institutional structures (Akaka et al., 2015; Vargo & Lusch, 2016). A comprehensive understanding of one’s specific experience requires the understanding of sociocultural, institutional and situational aspects of one’s life as the “*regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life*” (Scott, 2014, pp. 56). For example, visiting a fashion store may be experienced as a journey for hunting for sales with excitement as an adventure for someone, whereas it may be also experienced as a sheer chore for another one. The reflection of experience (visiting a fashion store) and the interpretation (adventure and chore) “*are but two of many culturally given possibilities*” (Pollio et al., 1997, pp. 8).

Thus, from a phenomenological perspective, human experience is reflected by the process of experiencing, rather than “*something precedes or flows from it*” (Sadler, 1978, pp. 160 cited by Pollio et al., 1997). Borrowing Jantzen (2013)’ s terminology, phenomenology goes deep into *Erlebnis* and seeks the meanings inherent in or derived from *Erlebnis* which nonetheless is simultaneously influenced by one’s *Erfahrung.* Nozicks (1974) (cited by Jantzen, 2013) argue that: people actually do not pursuit pure feelings such as enjoyment and pleasure. Instead people aims at the experience of being a specific person who is having these feelings. Jantzen, (2013) adds that the awareness of such a process potentially reinforces or challenges one’s autobiographical knowledge and this conveys a touch of allusiveness of generation of experiential value, referring to Holbrook, (1999).

Additionally, Bitner’s servicescape theory conveys a sense of configuration of all components within a place by which individuals experiences and interactions are influenced (Venkatraman and Nelson, 2008). This holistic perspective on servicescape is somewhat the same as abovementioned Gestalt psychology (Pizam and Tasci, 2019) which is led by early phenomenology (Pollio et al., 1997), thereby also similar to the phenomenological concept ‘intentionality’, because they all convey a sense of a basic configuration of person and a situation. Although this little similarity does not mean that Bitner cultivated servicescape theory based on a phenomenological lens, it does leave some leeway to a shift of its philosophical assumption from Cartesian to existential phenomenology. The said concepts of experiential value and servicescape will be elaborated in the following chapters.

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WORKSHOPS

NOTTINGHAM LACE: textile heritage and authentic voices

Facilitators

Professor Amanda Briggs-Goode, Dr Gail Baxter, Nichola Burton and Tonya Outtram, Nottingham Trent University, Nottingham, UK

Corresponding Author: amanda.briggs-goode@ntu.ac.uk

Abstract

The workshop will discuss intangible heritage within the context of Nottingham lace recognising the symbiosis between the worker and the machine which has been noted since its invention in the early 19th century. The machines require a highly skilled operator, usually having trained for several years, and many of the processes both pre and post the lace manufacturing stage (such as bobbin winding or mending) still need to be carried out by hand, again, by skilled workers. This symbiosis between twisthand/craftsman and machine as well as multiple processes and people demonstrates the distribution skills and the harmony with which this team are required to operate to mnaufacture lace. In addition Fisher and Botticello (2018) highlight, that Leavers lace machines were all hand built, meaning that no two machines were the same. In interviews and oral histories that we have gathered twisthands all give testimony to the idiosyncrasies of individual machines. 'They was hand made, you couldn't take a cam off one and put it on another. Everything was individually made' (Joe 6th September 2019 interview)'. The skill required here in understanding each machine's differences and devising methods to accomodate them is more 'akin' to the craftsman Fisher and Botticello (2018) describe: 'what appears to be simply 'factory work' but is in many ways more akin to contemporary craft production'

Introduction

This workshop will offer an opportunity to discuss issues of intangible textile heritage from different perspectives and practices within a global context. We note the definitions surrounding intangible heritage as defined by UNESCO (https://ich.unesco.org/en/traditional-craftsmanship-00057) and the associated craft 'safeguarding' list which includes several textile traditions related to weaving, embroidery and lace making from Bangladesh to Indonesia. However, in this context we are interested to explore and discuss intangible heritage from the perspective of post-industrial textile heritage, where skills and knowledge are not necessarily bound by cultural traditions, nor do they necessarily reside in individual artisans. In this context they form part of manufacturing systems initiated, in many cases, in the 19th century, and of which Fisher and Botticello (2018) assert that skills and knowledge 'are not bound within an individual but are distributed among social actors, material objects and locales'. Therefore, while the context may differ, the focus on skills and knowledge run parallel to the crafts maker and we acknowledge Ingold's (2018) perspective that 'Skills are about going along with things - about responding to things and being responded to' and Sennet (2008:9) who argues that craft explores the 'dimensions of skill, commitment and judgement in a particular way. It focuses on the initimate connection between hand and head'.

The workshop will discuss intangible heritage within the context of Nottingham lace recognising the symbiosis between the worker and the machine which has been noted since its invention in the early 19th century. The machines require a highly skilled operator, usually having trained for several years, and many of the processes both pre and post the lace manufacturing stage (such as bobbin winding or mending) still need to be carried out by hand, again, by skilled workers. This symbiosis between twisthand/craftsman and machine as well as multiple processes and people demonstrates the distribution skills and the harmony with which this team are required to operate to mnaufacture lace. In addition Fisher and Botticello (2018) highlight, that Leavers lace machines were all hand built, meaning that no two machines were the same. In interviews and oral histories that we have gathered twisthands all give testimony to the idiosyncrasies of individual machines.

'They was hand made, you couldn't take a cam off one and put it on another. Everything was individually made' (Joe 6th September 2019 interview)'. The skill required here in understanding each machine's differences and devising methods to accomodate them is more 'akin' to the craftsman Fisher and Botticello (2018) describe: 'what appears to be simply 'factory work' but is in many ways more akin to contemporary craft production'.

Nottingham Lace Heritage

Lace making as a machine manufacturing process has been significant to Nottingham since the mid 18th century, having developed from a 16th century invention, the stocking frame,

invented by William Lee in Nottinghamshire in 1589. The stocking frame, a knitting machine, was adapted and enhanced and eventually in 1760 was able to create a net fabric. This 'point net' was then hand embellished by circa 75,000 hand embroiderers from across the region,

known as ‘runners’ (Mason, 2013 p.14). However, innovations of this continued to explore methods for recreating the twisting of thread to replicate the processes involved in hand made lace, eventually this was successful and ‘Nottingham Lace’, as it became known, was born. Nottingham lace was in reality made across the region of the East Midlands in the UK but was so called to identify its unique qualities as a manufacturing process based on the twisting of thread, as opposed to the knitted variation which interloops threads (or in warp knitting uses the loop and the warp (knit and weave) together or indeed the embroidered variation on a net base or cut away from a backing cloth. The key developments in defining a specific fabric called Nottingham Lace were John Heathcoat’s work in Loughborough, Leicestershire in 1808 whereby a net was created by twisting threads, followed by John

Leaver’s developments in 1813 in Nottingham with what was known as the Leavers Lace machine. These technological innovations meant that for around a century and a half Nottingham became the global centre of the machine-made lace industry.

Production of lace was expanding rapidly in the region, so much so that in the mid 19th century ‘hundreds of mechanics’ were attracted into the Nottingham area to work (Mason, 2010) and at its height, in the early 20th century, the industry employed around 60,000 people (Mason, 2013) and was selling approximately £5 million of lace (equating to £600 million today (Bank of England, 2020)) (Mason, 2014). This focus on innovation in technology does not appear to have been matched by its approach to design and Nottingham was initially dependent on imported fabrics from France which they adapted and modified. Roles for designers began to appear slowly, and in 1828 there were eight listed in Nottingham (Jones, 1993).

A Governmental Select Committee was established in the mid 1830s to address the concern over the loss of overseas markets despite the technical excellence of British products and concluded that investment in British design education was required to enable British products to prosper at home and abroad. Therefore during the rapid expansion of this industry, the simultaneous emergence of design education in the city also grew and in 1843 the Government School of Design in Nottingham was formed, followed by a purpose-built art school in 1865. The relationship between the school and the lace industry at this time is evident through the donations, support and its governance, the first President was Richard Birkin, prominent manufacturer in the city (Jones, 1993).

Despite the rapid growth of the machine-made lace industry during the 19th century to its height around 1907 with 60,000 workers, it began to suffer from a lack of interest from consumers. The changing role of women from the period of the 1st world war had impacted upon dress styles, and democratisation through machine-made lace had made a once exclusive luxury commodity affordable, but ultimately created market saturation and therefore affected desire. By 1924 the workforce had reduced to 17,000 (Mason, 2010).

However, cultural and political changes also affected the hand made lace industry and the Manchester Guardian reported in 1925 the closure of a Court lace makers, reporting that it was ‘destroyed by the fall of thrones, the changes of fashion, the distribution of wealth, new industrial conditions and the compulsory education system’ (Guardian Archive, 2020). From this point onwards the lace industry went into steady, but permanent decline. Now, in 2020, we

find that there is only one business left in England, based in the East Midlands, manufacturing Nottingham Lace and employing a small team of highly skilled and knowledgeable people (Briggs-Goode and Donovan, 2017).

It is in this context of the shift between global leader in lace manufacturing, through decline and eventual collapse in the late 20th Century and the tensions this brings that we are interested in exploring more widely. This collapse left communities not only bereft of their livelihood but also their identities as industrial citizens within a cohesive society. From prior and ongoing work with Nottingham lace communities the team established that an overriding theme is one of feeling that aside from a few examples of "ambient heritage" (Samuels 1994) evidence of this manufacturing within the city has all but disappeared. Alice Mah (2012) explains that the redundant workers of formerly successful industries are often thought of as 'losers' or the 'waste' products of the capitalist driven 'creative destruction' processes from which urban regeneration emerges. The research team looked to the concepts of 'Intangible' and 'unauthorised heritage'. Developed by leading heritage scholar

Professor Laura Jane Smith these concepts challenge the primacy of 'authorised' heritage and explain that the privileging of monuments, buildings and artefacts deemed worthy of preservation and edification prioritised narratives of power, thus denying other, non-sanctioned narratives (Smith, 2006). Smith argues that since those without power or privilege tend to leave few, if any 'valuable' material artefacts, their narratives are considered to lack significant meaning so are therefore dismissed, overlooked and unacknowledged. She argues for the recognition of non- material heritage, that is, 'unauthorised' and 'intangible' heritage to be recognised as equal in value to that of the 'authorised' and 'tangible'.

Nichola Burton will present findings from her current PhD research project: Women and Lace: Social Change and Lace Design Education in Post-war Nottingham. Burton has embarked upon using an oral history methodology for interviewing workers from the lace industry in the post war period. The focus is upon the educational strategies which were initiated to produce designers for the industry and has illicited some fascinating testimony.

Tonya Outtram who has recently begun a PhD but prior to this was a Research Fellow on Textile Tales a Heritage Lottery Funded project (www.textiletales.co.uk). The aim of Textile Tales was to ensure that while we recognise that the East Midlands, UK was instrumental in beginning of the textile industry through the invention of cotton spinning and the mills of the Derwent Valley, little is known or has been collated about the decline of the textile industry in the East Midlands in the 1980s onwards. Therefore, the project sought to capture the stories of people who worked in the industry during this period, shining a light on their experience and preserving them through recordings of their oral testimony of their lived experiences.

This workshop will utilise the heritage of the Nottingham lace industry as a case study to initiate dialgoue about other manufactured textile products in other regions across the globe. Leading to discussion about how IFFTI could, though its members, develop dialogue about textile heritage and how research and practice in higher education can support awareness and provide examples to ensure that craft practices are valued, maintained and are used for future.

The workshop will include:

A presentation on the history of Nottingham lace 5-10 minutes Amanda Briggs-Goode Objects will be shown from the archive 10 minutes Gail Baxter

A presentation from Doctoral candidate Nichola Burton 15 minutes A presentation from Doctoral candidate Tonya Outtram 15 minutes Discussion for 40 minutes will address:

- Establish participants interest in intangible hertitage
- Explore examples from of traditional crafts or other post-industrial contexts
- What research projects are IFFTI members are aware of?
- What archives and collections do IFFTI members hold?
- Could there be collaborations to explore these ideas through research, practice or a network or special interest group via IFFTI?

At the end of the workshop there will be opportunities for small groups to visit the archive

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Oral history interviews with Joe for the Textile Tales project recorded 2019

Data Availability Statement

All recordings from the Textile Tales Project are available for public access at the East

Midlands Oral History Archive, based at University of Leicester.

Some clips from these are also available to listen to on the project

website: www.textiletales.co.uk

ACCELERATING ACTION FOR THE SUSTAINABLE AND CIRCULAR GARMENT AND FOOTWEAR INDUSTRY OF THE FUTURE: harnessing the potential of digital innovation for due diligence and informed consumer choices

Facilitators

Hilde Heim, Courtney Chrimes and Yonghong Peng,
Manchester Metropolitan University, Manchester, United Kingdom

Corresponding Author: h.heim@mmu.ac.uk

Rationale

Theme 1 of the IFFTI 2022 Conference, WHERE IS FASHION? recognises the importance of digital advances and the increasingly blurred boundaries between physical and digital fashion. This workshop addresses some of the digital applications used for transparency in online and offline fashion retailing, supply chain provenance for production and manufacturing, consumer technologies and the commercial and social implications of these developments. We propose that these technologies can be applied in global, regional and local fashion.

A transition to circular economic models is key to improved sustainability in the garment and footwear sector -a shift that can be realised with verifiable lifecycle data, delivered through improved supply chain traceability and transparency. This 1hr 30m workshop aims to provide an opportunity for industry stakeholders to gain access to the technologies and tools they need to drive action on sustainability and advance progress towards a circular economy. Attendees at the IFFTI/MFI workshop will learn about the UN-brokered policy recommendations, implementation guidelines, an information exchange standard and call to action, known as 'The Sustainability Pledge', adopted at the 27th UN/CEFACT Plenary in April 2021 and how they can be applied in a real-world context. Based on our learnings from the Milan Conference and our internally funded TEXTILE TRANSPARENCY (TT) project work in Manchester we propose to present this workshop at the IFFTI conference with the intention of providing participants with the digital and organisational tools to launch similar workshops globally. Delegates will have the opportunity to engage with the toolbox and discuss improvements to the initiative. The IFFTI/MFI workshop will present a transparency toolbox and model for engaging stakeholders from across the industry to harness innovative tools for due diligence among producers, in preparation for Extended User Responsibility (EPR) Legislation and Textiles 2030.

What people are saying about the problem

Several technologies including artificial intelligence (AI), virtual reality, NFTs, blockchain, and the Internet of Things (IoT) facilitate various fashion industry processes. However,

consumers currently have very little reliable information about the contents of the textile products they purchase. Unless they are searching for something specific such as fibre content or country of origin, consumers usually only check clothing labels (swing tags, stickers and tags) for size and/or price (Evans, 2018).

> Retailers and brands are increasingly expected to be more open, accountable and vigilant. As a result, they must prioritise traceability and recognise that this will require resources and investment to start digging deeply into their supply chains. There must also be a fundamental shift within the network to prioritise and provide for fair wages, worker safety, and environmental protection
>
> (Fish, 2021)

Aspers, 2008; Koszewska, 2011; SAC, 2019). The information about the contents of the textile products would not only inform, but lead to behavioural change with positive social, economic and environmental impact and transition actors in the market towards 'responsible production and consumption' (UN's Sustainable Development Goal 12). The problems facing the industry are twofold: the lack of a common data ontology and the reticent adoption of digital tools to automate data collection and retrieval.

Workshop Format

Conference delegates wishing to participate in this workshop are asked to read the UNECE Call to Action paper. Delegates are also invited to submit a short paper of up to 500 words focusing on (but not limited to) the identified theme(s):

- Digital technology adoption challenges for under resourced firms
- Smart tags and the Internet of Things
- Tracking, tracing, visibility and transparency for the fashion supply chain

Selected papers will be presented by the authors and will be used to provoke workshop participant discussions. Following the discussions we will facilitate an ideation session with all participants, finding ways to develop the TT project globally. We will conclude by recording contact details of those willing to collaborate beyond the workshop and continue to develop the project in the future.

Minutes	Who	What
15	Hilde Heim (HH)	Introduction: The theme, -Enhancing traceability with digital technology The UNECE sustainability pledge, Call to Action, Toolbox and Prior workshops

15	Panel: HH Introduction Panel Members: HH, Courtney Chrimes (CC) and Professor Yonghong Peng (YP)	Why Textile Transparency: Experience gained from our work with fashion firms in Manchester; emerging digital technologies enabling the traceability; challenges and opportunities.
30	Selected participants	Present their submitted short papers. Open to discussion.
20	Participants	Brainstorming. Discuss challenges and opportunities – bringing industry and academic together to discuss a common data ontology and apply digital tracing technology. Would participants be interested in conducting workshops with industry to introduce the traceability toolbox in their locations?
10	Panel members and Participants	Developing the community and ecosystem Planning for future workshops; the Sustainability pledge. Make connections; contribute to the website that has been set up by MMU for the Textiles Traceability project; Add the outcomes of this workshop to the website. Suggestions for collaborations, co-authored papers etc. Contribution to the IFFTI conference proceedings. Potential for global collaboration for larger funded follow-on project.

What we might achieve from it

This workshop will build the network for participation in a potential future pilot study that implements affordable and universally acceptable digital tracing technology for textiles. The

pilot study, The Textiles Transparency (TT) Project may take around 6 months to implement and would include academics from Fashion and Information Systems as well as research assistants (e.g., PG students) that may be embedded in one or several pilot-study participating fashion firms. Responding to the UNECE call to action, the TT project will ensure fashion businesses are in the best possible position ahead of the implementation of the new EPR legislation, and that Textiles 2030 targets are met. The study will yield reports, and importantly a framework that can be disseminated to other fashion firms – either large or small-scale for implementation. In this way, the project aims to facilitate the circular economy for textiles.

This workshop will develop a new area of research expertise and methodologies that will open pathways to working with trans disciplinary colleagues – in Information Systems – which has not been the case until now. This new pathway will facilitate the research of others in the group who can use, work with, and contribute to research into digital technologies in fashion. The ambition will be to engage other like-minded colleagues in different/related areas across academia for example from the digital arts as well as social science, business consultancy and information systems. The research progress will be shared on communication platforms (e.g., a dedicated Textile Transparency website) as well as reported in research, technology and fashion sustainability media, thus demonstrating the impact and significance of this research.

MANCHESTER
FASHION
INSTITUTE

Manchester
Metropolitan
University

FASHION FICTIONS WORLDS TOUR

Authors

Amy Twigger Holroyd and Matilda Aspinall,
Nottingham Trent University

Corresponding Author: amy-twigger.holroyd@ntu.ac.uk

Keywords

Speculation, post-growth, fiction, practices, cultures

Abstract

The globalised fashion and textile industry is deeply implicated in the devastation of Earth's life-supporting systems, with negative environmental and social impacts generated at every stage of a garment's lifecycle. Incremental improvements delivered by recent industrial initiatives have been overshadowed by a dramatic increase in the volume of garments produced and consumed. To achieve the radical change that is needed, we must look beyond specific strategies for design, manufacturing and disposal – which remain the focus of much public, professional and academic attention – to reimagine the entire fashion system.

Fashion Fictions is a participatory research project that aims to influence and energise the emergent post-growth fashion movement by bringing people together to generate, experience and reflect on engaging fictional visions of alternative fashion cultures and systems. The participatory process for collective speculation has a three-stage structure, with Stage 1 inviting researchers and laypeople to submit concise written outlines of worlds in which invented historical junctures have led to familiar-yet-strange sustainable cultures and systems. In Stage 2's prototyping workshops, diverse groups of participants add complexity to a selection of these fictions, while Stage 3's 'everyday dress' projects see participants performatively enacting four of the prototyped cultures and systems.

In this interactive workshop, participants will explore a selection of the Stage 1 fictions submitted by UK-based and international contributors. Working in small groups, they will discuss the fictions that they encounter, considering their appeal and possible problems that may arise there, and locate any historical or contemporary real-world practices or cultures that the fictions bring to mind. These real-life parallels are valuable as potential sources of inspiration for sustainable fashion and can also help to identify theories and insights that could be usefully applied to the imagined cultures and systems.

Introduction

At this interactive workshop, participants will explore a selection of 100-word fictions submitted to the Fashion Fictions project in order to spark discussions about alternative fashion systems and examples within the real world that the fictions evoke.

For participants, the workshop offers an opportunity to reflect on their experiences of fashion and explore ideas about radical alternatives and speculative thinking. Those wishing to connect further with the Fashion Fictions project following the workshop will be invited to contribute on an individual basis and/or organise a student Fashion Fictions activity. Guidance and examples are available on the project website: https://fashionfictions.org.

Context

The globalised fashion and textile industry is deeply implicated in the devastation of Earth's life-supporting systems, with negative environmental and social impacts generated at every stage of a garment's lifecycle (Fletcher, 2014). As understanding of these issues has developed in the last two decades – driven by academic research and rising public concern – an array of industry-led sustainability initiatives has emerged, typically focusing on production-related issues such as material choice, traceability and recycling. Yet any positive gains delivered by these initiatives are overshadowed by a dramatic growth in clothing production and consumption: the number of garments sold worldwide doubled from 2000 to 2015 (Ellen MacArthur Foundation, 2017). With the IPCC Special Report (2018) calling for 'rapid, far-reaching and unprecedented changes in all aspects of society' in order to limit climate change to 1.5°c, the need to pursue a profoundly different approach could not be more urgent.

Earth Logic: Fashion Action Research Plan, a 2019 publication by internationally acclaimed fashion and sustainability pioneers Kate Fletcher and Mathilda Tham, provides a compelling framework for radical academic work in the fashion and sustainability field. Fletcher and Tham's argument is simple: sustainability cannot be achieved within the 'growth logic' that drives the fashion sector and other capitalist business and thus a new paradigm of 'earth logic' – working within the Earth's capacity to support life – must be created. As they explain, this paradigm requires an uncompromising reduction in resources used in the global North, of between 75% and 95% (Fletcher and Tham, 2019). To achieve this, we must look beyond specific strategies for design, manufacture and disposal – which remain the focus of much public, professional and academic attention – to reimagine the entire fashion system. The 'post-growth' ethos of *Earth Logic* corresponds with a broader 'degrowth' movement, as promoted by economists including Hickel (2020) and Jackson (2021).

Fashion Fictions is a participatory research project that aims to influence and energise the emergent post-growth fashion movement by bringing people together to generate, experience and reflect on engaging fictional visions of alternative fashion cultures and systems. The participatory process for collective speculation has a three-stage structure, with Stage 1 inviting researchers and laypeople to submit concise written outlines of worlds in which invented historical junctures have led to familiar-yet-strange sustainable cultures and systems. In Stage

2's prototyping workshops, diverse groups of participants add complexity to a selection of these fictions, while Stage 3's 'everyday dress' projects see participants performatively enacting the prototyped cultures and systems.

The Stage 1 fictions are framed as parallel presents, rather than speculative futures, and are guided by some loose parameters. These parameters specify that the fictions should describe sustainable and satisfying cultures and systems; explore social and cultural factors, rather than technological change; and focus attention on use and associated practices such as loaning and sharing, rather than production and conventional consumption. The scope for these imagined worlds is broad: they could be inspired by personal daydreams as much as academic research or accounts of historical dress practices, leading to scenarios in which, for example, the fashion-conscious use foliage to dress up for a night out; commercial trade in clothing is as unthinkable as that in human organs; or a highly eclectic garment library is the shared wardrobe of an entire city. These outlandish – though not physically impossible – fictions enable the exploration of diverse approaches to sustainability in fashion, conceptually liberated from the constraints of the status quo.

A post-growth approach requires the social and cultural functions of fashion to be decoupled from the system's current economic configuration. Some theoretical perspectives would question the viability of this strategy: Briggs (2005: 81), for example, suggests that fashion's economic and cultural processes are 'mutually constitutive to the extent of being analytically inseparable'. Yet if we look beyond the globalised fashion system, we can find evidence that alternative economic modes are possible. Welters and Lillethun (2018) argue that fashion has occurred in diverse cultures throughout history – far beyond the reaches of consumer capitalism. Other scholars, while challenging the universalism that Welters and Lillethun propose (Niessen, 2020), similarly identify dynamism in dress cultures outside the globalised fashion system.

A plural perspective not only supports the post-growth fashion movement's call for alternative ways of 'doing' fashion, but also indicates the existence of specific historical and contemporary practices and cultures – outside the scope of normal fashion discourse – that could inspire new alternatives. Transition design co-founder Tonkinwise (2018) emphasises the value of such non-capitalist practices to inspire sustainable ways of living in the future. Although there are isolated examples of such work within the fashion sphere, such as Aspinall's doctoral research (2019) into historical acts of refashioning, there is still much for the sustainable fashion field to learn from diverse fashion cultures. Fashion Fictions aims to draw out practices and cultures that have not yet been recognised in the sustainability field via the involvement of participants from diverse backgrounds in project activities – including this workshop.

Workshop plan

The aims of the workshop are to elicit reflections on the alternative fashion systems proposed in a range of Stage 1 fictions and to identify examples of practices and cultures within the real world that the fictions bring to mind. These real-life parallels are valuable as potential sources of inspiration for sustainable fashion; they can also help to identify theories and insights that could be usefully applied to the imagined cultures and systems.

The workshop will be facilitated by the founder of the Fashion Fictions project and the project's Research Fellow. The workshop can run online, in person or in a hybrid online/offline mode, to suit the needs of the conference.

To date, over 150 fictions have been submitted to the Fashion Fictions project by UK-based and international contributors. A content analysis of the first 120 worlds (Twigger Holroyd, 2021) has highlighted the diversity of ideas represented within these fictions, from characteristics of the clothes themselves to consideration of consumption patterns, place, culture, economics, law and geopolitics. Using this content analysis, sets of ten worlds will be compiled for use in the workshop. The fictions in each set will represent a variety of key ideas.

The workshop will start with an introduction to the Fashion Fictions project as a whole; an outline of the Stage 1 activities that have generated the worlds to be explored; and an explanation of the workshop task (20 minutes). Participants will be placed into small groups (three or four people per group) and given a unique set of ten worlds to explore. If working online, the worlds can be accessed via the Fashion Fictions website (fashionfictions.org); if meeting in person, printed texts will be provided.

Working in their groups, participants will be asked to:

1) Read some or all of their set of worlds (10 minutes).
2) Discuss the worlds they have read, considering their appeal and any problems that they think may arise there (15 minutes).
3) As a group, decide which one of the worlds they would most like to live in, or least like to live in, and why (5 minutes).
4) Identify any historical or contemporary real-world practices or cultures that the fictions bring to mind (15 minutes). These examples might be based on the participant's own experience or research, or be informed by a paper from the conference. These real-world parallels will be briefly described and geographically located.

We will then join together to share insights and real-world examples from each of the small groups and then reflect on the value of speculation as a strategy for sustainability in fashion (25 minutes). Participants will be invited to provide informed consent for their responses to be documented as a contribution to the ongoing research.

Acknowledgments

We thank all those who have contributed their worlds to the Fashion Fictions project and those who have supported the facilitation of workshops and student projects. Fashion Fictions is funded by an Arts and Humanities Research, Development and Engagement Fellowship (reference AH/V01286X/1).

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FASHIONING KNOWLEDGE EXCHANGE: facilitating open collaborations to re-imagine fashion mediating fashion

Facilitators

Noël Palomo-Lovinski, Linda Ohrn-McDaniel and Louise Valentine,
Kent State University, Kent, USA

Corresponding Author: npalomo@kent.edu

Key words

Knowledge exchange, industry, design leadership, interdisciplinarity, community building

Abstract

Fashioning Knowledge Exchange Workshop is an invitation to participate in envisioning what shared knowledge may achieve when we collaboratively seek to create impact and action beyond the traditional confines of a conference and subsequent conference proceedings.

IFFTI members are a truly international set of universities, colleges, and institutes in a global industry with diverse perspectives, knowledge sets, and specializations. How can we best pool our resources to engage the industry to envision, impact, and enact what the fashion industry must become?

The Workshop will be facilitated by Professors Louise Valentine, Linda Öhrn-McDaniel, and Noël Palomo-Lovinski, who will relate their own experiences and facilitate interactivity for a group of 18 people. The facilitators will be at the conference in-person and while virtual participation is welcome, actual conference participation is preferred.

For many academic institutions Knowledge Exchanges are an essential route to achieving this required paradigmatic change needed in the fashion industry. The practice, or established industry to academe exchange, however, have not been sufficiently understood, consistently applied, or been taken advantage of, in many parts of the world. We will explore how to best collaborate, delve into ideas, enable understanding, and create methods for achieving collective researched impact in the fashion industry.

This workshop will present the usefulness of the Business Model Canvas (BMC) and the Value Proposition Canvas (VPC) for facilitating new strategic partnerships between the industry and academe, across continents within the IFFTI community. The BMC is a tactical design thinking tool that was developed as a way for businesses to help differentiate themselves from competitors. The VPC is part of the BMC and helps to clarify what a business offers or does that help in that differentiation. Beyond business structures, the BMC and the VPC can be used in elucidating a refined pathway for any organization or group needing to achieve a goal.

The objectives are:

- New insights and knowledge of the value of these creative business development tools for fashion research and education in a post-COVID world.
- Along with further practice and investigation, participants will be able to explore how they might use the Business Model Canvas and Value Proposition Canvas as facilitators of Knowledge Exchange and routes to enhances innovation practices in their own work or organization.
- Establish a platform or pathway of possible research academic collaborations that have both local and global relevance engaging with international fashion industry for sustainable futures. How might we create a way in which research and industry questions are opened to our global partners for useful outcomes?
- A logistical foundation to overcome distance in geography and university scheduling. How might we create a space that can encourage research collaboration and long-term outputs of impact?

The workshop dialogue and outcomes will be recorded and published in a report available for all members to review. The report will include subsequent recommendations that we will act upon to foster a robust IFFTI Community Knowledge Exchange that will seek to engender collaboration and research to Re-imagine fashion.

PRACTICE-BASED WORK

THE CUBOID: reclaiming eastern Japanese craft and speculating fashion exhibition through the metaverse

Authors
Michael Charles, Daniel Rezandi, Philip Chee, Clarice Ng, Andrian Firmansyah and Nanda Handaru

Michael Charles, Daniel Rezandi and Philip Chee,
LSALLE College of the Arts, Singapore

Clarice Ng, Andrian Firmansyah and Nanda Handaru

C+C&CO, Indonesia

Indonesia is an archipelago comprising a diverse range of cultures and ethnicities as the islands spread across the Pacific Ocean. Indonesia was colonised for more than three centuries by Portugal, France, England, Netherlands, and Japan. In the colonisation process, we witnessed the acculturation process through motifs, ornaments, and materials. However, the effects of colonisation go deeper than just physical aspects – it also shapes the intangibles, such as locals' mentalities towards their native culture. As fashion becomes increasingly globalised and homogenous, traditional techniques practised by various communities in the region are often relegated to "craft" rather than "luxury". This diminishes the value they contribute to fashion products, thus creating a glass ceiling that impedes the growth of Indonesian design in the regional and global fashion industries.

This project reimagines how dress and fashion objects would exist in East Java, specifically the island of Madura. We invite the viewer to imagine if the island was never colonised and how this would subsequently influence how Madurese dress and fashion objects presents itself in terms of form, function and technological innovation. The format to this showcase will be hosted on a hyper interactive website with a built metaverse exhibition with three objectives; to experience while interacting with the reimagined objects, to educate public on the intangible heritage of Madura and opening dialogues on public thoughts in decolonising Madura. Viewers will be able to observe, learn and engage with the reimagined objects while listening to the origins of dress and fashion objects said by native residents of Madura.

Building on critical themes of xenocentrism and decolonised thinking, this project speculates the outcomes of combining historical heritage with modern technological interventions through a design lens. Spanning the boundaries of physical and digital fashion, it aims to be a hyper interactive digital experience that looks to the future while recontextualising the past. It also serves to be an accessible resource to educate and inspire the current generation and contribute to decolonial fashion discourse in Southeast Asia. Beyond the first iteration of this showcase, the CUBOID would be a platform to host virtual fashion exhibition that open dialogue while promoting discussion in offering alternative modes of thinking.

FEELING FICTION

Author

Emma Lynas,
RMIT, Melbourne, Australia

Corresponding Author: emma.lynas@rmit.edu.au

This collection of 2D images explores key themes specific to Richard Flanagan's 2020 work of fiction titled The Living Sea of Waking Dreams. On the surface, the story is familiar – estranged families and ailing parents – underneath the feverish consequences of climate change burn and ravage without exception. The loss of animals and habitat is commonplace, as is the disappearance of body parts. "Her face had begun dissolving, as if in some awful hallucination. As well as her nose, one eye had now vanished … and yet people brushed past her without comment "(Flanagan 2020 p. 223).

Transient materials and textile techniques became conduits for the unsettling feelings experienced while reading this novel. The orange filament pulled free from a net once housing mandarins references the endangered, Orange-bellied parrot. Plastic milk bottles add a filmy translucence. My own hands – distorted and reimagined feature, as do Andrew Crawford's exquisite photographs of critically endangered indigenous plants. The two living elements are filtered through the sleepiness of plastic or manipulated using digital tools.

The 'doing' of textiles was done in an agitated state, brought about by someone else's fiction, rather than my own. The work is an extension of the ideas explored in my PhD (2019) titled: *Post-material making: explorations for a materially-connected textile design practice.* My research seeks to find methods for sustainable textile design practices in an era of material abundance. *Feeling Fiction* imagines an unsettling future where living things can only be experienced via an artificial lens.

Acknowledgements

Thanks to the Department of Biodiversity, Conservation and Attractions (DBCA) and the DBCA Library Image Collection for permission to use photographs of two critically endangered plants located in Western Australia, the Banksia Fuscobractea (Dark-bract banksia) and Daviesia Bursarioides (Three Springs Daviesia).

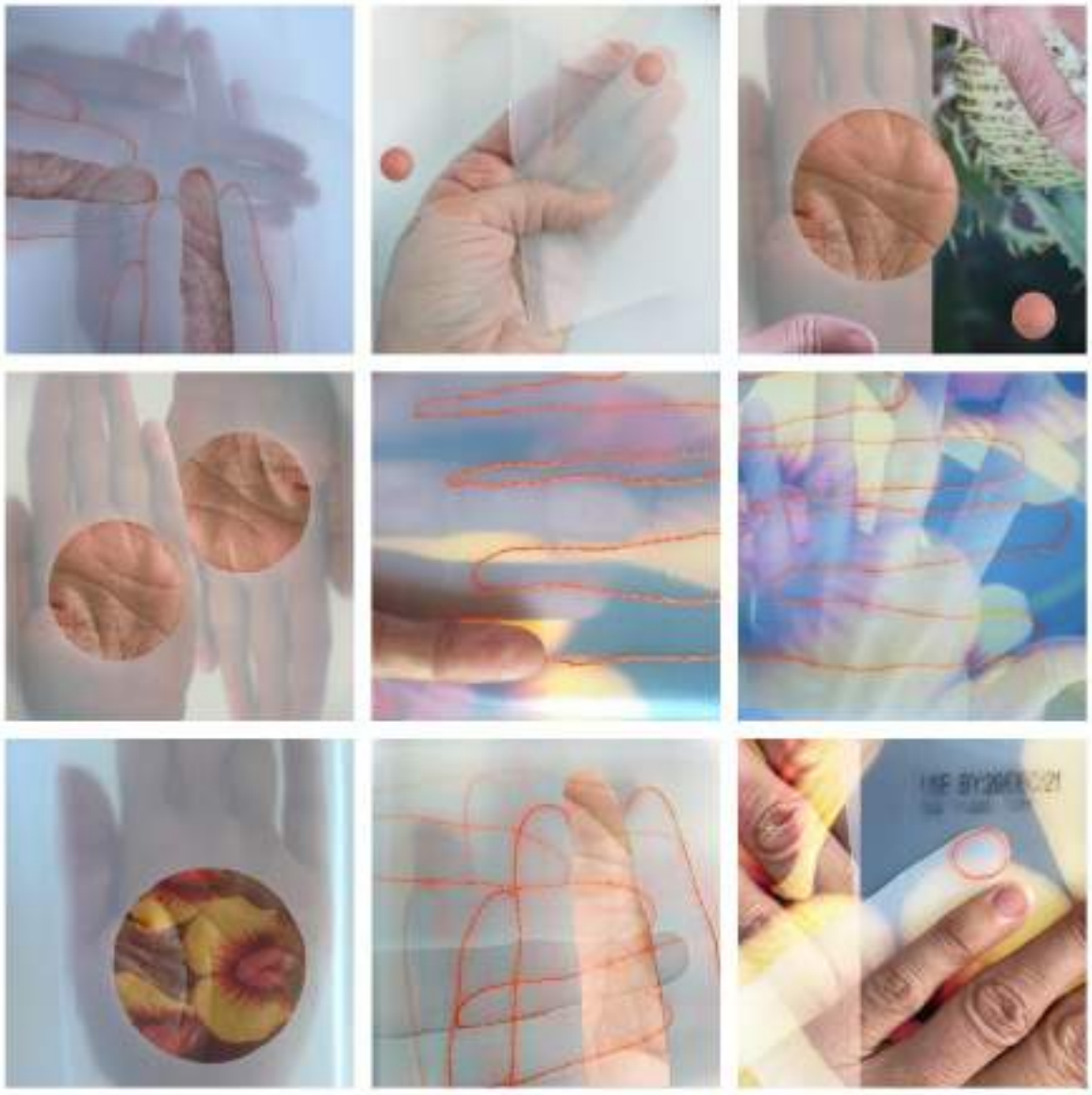
Reference

Flanagan, R. 2020 The Living Sea of Waking Dreams, Knopf, New York.

Image credit: Banksia Fuscobractea and Daviesia Bursarioides by Andrew Crawford.

Materials used: plastic milk bottles and orange filament yarn pulled from a net bag used to contain mandarins.

Techniques used: photography, mixed media, stitching, digital collage



SHADOW WEAVE

Author

Kate Nartaker,
North Carolina State University, Raleigh, USA

Corresponding Author: kenartke@ncsu.edu

Key words

Jacquard weaving, animation, virtual space, haptic, texture.

From the conception of an idea to the production and consumption of a final product, fashion practices are increasingly entering a digital space.

Engagement with material is now augmented with simulation technologies and the need to understand materiality through physical touch is shifting.

This stop motion animated film explores the disruption of form and tactility, and the tension between an actual surface and the representation of texture. Building on what art historian Alois Riegl (1858 – 1905), defined as the haptic, film critic Laura Marks describes haptic visuality as “a way of looking where the eye operates as an organ of touch”. As colours shift through changing threads and woven structures create the illusion of folds, this film invites the viewer to experience tactility through a form of haptic perception.

To create this animation, a series of sequential images that depict a moving “shadow weave” pattern, were woven on a jacquard loom. The woven fabric was then scanned not the digital format and animated frame by frame. Shadows appear, not through creased fabric, but through the structure of the material itself. The aim of this work is to explore the optical contrast between an image and the fibre it rests on, and the investigative act of deciphering or coming to know a material object.

MEMORIES: apparel design blending art, craft, and digital technology

Author

Krissi Riewe Stevenson,
Kent State University, Cuyahoga Falls, USA

Abstract

This practice-based research draws on knowledge from the visual arts, craft making methods, and digital technology to combine engineered digital textile printing with the principles of the Helmholtz illusion in the design of a garment that is comfortably loose yet gives the visual illusion of an hourglass shape. This creative work is executed using traditional cut-and sew garment construction methods alongside digital tools, merging art and design principles fluidly in the process. The use of digital textile printing allows the designer to develop ideas in a digital environment, reduces environmental impact, introduces customization options, and integrates textile and garment design. Additionally, the decision to explore stripe as a design feature was inspired by the communicative and descriptive power of the use of line in art and design. The use of striped fabric as line to create a visual silhouette is used by apparel designers to create a variety of illusions to flatter different body-types as well as change the way wearers perceive their body shape. In this work, instead of designing to a specific body-type the principles of illusion create an hourglass silhouette on a loosely fitted garment. To develop the garment, fabric was draped directly on the form to manipulate and rotate the stripes across the body creating the desired effect. The colorway and repeat print used in the engineered stripe was inspired by a wildflower, the *Castilleja coccinea* from the designer's homeland and was developed using Adobe Photoshop. Renderings of various colorways were evaluated digitally before selection of the final design. Once the final design was established, the individual garment pattern pieces were digitized and the print applied to prepare a print layout. In this digital setting, the pattern pieces were arranged to maximize fabric. Because the pieces would be printed with the engineered stripe, their placement was not restricted to accommodate matching across pre-printed motifs or stripes, which often causes additional waste. Using the capabilities of digital textile printing enables the designer maximum creative flexibility in matching stripes or engineered designs without the added textile waste. Additionally, design risks can be taken in the digital environment before consuming actual material. In this way, the textile printer enabled the designer to explore the use of visual arts and design principles on textiles to develop a garment both visually appealing and functional.

Memories

Apparel Design Blending
Art, Craft, & Digital Technology

Expanding on stripe exploration, this garment uses a boxy silhouette to challenge the capability of stripe to create illusion, shape, and depth. The pattern work weaves the stripe across the body.

Several colorways were developed digitally before selecting the final design.

The green stripes have three tones, to further push the depth of the print.

Kristi Rewe Stevenson
Kent State University, Ohio United States

Memories

Apparel Design Blending
Art, Craft, & Digital Technology

Kristi Rewe Stevenson
Kent State University, Ohio United States

REDESIGNING PPE: enhancing the comfort and safety of healthcare workers wearing isolation gowns to treat patients with COVID-19

Authors

Katherine Townsend, Sonja Sterman, Eloise Salter and Karen Harrigan,

Katherine Townsend, Eloise Salter and Karen Harrigan,
Nottingham Trent University, UK

Sonja Sterman,
University of Maribor, Slovenia

This design innovation project responds to the urgent need for research into the redesign of PPE isolation gowns, to be more fit for purpose, bespoke and reusable to enhance the experiences of healthcare workers (HCWs) treating COVID 19 patients. The proposal addresses the Engineering based UKRI question: "What new materials, design and manufacturing approaches should we start to consider in preparation for pandemics e.g. reusable PPE to replace single use?" Since the COVID 19 outbreak there has been adverse publicity about the shortage of appropriately designed PPE and particular dissatisfaction with the performance of disposable, oversized gowns, as highlighted by The Royal College of Nursing who described the generic "one size fits all" approach to PPE as being "problematic" and "restrictive" when worn for up to 12 hours during shifts. The lack of understanding of HCWs roles, practices and specific PPE needs has resulted in health authorities necessarily providing the best fit possible in a crisis situation and the PPE industry adopting a disposable 'non-circular' approach to meet demand, leading to human centred and environmental issues. Through collaboration with an established PPE manufacturer and leads in Clinical Procurement and Therapies from two NHS healthcare trusts, the investigators have estalished a research infrastructure to systematically focus on the design and production of a new 'reusable PPE isolation gown system' comprising multiple sizes By integrating expertise in practise research, clinical production and clinical practice, the investigations will focus on the technical, emotional durability and longevity of the PPE system.

Redesigning PPE:

Enhancing the comfort and safety of healthcare workers wearing isolation gowns to treat patients with COVID-19

Katherine Townsend, Sonja Sterman*, Eloise Salter & Karen Harrigan
Nottingham Trent University, U.K & *University of Maribor, Slovenia

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Through collaboration with an established PPE manufacturer and leads in Clinical Procurement and Theatres from two NHS healthcare trusts, the investigators have established a research infrastructure to systematically focus on the design and production of a new reusable PPE isolation gown system: overcoming multiple areas by integrating expertise in practice research, clinical production and clinical practice, the investigations will focus on the technical, emotional durability and longevity of the PPE system.

Nottingham Trent University

THE PANDEMIC AND BEYOND

Images by David Baird

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Katherine Townsend (Ph.D)

Katherine Townsend (Ph.D) is Professor of Fashion and Textile Practice and a founder member of the Fashion and Textile Research Centre at Nottingham Trent University. Her current research (and Ph.D. supervision) is focused on the development of emotionally durable, environment-centred design methodologies. Projects include an ongoing ethnographic study into sustaining artisanal textile crafts in Guatemala, supported by the Global Challenges Research Fund (GCRF 2018- 2022) and Designing Reusable PPE Gowns based on wearer experience, in collaboration with the NHS and industry partners (AHRC 2021-2023). Katherine is co-editor of Crafting Anatomies: Archives, Dialogues, Fabrications (Bloomsbury 2020) and the journal of Craft Research (Intellect).

Sonja Šterman (PH.D)

Assoc. prof. dr. Sonja Šterman is a lecturer at the Department of Textile Materials and Design, at the Faculty of Mechanical Engineering, University of Maribor, Slovenia. She has experience in teaching different topics related to fashion, textile and accessories design. Before her academic career she worked as fashion designer for companies Mura, Rasica and Elos Escada. She specialised also in the design of uniforms for companies, societies and ministries.

Eloise Salter (MA)

Eloise Salter is a Studio Demonstrator/Researcher within both the: Fashion Design, Textiles and Knitwear Department; and the Fashion and Textile Research Centre based at Nottingham Trent University. She has experience working on human centred design focused projects such as: ATRG funded 'Light my Elbows E-Textile Cycling Jacket' (2019); 'Designing Reusable PPE Gowns based on wearer experience, in collaboration with the NHS and industry partners (AHRC 2021-2023); and 'Garments for Healthy Ageing' (2022). Her Masters was centred around her project: 'Urban Cycling Wear: Clothing that can function on and off a bike through added movement from creative pattern cutting'.

Karen Harrigan

Associate Lecturer/ Researcher in BA (Hons) Fashion Design, Fashion, Textiles and Knitwear Department, Fashion and Textile Research Centre, Nottingham Trent University. She has worked on research projects such as ATRG funded 'Light my Elbows E-Textile Cycling Jacket' (2019) 'Textiles as a Catalyst in the Co-Creative Design Process', (2017) 'Design as a socio-material Practice: Reflections on the Emotional Fit collective fashion enquiry', (2017)) 'Fit for purpose? Pattern cutting and seams in wearables development'(2011)

PPE_refashioned

POSTER ABSTRACTS

EXPLORATIONS OF AI-GENRATED ARTWORK AS A CONCEPTUAL BOARD: walking into the metaverse

Author

Lidya Chrisfens,
Lasalle College of the Arts, Singapore,

Corresponding Author: chrisfens.lidya@lasalle.edu.sg

Keywords

Interactive conceptual mood boards, AI-generated artwork, digital conceptual space, sense-making in digital space, immersive experience, AR experience

Abstract

This poster offers an exploratory journey embarking on the digital world navigating 2D to 3D images creation to elevate conceptual boards by creating an immersive experience through interactive images and sound. The process of making allows designers to ideate and translate intangible elements conceptually, such as embedding emotions and memories as conceptual ideas through 3D elements. The digital space allows designers to translate conceptual ideas through interactive and immersive conceptual boards using moving images, sound, and creative coding to heighten the viewer's interactive AR experience. This process allows designers to translate their ideas through building a narrative storytelling approach from concept to realization of the collection. The methodologies enable the designers to embed their emotions through the interactive visuals and sound as an experience and allow - under optimum circumstances - to lead the viewer toward experiencing that emotion. Creative coding adds another layer toward generative art, which will allow designers to express through interactivity with the tools. Walking into the metaverse allows viewers to interpret the narrative within the story itself. The images presented on this poster comprise AI-generated artwork by using VQGAN (Vector Quantized Generative Adversarial Network) and CLIP (Contrastive Language–Image Pre-training). VQGAN+CLIP is a neural network architecture that uses a text-to-image model that generates images of variable size given a set of text prompts (and some other parameters). The result of the generated artwork is then further developed with Adobe Photoshop to create the outcome. This process investigates the findings on the importance of multi-sensory experience in conceptual design processes, enactive engagement of the embodied mind during the act of doing. It also led to the discovery of Conceptual Space in the digital realm and how digital space shifts the perception of work presented through the platform. This exploration proposes new meaning, approaches and puts sense-making into the design philosophy as a part of a design process.

THE GLASS BANGLE INDUSTRY OF FIROZABAD: a conflict of parallels

Authors

Saumya Gupta, Zeenat Kaisher, Sushma S. Jois, Charul Shah, Priyanshi Shukla, Anamika Debnath and Montu Basak,
National Institute of Fashion Technology, Kolkata, India

Corresponding Author: anamika.debnath@nift.ac.in

Abstract

The Firozabad district of Uttar Pradesh, India houses a 200 years old bangle industry which is also the largest glass bangle industry of the world. There are over 0.4 million people directly or indirectly associated with this industry that supplies extensively to the whole country as well as exports to the world. The area of highlight however is the workers of the industry who work in extremely unsafe environments with almost no job security.

Glass bangles are an integral part of Indian culture and are more than just a fashion product. They hold a strong religious and sentimental significance in the life of married Indian women and are considered to be a necessary ornament symbolising a fortunate and prosperous marriage. The vibrancy of this culture is brilliantly reflected throughout the country in various folk songs which often display bangles as a representation of eternal love and commitment. Bangles are a symbol of the Goddess of wealth and affluence and are even worshiped on certain festivals. In "Encyclopaedia of Hindi Cinema", Soma Chatterjee talks eloquently about the unique "purely culture-specific sound" & symbolism created by Glass bangles. Chatterjee points out that "Glass bangles, however, cut across the caste-class divide in India, as far as films go, because they represent the same things within the script as well as for the audience".

The lives of the Bangle-makers are rather dark and grim though. As per different reports, the workers in the bangle industry work on fairly low daily wages under hazardous conditions with almost no safety measures. Experts note that handling of molten glass around temperatures as high as 1200-degree Celsius with bare hands have reported several accidents of serious burns among the bangle makers; direct exposure to harmful chemicals and inhalation of particulate matter like silica dust results in acute respiratory tract disorders which in majority of cases become fatal. In this majorly household bangle industry, young children often join their parents by quitting education at an early age ultimately leading their future into similar kind of darkness. Experts point out that working around intensely bright flames and furnaces damages the tender tissues of young eyes and affect their eyesight severely by the time they turn into adults.

The paper implores the stark realities of these two parallel worlds in a culture-based approach where the "Glass Bangle" has been explored as idea, object and image. The cost of these colourful Glass bangles, considered to be harbinger of prosperity in marriages, is paid by the bangle makers who live a life filled with ailments, destitution, hardships and no recognition.

The story of Glass bangles thus exists on contrasting parallel worlds throughout history as well as today. Is there a bridge?

CREATING IMMERSIVE ONLINE SHOPPING EXPERIENCE FOR AN UPCYCLED FASHION BRAND

Author

Congying Guan,
Nottingham Trent University, Nottingham, UK

Corresponding Author: congying.guan@ntu.ac.uk

Abstract

The research explored the technology competency and commercial application of Virtual Reality (VR) in fashion retail through innovative practice. The approach is to create a multisensory 360 VR fashion store based on digital atmospherics for an upcycled fashion brand in London. Existing VR environment creation and relevant techniques have been applied for prototyping an immersive virtual store including 3D clothes scanning, 360 panoramic images, 3D modelling, and VR video game engine. Beyond the traditional retail store design, the project created an in-store shopping environment and an outdoor space that can further communicate brand message, product information and design ideas. A 360 panoramic image of outdoor garden is embedded in the environment to create unique displays of virtual 3D clothing collections and mannequins, aiming to maximum the virtual shopping experience and communicate brand message of upcycling and circularity.

3D produce visualisation, mental imagery, playfulness and interactivity of brand-consumers are the key measurements for the new immersive brand experience created by VR technology. Mental imagery which is related to imagery processing in which consumers create possible imaginations about the results of their purchase decisions (Schlosser, 2003; Lee, 2012). It is often used to measure the effect of product visualisation in VR/AR environment. The level of interactivity plays an important part to enhance consumer engagement in a VR shopping store which is considered as a self-motivated technology application.

The project experimented with consumer-brand and consumer-consumer level interactions by increasing the ability for consumers (users) to manipulate the VR environment and objects, such as adding virtual try-on or social networking to build virtual brand community. During the creative process, each element of products and services appeared in the VR fashion store environment are mapped with hedonic and utilitarian shopping values. Such practice can influence fashion brands to customize their new technology experience for creating shopping value for their targeted consumers.

SHANGRI-LA: smart fashion collection interacting with app via internet of thing (IoT)

Author

Li Shao,
The Hong Kong Polytechnic University, Hong Kong

Corresponding Author: tangle-li.shao@connect.polyu.hk

Abstract

Wireless interactive wearables contribute to retail in the fashion circle, as they reduce physical retail channels and support online shops with the collection and analysis of consumer data based on the Internet of Things (IoT). The emergence of new concept stores (collision between the virtual and physical worlds) has become the new global trend for traditional retailers, due to the global economic crisis and the rapid rise of online shopping. Balancing online and offline retail has been a challenge for the fashion industry around the world. In addition, the analysis of customer in-store behaviour has become an important research direction, as consumer data support targets design and retail. For example, the Wi-Fi-base customer indoor positioning analysis system was designed based on the value of the proposed technology and the process mining technique. Therefore, using interactive textiles and fashion design to support the growing trend of concept stores is innovative in the fashion and textile industry.

The wireless (Wi-Fi) interactive fashion collection pays special attention to the customer group that still relies on physical stores, who is generally tired of the online shopping trend and is more focused on the tactility and texture of the garments. The interactive fashion collection offers an interactive, interesting and texture touching experience, facilitating access to the sales and product virtual information interface on the App by simple touching or scratching the real textile texture of the garments where the touch sensors are integrated into the fabric. Confidence, quality, mobility and convenience can be gained during the interactive shopping process. The touching action data are collected by the App and transmitted to the retailer's server for future target design and customised services. The touch sensing interface uses a conductive fabric bonded with normal fabrics. The Wi-Fi-base communication system is used to transmit the sensing signal to the App, as Wi-Fi is more suitable than other network communication technologies in public spaces with massive users. The portable PCB and power supply system is relatively small and light, thus it is well embedded in fashion pieces.

HAND TO MIND: The Paradigm Shift in Fashion Education

Author

Lavdeep Singh,
National Institute of Fashion Technology, Kangra, India

Corresponding Author: lavdeep.singh@nift.ac.in

Keywords

Fashion Education, Pedagogy, Interdisciplinary studies, Fashion, Society, Culture

Abstract

It has not been long since Lidewij Edelkoort, world's most famous trend forecasters, published her "Anti_Fashion" Manifesto, in which she challenged everything that is taught in a Fashion school. Critiquing the education model that sells the dreams of fashion's ephemerality and it's razzle- dazzle, she along with other fashion scholars/critiques of the time, have shown us the changing paradigm of fashion. "Anti_Fashion nevertheless captures the spirit of our times and suggests that the concept of fashion, as it has existed for past two decades, is ripe for reconstruction (Christopher Breward, 2016) and so is the model of Fashion Education. Fashion has moved in space and time; it is more interdisciplinary than ever. Scholars, academicians spanning science & technology, sociology, anthropology, ethnography are collaborating to explore different dimensions of fashion; visual, cultural, semiotics or socio-economic. From being a product of industrialisation, fashion is becoming more conceptual, a topic of interest for thinkers and intellects. Riding on this wave of change universities across the world are re-looking at their fashion curriculums and introducing new areas of study that encourages fashion students to pursue cultural investigation of fashion. Subjects such as "Fashion, Society and Culture" and alike are introduced at undergraduate level with a motivation to sensitise the students with this refashioning of fashion. In tandem with technical skills like sewing and pattern making, students are being taught thinking skills that enables them to explore socio-cultural aspects of fashion. It is safe to say that fashion education has truly moved from hand to mind. Now is the time to question established theories of fashion (trickle up/down/across) and label the present fashion system obsolete. The objective of this research is to understand the emerging patterns of fashion industry, fashion education and pedagogy by reviewing new and revised curriculums, scholarly papers in fashion journals. The research paper will discuss case studies pertaining to different methods to teach fashion studies. The study will help fashion educators to rewire their approach to imparting knowledge and discover newer areas of research and education and conceive new theories of fashion, which will eventually contribute to next generation of fashion workforce that will contribute in community building through research, empathy and mindful fashion.

PROACTIVE EDUCATION AS A TOOL FOR MEDIATING FASHION ACROSS BORDERS: building a library of fashion business case studies to teach sustainability

Authors

Vladimira Steffek and Rossie Kadiyska,

Vladimira Steffek,
Ryerson University, Toronto, Canada,
Humber College, Toronto, Canada

Rossie Kadiyska,
Humber College, Toronto, Canada

Corresponding Author: kadiyska@gmail.com

Abstract

The fashion industry is acknowledging that a shift towards sustainability is the key to the future. Thus, fashion students - key players in this future - must understand the tenets of sustainability and how they can collaborate with other disciplines, cultures, and nations to create and implement changes. Developing analytical, creative, and innovative thinking is essential for students to have a competitive advantage when entering the workforce. (Louca et. al, 2014). Research purports that advanced case studies help learners apply various thinking methods and make use of their existing knowledge in new situations (Kimmel, 1995); such cases are useful for enhancing complex cognitive abilities in learners (Bonner, 1999). In the process of studying existing cases from the leading publishers, the authors observed a gap in the market: a limited array of sustainability-focused case studies. With localization being another overlooked aspect, the idea of a tailored library of contemporary, Canadian-specific case studies, focused on innovative business models has organically emerged. To date, the authors have developed four and evaluated three case studies in their classroom based on local apparel businesses. To mediate fashion across borders, the project included three education institutions from Canada, Brazil, and the UK. The students participated in system design thinking framework workshops aiming to further enhance their critical thinking and support intellectual curiosity from a future perspective (Scharmer, 2018). Student feedback has been gathered through anonymous questionnaires, individual reflection papers with open-ended questions, and one-on-one discussions with learners between January 2020 and May 2021. It can be concluded that the teaching materials have allowed students to relate, observe, and provide innovative solutions more critically. To implement the process in future classroom projects, educators can utilize system design frameworks in correspondence with respective local case studies.

ARTISTS IN RESIDENCIES OR HACKATHONS? FUTURE RECRUITMENT STRATEGIES IN FASHION-TECH

Authors

Michele Danjoux and Jose Teunissen,
London College of Fashion, London, United Kingdom

Corresponding Author: j.teunissen@arts.ac.uk

Abstract

Today's Fashion-Tech landscape is in a state of flux and companies do not necessarily know the solution. As such, this poses new challenges to companies to attract future Fashion-Tech talent with the right skillsets to ensure ongoing innovation in the European Fashion-Tech sector within an increasingly digital future. Moreover, the Fashion-Tech industry is asking for a variety of *new* skillsets as well as identifying *new* job profiles/roles. In terms of skills development, some companies offer internal digital training to their employees; others underline the importance of applicants having the right mind-set and mix of soft skills – being entrepreneurial, open to change, a team player etc., as a means to reflect their suitability and potential. In certain companies, particularly larger ones Fashion-Tech incubators and start-ups are leading digital processes and upskilling, infiltrating the business, activating change and influencing future direction.

Furthermore, Fashion-Tech skills are seen as constantly emerging and growing, therefore upskilling and training employees with new skills is recognised as an integral part of an ongoing digital transformation. In this dynamic landscape, lifelong learning and training, via short courses (delivered by HEIs/universities) or internal training, will become key and universities and companies will need to work more closely together to optimise the education and recruitment of young talent and staff training possibilities. One of the aims of the FT-alliance, Erasmus+ funded, 3-year academia-industries partnership (2020-2023) has been to facilitate this exchange/flow of knowledge and co-creation within the Fashion-Tech sector to boost students' employability and innovation potential. Online 'Future Recruitment Workshops' were held for HR representatives as well as in depth podcast interviews with Fashion-Tech companies across the consortium to explore ways to navigate such challenges. The emphasis was placed on *future* job roles and centred on 8 job families and their associated skills – subject specific and soft skills, previously identified in our research. Insights were captured Miro. The focus for these workshops was on *recruitment tools* and *techniques* and the aim was to seek HR specific insights and intelligence on how companies attract, assess and recruit future Fashion-Tech talent. This paper will share findings and recommendations of this research.

AN ETHNOGRAPHIC STUDY ON MOTIFS OF TANGALYA WEAVING

Author

Hir Vyas,
National Institute of Fashion Technology, Gandhinagar, India

Corresponding Author: hir.vyas@nift.ac.in

Abstract

The way of life of an artisan community is indigenous to the craft. The process of craft making is intertwined with the values, ethos, beliefs, practices and lifestyle of an artisan community. There is a need to understand how the surrounding environment, practices, rituals, beliefs of an artisan community are integral to the craft and craft making. The tangalya weaving is handwoven mix of cotton, silk and wool. The community of Bharvad and Dangasia at Surendranagar, Gujarat, practices the tangalya weaving. The ethnographic study attempts to understand the artisanal practices, influence of nature and ecology and way of life in the design of Tangalya weave. The study documents the delicate relation between the artisan's culture with the designs and motifs. The study illuminates indigenous artisanal practices in relationship to their environmental context.

WEAVE COLOUR SCOPE INSPECTION IN JACQUARD WOVEN FABRIC REPRODUCTION IMPROVEMENT

Authors

Lei Zeng, Ken Ri Kim, and John Xin,
Loughborough University, Loughborough, United Kingdom

Corresponding Author: l.zeng@lboro.ac.uk

Abstract

Producing a wide scope of weave colours is challenging in modern Jacquard weaving with limited weft colour variety. The subtractive primary colour yarns (cyan [C], magenta [M], yellow [Y], and black [K]) are used to replicate varied Jacquard designs. However, there is still a limit to what CMYK can create, which can only display approximately 56% of the colours which are perceived by human eyes. There is potential to improve colour reproduction quality by expanding a feasible weave colour scope. In colour printing, six colour pigments (i.e., cyan [C], magenta [M], yellow [Y], red [R], green [G], and blue [B]) are popularly used as primary colours for colour reproduction. In this research, weave colours that are created by combining two sets of primary colours from different colour systems were examined. Weft yarn colours are selected in line with the six colours and inspected a feasible weave colour scope. The group of yarns are paired, and 15 colour combinations are designed to create a prototype of weave colour samples. Jacquard fabric samples are measured by spectrophotometer and described by the CIELAB colour space. In this study, the weave colour experiment results are introduced in three categories to introduce [R], [G] and [B] to Jacquard woven fabric.

POSTER GALLERY

Walking into the Metaverse

Lidya Chrisfens

LASALLE College of the Arts, Singapore

This poster offers an exploratory journey embarking on the digital world navigating 2D to 3D images creation to elevate conceptual boards by creating an immersive experience through interactive images and sound. The process of making allows designers to ideate and translate intangible elements conceptually, such as embedding emotions and memories as conceptual ideas through 3D elements.

The digital space allows designers to translate conceptual ideas through interactive and immersive conceptual boards using moving images, sound and creative coding to heighten the viewer's interactive AR experience. This process allows designers to translate their ideas through building a narrative storytelling approach from concept to realization of the collection. The methodologies enable the designers to embed their emotions through the interactive visuals and sound as an experience and allow - under optimum circumstances - to lead the viewer toward experiencing that emotion. Creative coding adds another layer toward generative art, which will allow designers to express through interactivity with the tools.

Walking into the metaverse allows viewers to interpret the narrative within the story itself. The images presented on this poster comprises AI-generated artwork by using VQGAN (Vector Quantized Generative Adversarial Network) and CLIP (Contrastive Language–Image Pre-training). VQGAN+CLIP is a neural network architecture that uses a text-to-image model that generates images of variable size given a set of text prompts (and some other parameters). The result of the generated artwork is then further developed with Adobe Photoshop to create the outcome.

This process investigates the findings on the importance of multi-sensory experience in conceptual design processes, enactive engagement of the embodied mind during the act of doing. It also led to the discovery of Conceptual Space in the digital realm and how digital space shifts the perception of work presented through the platform. This exploration proposes new meaning, approaches and puts sense-making into the design philosophy as a part of a design process.

BANGLE INDUSTRY OF FIROZABAD:
A CONFLICT OF PARALLELS

AUTHORS

Ms. Saumya Gupta
Student (Batch: 2018-2022)
National Institute of Fashion Technology, India
Email: saumya.gupta@nift.ac.in

Ms. Zeenat Kaisher
Student (Batch: 2018-2022)
National Institute of Fashion Technology, India
Email: zeenat.kaisher@nift.ac.in

Ms. Sushma S. Jois
Student (Batch: 2018-2022)
National Institute of Fashion Technology, India
Email: sushmas.jois@nift.ac.in

Ms. Charul Shah
Student (Batch: 2018-2022)
National Institute of Fashion Technology, India
Email: charul.shah@nift.ac.in

Ms. Priyanshi Shukla
Student (Batch: 2018-2022)
National Institute of Fashion Technology, India
Email: priyanshi.shukla@nift.ac.in

Ms. Anamika Debnath*
Associate Professor
National Institute of Fashion Technology, India
Email: anamika.debnath@nift.ac.in

Mr. Montu Basak
Associate Professor
National Institute of Fashion Technology, India
Email: montu.basak@nift.ac.in

BACKGROUND

CULTURAL

Glass bangles in India are worshiped as a symbol of the Goddess of wealth and affluence are an integral part of Indian culture. Religiously believed to be the harbinger of love and prosperity in marriages, they hold a strong sentimental significance in the life of Indian women.
The image of glass bangles is reflected similarly throughout the country through the Hindi Cinema as well as traditionally via folk songs in different cultures." The entire afternoon spent with the neighbourhood women in selecting colours and hearing clinking of glass bangles in the hands of the seller brought me close to my community." Shared by an interviewer.

Soma Chatterjee in Encyclopaedia of Hindi Cinema quotes "The jingling of glass bangles around a girl's wrist is definitely culture specific. The jingling suggests laughter, cheer, fun , happiness, love and anticipation. The sound of glass bangles breaking signifies something entirely different: widowhood, grief and tragedy."

ENVIRONMENT

According to research published in Issue 8, Vol 2 of European Academic Research paper: The share of Nitrogen and RSPM in the immediate surrounding atmosphere of Firozabad industries is increasing continuously as a result of chemical fumes which is the leading cause of Bronchitis, asthma and other respiratory disorders in the population. The quality of Drinking water is also deteriorated because of fluorides, nitrates and Total Dissolved Solids (TDS) which are washed away into the river body in the form of glass colouring metallic oxides.

WORKERS

Firozabad district of Uttar Pradesh, India houses the 200-year-old largest glass bangle industry of the world that employs around 0.4 million people directly and indirectly. However more than 70% of the bangle workers aren't paid even the minimum wages.

"The factories were filthy and condition miserable. The factories did not have any working environment and workers were exposed to immense heat and sound which was far beyond permissible levels," says the report, which was tabled in monsoon session of Parliament headed by the Parliamentary Standing Committee of Labour. "The workers at shop floor were not given protective gear for their eyes or hands. As they worked in front of furnace and accidents were also common," informs the report.

CHILDREN

The industry is majorly a household one that easily lures young children to join their parents by quitting education at an early age and thus subjecting them to child labour and abuse. There is complete ignorance of several laws and Acts like The Factories Act of 1948, The Mines Act of 1952, The Child Labour (Prohibition and Regulation) Act of 1986, The Juvenile Justice (Care and Protection) of Children Act of 2000.

Expert studies show that working around intensely bright flames and furnaces damages the tender tissues of young eyes effecting their eyesight severely by the time they turn into adults.

OUR UNDERSTANDING

Glass bangles are more than just a fashion product in India. Their deep-rooted value in society is reflected through the religious and cultural practices woven around them. These colourful bangles are independent of the class divide as they are an ornament for people from every stratum of society.

An interview published in the Journal of Tourism and Cultural Change mentions a dialogue of one of the interviewers that conveys the influence of Bangles through Hindi cinema: "The best thing I like about the actresses of Bollywood movies is the bangles they wear……They are exclusive"
Contrary to the vibrancy of this bangle culture, the lives of Bangle makers are grim and dark with no recognition for their craft.
The consumerist face where "who made this" is ignored over "How much is it for" is mirrored in society.

The story of glass bangles thus showcases a moral conflict within fashion and consumerism where
emerges a social disbalance as a result.

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Creating immersive online shopping experience for an upcycled fashion brand

Dr Congying Guan | Nottingham Trent University | congying.guan@ntu.ac.uk

Introduction

The research explored the opportunity of Virtual Reality (VR) technology to enhance online Fashion Retail experience and consumer engagement. Previous research has identified that 3D product visualisation, mental imagery, interactivity, perceived playfulness and informativeness are the key measurements of immersive brand experience created by VR technology (Kang, 2020; Park, 2020). In Brand Experience Dimensions (Brakus, 2009), Sensory is an important scale to measure shopping experience. This project aims to create a multisensory 3D VR fashion store for an upcycled fashion brand in London and evaluate the new brand experience based on the above factors.

Methodology/Technology

This is an experimental research to evaluate if existing VR environment creation and relevant techniques that have been applied for VR game industry has a potential to reinvent fashion retail experience through an immersive virtual fashion store. A wide range of relevant technologies have been evaluated including 3D clothes scanning, 360 panoramic images, 3D environment modelling, interface and interactions, and VR video game engine.

The second stage, the brand's targeted customers and industry people (including the brand owner, VR specialists and marketers) will be recruited to rating the new immersive shopping environment versus the conventional online channels through a VR experience scale proposed by this research based on existing studies on immersive experience measurements and Brand Experience Dimensions.

Results

3D VR Fashion Store Prototype

Beyond the traditional retail store design, this project created an immersive in-store shopping environment, an outdoor space, interactions and shoppable features that aim to maximum the virtual shopping capabilities and communicate brand message of upcycling and circularity. This study has proved that a victual fashion store that is built via 3D environmental modelling with 3D scanning technology could achieve better interactivity, product visualisation and immersiveness than a 360 panoramic image-based store environment.

Discussion

The level of interactivity plays an important part to enhance consumer engagement in a VR shopping store which is considered as a self-motivated technology application (Scholz, 2016). This project experimented with consumer-brand and consumer-consumer level interactions by increasing the ability for consumers (users) to manipulate the VR environment and objects, such as adding social networking to build virtual brand community. During the creative process, each element of products and services appeared in the VR fashion store environment are mapped with hedonic and utilitarian shopping values. Such practice can influence fashion brands to customize their new technology experience for creating shopping value for their targeted consumers.

The results were restricted by the availability of technology and equipment, such as the issue with image quality of 3D clothing created by LiDAR Scanning technique. This may affect the measurements of VR experience in the next stage of research.

Acknowledgement

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Shangri-La: Smart Fashion Collection Interacting with App via Internet of Thing （IoT）

Li SHAO [1]

[1]Institute of Textiles and Clothing, The Hong Kong Polytechnic University, Hong Kong

INTRODUCTION

BACKGROUND

Wireless interactive wearables contribute to retail in the fashion circle, as they can support online shops with the collection and analysis of consumer data based on IoT and may reduce physical retail procedures. The exploration of new experiences in fashion stores (collision between the virtual and physical worlds) faces a great challenge, due to the fast-changing customer needs caused by the rapid rise of online shopping1. New business rules to balancing online and offline retail are disrupting and rebuilding for the future fashion industry, especially via integrating with new technology. Hwang and Jang2 claimed the analysis of customer in-store pathway behaviour via smartphone Wi-Fi signal-capturing technology attracts strong interest, as consumer data directly supports design and retail. Beck and Crié3 indicated that online virtual fitting rooms effectively improve specific curiosity of the product, purchase intentions, and patronage intentions online and offline. Moreover, smart mirror4, 5 having a function of virtual fitting, online product information, connection, and recommendation positively affect service quality and customer satisfaction in offline shopping. However, less study has been found in the innovative user interface (connecting tangible and intangible shopping), especially the sensory experience of texture and tactile (neglected in online shopping). In this poster, an interactive fashion collection with IOS mobile App via IoT is proposed as tangible user interfaces to fulfil this research gap.

METHODS

The parallel design method is raised from Tan's design framework of photonic soft furnishing6. Apart from Tan's design model, in this poster the framework focus on fashion design and broader smart textiles and technology. It focuses on comprehensively synthesizing fashion, smart textiles, and technology in the whole design process. While smart textiles design method used here organically integrates interaction into fashion pieces by touch-sensitive fabric and tassel fabricating.

RESULTS

The wireless (Wi-Fi) interactive fashion collection pays special attention to the customer group that still relies on physical stores, who is generally tired of the online shopping trend and focuses more on the tactility and texture of the garments. Meanwhile, design in the theme of minority culture aims to increase attractiveness and freshness by exhibiting and expressing unique lifestyles and aesthetics. The interactive fashion collection offers an interactive, innovative and texture touching experience. The sales and product virtual information on the App is accessed automatically by simply touching or scratching the textile texture of the garments, where the touch sensors are integrated into the fabric. Confidence, quality, mobility, and convenience have great potential to be gained during the experience of interaction. Moreover, the customer touch duration and frequency can be collected by the App and transmitted to the retailer's server for future target design and customized services (as shown in figure 1).

DESIGN METHODS

Minority-culture-led fashion design: A collection with 8 show looks (named Shangri-La) is designed in the theme of minority culture of the Yi and Miao group (name of two minority groups) living in south-western China, where the researcher comes from. The design purpose is to bring ancient culture back to life via fashion design rather than in a cold museum. Moreover, background images, videos, and text of design theme are illustrated on App by interacting with fashion pieces to exhibit the unique culture. Visual elements including pattern, colour palette, and handcraft (embroidery, beading, tassel, and accessory) are absorbed from Yi and Miao's traditional clothing7-9. The silhouette of fashion pieces is from sustainable ideas of Yi and Miao's patternmaking for minimizing waste of fabrics (first-hand resources from field research see figure 5).

Touch-sensitive textile design: Smart textiles design method used here organically integrates interaction into fashion pieces by touch-sensitive fabric and tassel. The touch interfaces on fashion pieces use a conductive fabric bonded behind garment fabrics and use silver-coated threads weaving with aesthetic tassels10. Based on a capacitive sensing mechanism, those textile sensors detect customer touch by coupling with a microprocessor-based interactive system.

Wireless interactive system design: An interactive system with App is designed by using a 'sensing-process-actuating' process model based on wireless communication technology (see figure 2). Dedicated Wi-Fi is selected as network communication technology in public spaces for massive users. Mobile App as the actuating interface is designed to guide customers to interact with the fashion pieces. Corresponding background information and online product connection are illustrated via App interfacaes11. A portable printed circuit board (PCB) manufactured to carry a microprocessor unit and a power supply system is minimized, thus it is non-invasive to embed in fashion pieces.

RESULTS

Fig.1 Design of the smart fashion collection interacting with App via IoT in concept stores for improving the experience and strengthening the connection between offline and online shopping.

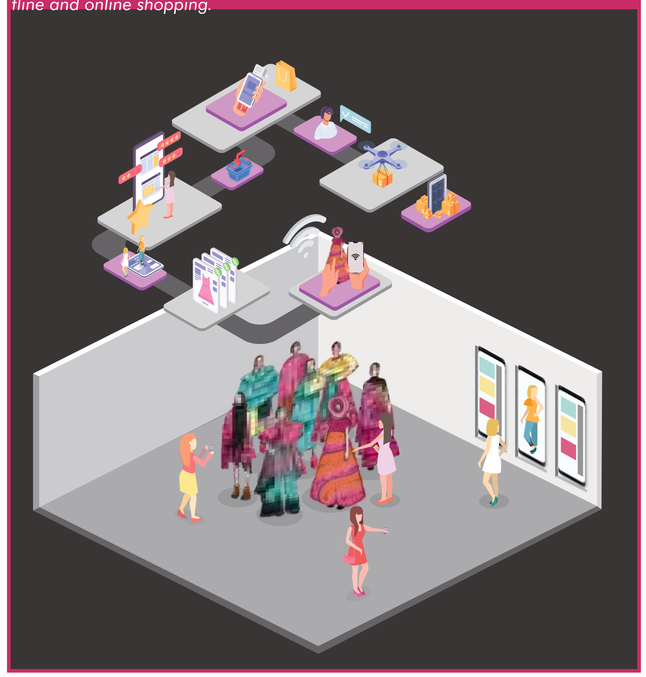


Fig.2 Interactive system design with mobile App by applying Wi-Fi technology and PCB technique.

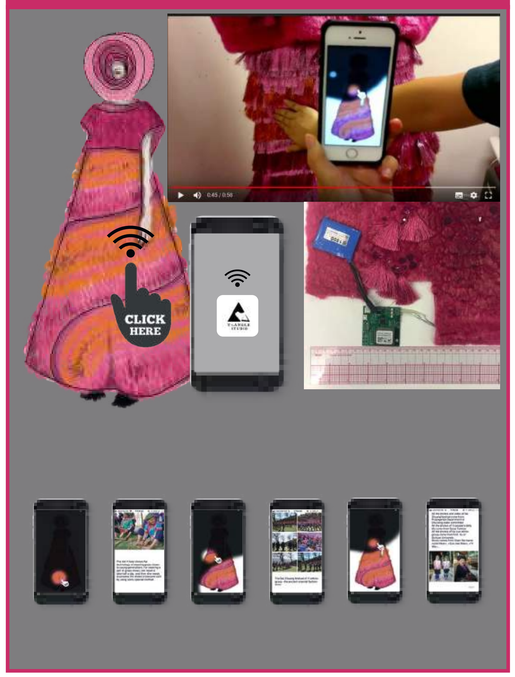
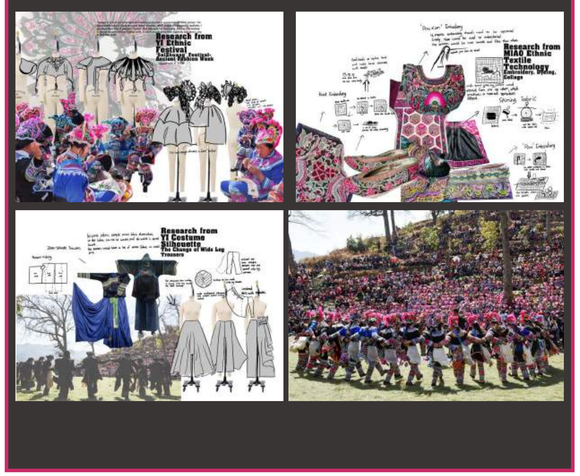


Fig.3 The parallel design method comprehensively considering fashion design, smart textiles, and technology.

Minority-culture-led Fashion Design	Touch-sensitive Textile Design	Wireless Interactive System Design
Concept & Mood	⟷	Manner of Interaction
Visual Element ⟷	Textile Structure & Appearance	⟷ Actuating Effect (App)
Material ⟷	Functional Material (Conductive) ⟷	Touch-sensitive Mechanism
	Technique of Integration (bonding/ Stitching/ Embroidery/ Weaving) ⟷	
Fashion Pattern Making	⟷	Interconnection (Wireless Communication)
Prototype (Toile)	⟷	Processing Unit Design
Cutting & Sewing	⟷	Assembling

Fig.4 Photography of the Shangri-La collection.

Fig.5 Field research in south-western China (photos taken by Yi Pu in Chuxiong, Yunnan, China; Li Shao in Kunming, Yunnan China; Tuo Dong in Yuxi, Yunnan, China).



CONCLUSIONS

- The interactive fashion collection Shangri-La with 6 fashion pieces is designed and developed as a touch sensing tangible interface for a customer experiencing in physical concept stores by seamlessly integrating with smart materials.
- The mobile App can be freely downloaded and installed on IOS smartphones as actuating interfaces to provide guidance of manner of interaction, design background information, and online product connection.
- Conclusively, offline retail procedures may reduce warehousing, service, manpower, and product layout. Online retailing and offline experience are possible to be seamlessly coupled with the proposed Shangri-La collection in revolutionary concept stores.
- Although, this design research does not verify improvement on service, customer satisfaction, and retail itself. Innovatively, the proposed interactive fashion collection demonstrates the feasibility of integration with technology in a novel and non-invasive way.

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HAND TO MIND

The paradigm shift in Fashion Education

Author: Lavdeep Singh
Department of Fashion Design

National Institute of
Fashion Technology, India

Keywords: Fashion Education, Pedagogy, Interdisciplinary studies, Fashion, Society, Culture

Objective

Fashion has moved in space and time, it is more interdisciplinary than ever. Scholars, academicians spanning science & technology, sociology, anthropology, ethnography, etc., are collaborating to explore different dimensions of fashion; visual, cultural, semiotics or socio-economic. From being a product of industrialisation, fashion is becoming more conceptual, a topic of interest for thinkers & intellects.

Riding on this wave of change universities across the world are re-looking at their fashion curriculums and introducing new areas of study that encourages fashion students to pursue cultural investigation of fashion. Subjects such as "Fashion, Society and Culture" and alike are introduced at undergraduate level with a motivation to sensitise the students with this refashioning of fashion. In tandem with technical skills like sewing and pattern making, students are being taught thinking skills that enables them to explore socio-cultural aspects of fashion. It is safe to say that fashion education has truly moved from hand to mind. The objective of this study is to develop teaching pedagogy to encourage undergraduate students of Fashion Design/Studies to explore interdisciplinary, intersubjective, diverse & interpretive nature of fashion through research & investigation that enables them to understand fashion in both material as well as abstract forms.

The paper discusses activities that are designed and conducted in the classroom for the subjects namely "Fashion Basics", "History of Clothing" & "Fashion Society & Culture" with an objective of introducing interdisciplinary nature to fashion study and why it is important for students. The activities are designed with an intent of integration with other areas of fashion design like Pattern Making, Garment Construction and Trend Forecasting to enable students to understand the application of their learning and inferences.

Interdisciplinarity

Fashion Forecasting

Pedagogy Activities

Terminology with Fashion

Table 1 - Terminology with Fashion

	Word	New Word	Meaning
1	Show	Fashion Show	A show/event where fashion designers show their upcoming collection of clothes or accessories
2	Icon	Fashion Icon	Influential/famous people who introduce new styles of fashion, e.g. celebrities.
3	History	Fashion History	A career in fashion, which involves researching, writing and speaking about the historical context of clothing and dress.
4	Bar	Fashion Bar	Name of a night club or shopping destination in many cities
5	TV	Fashion TV	An interna onal fashion and lifestyle broadcasting television channel solely dedicated to fashion. It was founded in France.
6	Police	Fashion Police	An American TV series where featured panelists critiqued celebrity fashion. Also referred to fashion experts who criticise clothes people wear
7	War	Fashion War	A Hong Kong Television Drama about a fashion magazine
8	Zombie	Fashion Zombie	Fashion Zombies is a song by American band The Aquabats, a satire on fads and popular fashion
9	Law	Fashion Law	A specific field of law that deals with legal issues that impact fashion industry
10	Consultant	Fashion Consultant	A fashion expert who helps clients their image makeover and provide shopping assistance
11	Editor	Fashion Editor	A person who supervises content development and presentation for fashion magazines, websites or TV.
12	Plate	Fashion Plate	Drawings of the latest fashion trend to disseminate latest trends and instructions how to construct the garment, using copper or steel engravings. Originated in France
13	Blogger	Fashion Blogger	Persons who blogs about fashion, it's a paid and recognised profession.
14	Model	Fashion Model	A model works with fashion designers, photographers and brand to showcase products. Now there are specialised models for runway, editorials, swim suits, super
15	Bug	Fashion Bug	A person who's always in latest trends. Also a fashion retailer
16	Theory	Fashion Theory	Theories that explain fashion dissemination.
17	Journalist	Fashion Journalist	Journalists who specifically write, research and investigate about fashion and trends.
18	Stylist	Fashion Stylist	A professional who creates unique and iconic looks for clients, editorial and commercial photo shoots or movies. They don't design clothes.
19	Buyer	Fashion Buyer	A professional who makes purchasing decisions for a retailer on what styles to be stocked.
20	Victim	Fashion Victim	A person who feels being fashionably dressed is most important and blindly follow latest trends.
21	Commodore	Fashion Commodore	A species of butterfly in the family Nymphalidae which is native to tropical sub-Saharan Africa.
22	Capital	Fashion Capital	A city with a major influence in international fashion and holds fashion weeks. Paris, Milan, New York London.

Meanings of the words are searched by students from various sources and written as per their understanding.

As per the activity, the class brainstorms to list down a set of words to which they add the prefix "fashion", and then look for the meaning of the new word to understand its relevance to fashion, and the results are insightful and fun. Refer to Table 1 for some words that are usually discussed in the class.

Inference: The activity offers students opportunity to learn about different terms, professions & concepts related to fashion, in a non-linear manner, underlining the interdisciplinary nature of fashion through an engaging, interactive & cognitive process. Further the students are asked to research more on these words and find examples. Simultaneously, they find the term 'fashion' so fascinating that if used as a prefix it has the power to turn something dull into fun & intriguing for example, Fashion Law, Fashion Police, Fashion War, Fashion Plate & my personal favourite Fashion Commodore, which actually is a species of butterfly.

Fashion Making Sense of it

Fashion History

1,2 & 3 - Pictures of student's work - construction of periodic costumes exploring sewing & draping techniques. 4. A student's sketch to understand - theory of motivation behind clothing. Sketch by: Ms. Tanupriya

The activities demonstrates 1. Importance of Fashion in understanding past eras, societies, culture, class, gender & religious identities. 2. The aim of the activity is to make history of clothing stimulating with hands-on activities that allow integrated learning.

Result: High engagement with materials, deep understanding of construction of historic costumes and interdisciplinary nature of the course.

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Proactive Education as a Tool for Mediating Fashion Across Borders

Building a Library of Fashion Business Case Studies to Teach Sustainability

Vladimira Steffek vsteffek@ryerson.ca | Ryerson University, Toronto, Canada
Rossie Kadiyska rossie.kadiyska@humber.ca | Humber Institute of Technology and Advanced Learning, Toronto, Canada

Introduction

A shift towards sustainability is crucial to the future of the fashion industry. Students of fashion disciplines - the key players of the future - need to understand, empathize and visualize the future meaning of sustainability. The authors believe that such a future vision or development could be executed only through interdisciplinary and international collaborations; thus the tool used in the classroom is in the form of Collaborative Online International Projects (COIL). In addition, developing analytical, creative, and innovative thinking is essential for students to gain a competitive advantage when entering the workforce (Louca et al., 2014). The authors introduced case studies into their classrooms to synthesize the approaches. Advanced case studies help learners apply various thinking methods and make use of their existing knowledge in new situations (Kimmel, 1995) as they help enhance learners' complex cognitive abilities in learners (Bonner, 1999).

Objectives

In the process of studying existing cases from the leading publishers, the authors observed a gap in the market: a limited array of sustainability-focused case studies. With localization being another overlooked aspect, the idea of a tailored library of contemporary, Canadian-specific case studies focused on innovative business models has organically emerged. Thus, the project aimed to create a collection of multimedia open, fashion-specific, educational resources, drawing on local entrepreneurs carrying sustainability at heart.

Project Pedagogy & Methodology

The pedagogy framework is based on five main pillars: interdisciplinary learning, internationalization at home, collaborative online learning, systems design thinking, and UN Sustainable Development Goals (SDGs). Students are challenged to look at the current fashion industry through a different lens and create alternative business solutions through the sustainability principles of circular economy and systems design thinking.

The project is aligned with SDG 8 - Decent Work and Economic Growth, 11 - Sustainable Cities And Communities, and 12 - Responsible Consumption And Production. as defined by the United Nations and the educational institution (Humber Institute of Technology and Advanced Learning) Learning outcomes (HLOs):

Timeline

To date, the authors have created four case studies based on local apparel businesses run by BIPOC entrepreneurs. Students participated in system design thinking workshops to further enhance their critical thinking and support the development of intellectual curiosity from a future perspective (Scharmer, 2018).

The first case study called "KLWD: A Canadian Streetwear Start-up Case Study" is based on the streetwear apparel brand KLWD, operating in Toronto and Barbados, displaying some of the successes, challenges, and common roadblocks small brands face in the early stages of development.

The second case study called "An Open Conversation About Sustainable Denim For A Global Consumer: Translate Opportunities Into Solutions" outlines the journey of Ani Wells, a sustainable denim entrepreneur based in Toronto, who has challenged the existing denim-focused business models by turning her e-commerce site Simply Suzette into a thriving educational, online sharing platform. This project grew internationally through a partnership with Senac University, Sao Paolo, Brazil.

29 students | 2 schools, 4 disciplinaries | 4 continents

2019 — **Winter 2021** — **Summer 2021** — **Fall 2021**

Following the success of the previous projects, in May 2021, the authors launched the next phase of the collaboration with a new partner, Nottingham Trent University (NTU), Nottingham, UK, tackling the challenges of UK-based bespoke tailor Nicholas Simon. The brand focuses on delivering made-to-last fashion, promoting mindful consumption and high-quality production. Through this project, the students were exposed to and worked on a real-world consulting project.

29 students | 2 schools, 5 disciplinaries | 3 continents

In October 2021, Humber College partnered with Nottingham Trent University in the most current Collaborative Online International Project (COIL). A new case study "Charting A New Path For Sustainable Fashion: How Folklore's Indian Fusion Wear Impacts Canada's Fashion Scene" focused on Sana Sapra, the female business owner of the Indian fusion wear brand Folklore. As a result, students have charted a new pathway for sustainable fashion and Indian fusion wear in Canada's fashion scene.

75 students | 2 schools, 5 disciplinaries | 4 continents

Testimonials

"After two semesters of thoroughly studying the different aspects of sustainability and analyzing how the diverse issues impact not only the environment but our society as a whole, I came across a lot of information. The COIL Project experience not only helped me summarize, identify relevant information, and simplify complex concepts in order to help my team members have a better understanding of the topic. Since they came from different backgrounds, cultures, and programs, not all of them have had previous contact with sustainability and in many cases, they weren't able to see the big picture and understand the impact the different practices have on the supply chain. Through our brainstorming meetings, I was able to summarize all the knowledge I've acquired in the last months and engage in meaningful conversations with my teammates. In addition, as we had a specific target audience in mind for our prototype, I needed to organize the ideas and choose key topics and concepts to successfully engage our particular audience. ˇ

- Mariana Amesa, Fashion Management and Promotion PG, Humber College, Winter 2021

Being part of the COIL project was one of the most interesting experiences during my education. I was able to implement my knowledge in marketing, business and even project management. COIL helped me to realise the importance of thinking outside the box and gave me a great opportunity to work with amazing people from different countries!

- Anna Zakharchenko, Fashion Management and Promotion PG, Humber College, Fall 2021

Conclusion

To mediate fashion across borders, the project included three education institutions from Canada, Brazil, and the UK. Student feedback has been gathered through anonymous questionnaires, individual reflection papers with open-ended questions, and one-on-one discussions with learners between January 2020 and May 2021. It can be concluded that the teaching materials have allowed students to relate, observe, and provide innovative solutions more critically. To implement the process in future classroom projects, educators can utilize system design frameworks combined with tailored local case studies.

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Subtheme:
MEDIATING FASHION

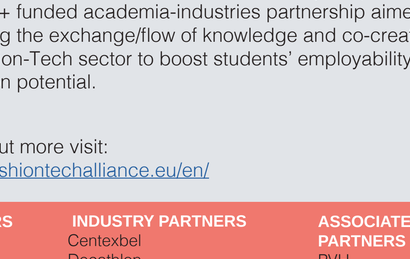
RESIDENCIES OR HACKATHONS:
FUTURE RECRUITMENT STRATEGIES FOR FASHION-TECH

Prof José Teunissen // Dr Michèle Danjoux
London College of Fashion, University of the Arts London

Today's Fashion-Tech landscape is in a state of flux – fashion and tech sectors are becoming increasingly more closely aligned, digitisation is key, and environmental issues are driving new processes and agendas within the industry.
Companies do not necessarily know all the solutions but rather look to future talent to continue to grow and scale their organisations for ongoing innovation in the sector.
The FTAlliance project held online workshops with industry partners to interrogate the new challenges to companies and the recruitment strategies and talent assessment tools they are using in recruiting future talent.
While all companies agreed the formal interview still to be the best way to assess a candidate, a variety of other recruitment practices were also promoted to ensure the right person is hired.

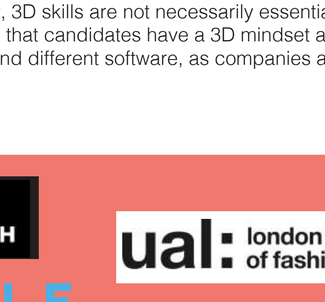
HACKATHONS

An effective way for companies to find the best people (with the right skillsets and mindset) for their businesses to remain responsive and constantly agile.



EXPANDED PORTFOLIOS

Portfolios are still important but should no longer only highlight collections of final products but rather emphasise more fully process and conceptual thinking.
— Students need to consider in what way they can better pitch their ideas, demonstrate skills and present their work to also highlight their entrepreneurial mind-set and fresh innovative ideas.

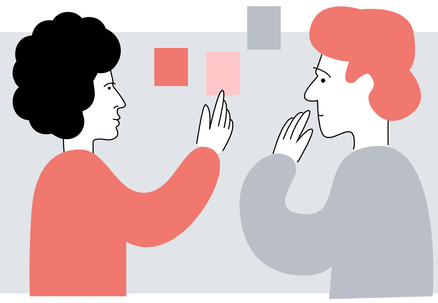


NETWORKING & COLLABORATION

'Stay close to the talent pool 'was the clear resounding message from Fashion-Tech employers who understand that their collaborations with HEIs via industry projects, networking and knowledge exchange events and open days allow them to assess students before they graduate.

ASSESSING SOFT/ER SKILLS

The industry is also prioritising soft/er skills – being entrepreneurial, a collaborative team player, open to change…
–- Group-based assessment opportunities; the completion of a problem-solving brief; presenting to a group; a group interview and sometimes an additional small one-day assignment are all tools utilised to assess a candidate's soft/er skills in relation to others.

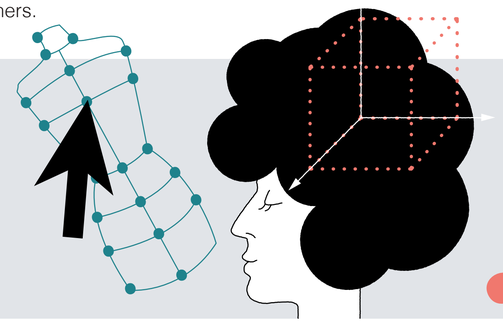


EQUITY, DIVERSITY & INCLUSION

Companies are recognising the importance of a diverse workforce to their future success. They thus seek to actively attract applicants with a diverse background, acknowledging they need to write the job description in an inclusive language that omits unconscious bias.
With this agenda in mind, they agree that there is 'no one-size-fits all' solution to attracting, recruiting and assessing future talent.

ONLINE INTERVIEWS

The pandemic/Covid-19 has ushered in new recruitment processes such as the digital interview combined with online assessment tasks as tools for a more global approach to recruitment.



3D MINDSET

Digitisation means the industry seeks a variety of new skillsets from its designers.
— However, 3D skills are not necessarily essential, what is more important is that candidates have a 3D mindset and are open to learn new and different software, as companies are offering digital training.

RESIDENCIES // INTERNSHIPS

To assess skills and suitability of future talent over a longer-term.
–- Companies such as Grado Zero Innovation offer built-in project-based traineeships within interdisciplinary teams to assess an individual's suitability for their company.

Acknowledgements:

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Credits:
Graphic Designer: Maciej Rackiewicz

FTalliance

Weaving Universities and Companies
to Co-create Fashion-Tech Future Talents

FTAlliance 'Weaving Universities and Companies together to Co-create Fashion-Tech Future Talent' is a 3-year (2020-2023) Erasmus+ funded academia-industries partnership aimed at facilitating the exchange/flow of knowledge and co-creation within the Fashion-Tech sector to boost students' employability and innovation potential.

To find out more visit:
https://fashiontechalliance.eu/en/

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HEI PROJECT COORDINATOR
Politecnico di Milano

HEI PROJECT MEMBERS
Högskolan i Borås
Technische Universiteit Delft
London College of Fashion - University of the Arts London
ESTIA École Supérieure des Technologies Industrielles Avancées

INDUSTRY PARTNERS
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An ethnographic study on Motifs of Tangalya weaving
Hir P Vyas National Institute of Fashion Technology Gandhinagar

Abstract

An artisan community's way of life is indigenous to the craft. The process of craft making is intertwined with the values, ethos, beliefs, practices and lifestyle of an artisan community. There is a need to understand how the surrounding environment, practices , rituals , beliefs of an artisan community are bringed with the craft and craft making. The tangalya weaving in handwoven into of cotton, silk and wool. This community of Bhavnagar and Surendranagar districts of Saurashtra region, practices the tangalya weaving. This ethnographic study attempts to understand the artisans practices, the influence of nature and ecology and way of life in the design of tangalya weave. The study also explores the relationship between the artisan's culture with the environmental context.

Introduction

Tangalya is textile weaving from Surendranagar district, Gujarat, India. The Tangalya refers to cotton cloth draped neck-long/ leg- over part of body. The uniqueness is the weaving is that during the weaving knots or different colored threads are made across a bunch of fibers. These weaved knots give shape to different motifs.

Cultural themes in form of visual expression of motifs have been depicted in various handicraft such as pottery, embroidery, metal ware and woodwork craftsmanship (Devi, 2012; Das et al., 2004). In Assamese handwoven textiles also inspiration has been drawn from various kinds of plants and animals or their parts, facsimile objects and in some cases abstract art too. Studies on motifs of Kimono were studied by Luo and Mukherjee . The researchers categorized the 134 motifs of Kimono into geometric, animate insects, cultural and everyday objects, and landscape motifs.
The study on motifs, categories and inspiration gives the insight into influences of the cultural mindset.

Methodology

An ethnographic approach with visual research was done to accomplish the objectives. Data collection methods that were employed were participant observation, field notes/journaling, photography with visual documentation and informal interviews to ensure the collection of valid and verifiable data.

Results

In the study, Tangalya weaving revealed steps like weaving that included Dyeing and stretching, making bobbins, warping , weaving and Dana making (Figure 1)

The basic building block of tangalya motifs is dana to the grain.

Dana making /bana making
The process through which the danas are made during the weaving process motif design, dyeing and hand eye coordination. Each dana is created by lifting a group of warp threads (in the warp (3-4 threads) , followed by putting the cotton thread (weft) by shuttling , tightly beating it and pushing it onto the weft, followed by taking extra weft around it. Based on the motifs the individual danas are knotted in the weave. Traditionally these danas were made with white cotton threads.

categories of motifs and the inspiration
Fauna and flora as inspiration : motifs were inspired by flora or a animal like deer, kangaroo etc. flora like peacock, sparrow

Nature inspired motifs
They can be divided
into terrestrial, celestial and flora and fauna based
Botanical: tree, flowers ,see the inspiration of the motif

Celestial: as the name planet revolving, second the sun is one of the motifs

Ritual as inspiration The ritual driven motifs are war and vadhu ni the bride and groom.

technology driven : the motifs inspired by an aeroplane.

Abstract and geometric forms
Some of the motifs are abstract.
Wide varies involving inspiration from geometry.

Architecture and forms Forms of architecture and natural materials such as chakla the inspired the form of motif

Lifestyle and Food
Motifs there
are motifs which are inspired from food
delicacy such as
cookies based on a
sweet delicacy

Discussion

Cultural themes in form of visual expression of motifs have been depicted in various handicraft such as pottery, embroidery, metal ware and woodwork craftmanship (Devi, 2012). Mythological references and nature have inspired the hand-woven textiles and Kimono (Das, 2021). In corroborative with the previous studies for other handloom, tangalya motifs derive inspiration from nature, architecture, lifestyle, rituals, technology and religion. The inspiration influences mental setups and thereafter the design. Also there are certain motifs such as peacock and deer that have evolved as realistic from the earlier versions of the same. The dated of the Indian traditional Pichhvai designs were inspired mainly from textural forms of flower and leaves. In Assamese handwoven textiles also inspiration has been drawn from various kinds of plants and animals or their parts, facsimile objects and in some cases abstract too.

conclusion

The study conducted a visual research on motifs in Tangalya sarees from weavers, makers and motifs as a resource center. The artisan draws inspiration from nature, technology, lifestyle and activities too. It can be concluded that the predictability in motifs of Tangalya weaving is reflection of culture, culture, lifestyle and surrounding and abstraction of the events from the artisan society.

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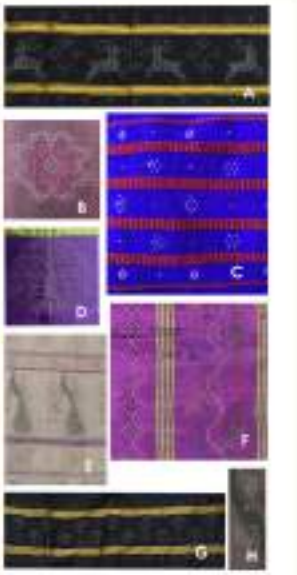

Figura 1. Motif and its arrangement A. Deer B. Flower C. Vine plannels and Leaves Inset Item D. Tree E. Peacock F. Creeper G. Geometry H. Peacock Abstract

School of Design and Creative Arts

Weave Colour Scope Inspection in Jacquard Woven Fabric Reproduction Improvement

Lei Zeng, Ken Ri Kim* and John H Xin

Abstract

Producing a wide scope of weave colours is challenging with a limited number of a weft yarn colour variety in modern Jacquard weaving. The primary colour yarns of CMYK colour system (cyan, magenta, yellow and black) are suggested to replicate varied Jacquard designs. However, there is a limitation due to the nature of the CMYK system as it can only display approximately 56% of the colours which are perceived by human eyes. However, there is potential to improve colour reproduction quality by expanding a range of primary yarn colours. In colour printing, red [R], green [G], and blue [B] are popularly used in line with C, M, Y, and K colours. Therefore, in this research, two sets of the primary yarn colours (RGB and CMYK) are used to produce weave colours and the results are compared and examined.

Introduction

Weave colours are created by interweaving at least two sets of weft and warp yarn colours [1, 2]. Producing a large scope of weave colours with a small variety of weft yarns is challenging, but important in modern digital Jacquard weaving [3].

According to Kim et al. [4, 5], using the subtractive CMYK colour model is suggested to reproduce multi-coloured artworks. However, as the CMYK colour gamut can display approximately 56% of the colours [6], there is a limitation in colour reproduction. In colour printing, the four primary colour pigments (C, M, Y, and K) are widely used, but red [R], green [G] and blue [B] colours are also considered to enhance colour reproduction quality.

Therefore, this study aims to inspect weave colour effects when the two primary colour sets are applied to production. The prototypes of weave colour samples were produced by jacquard machine and the experiment results were described in CIELAB values (Figure 1).

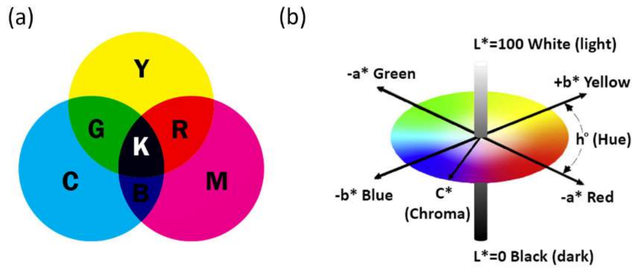

Figure 1. (a) The subtractive CMYK colour model; (b) International Commission on Illumination (CIE) LAB colour space [7].

Methodology

- Two sets of primary colour yarns: cyan [C], magenta [M], yellow [Y], red [R], green [G], and blue [B].
- Twelve colour combinations: [C]+[M], [B]+[M], [C]+[Y], [G]+[Y], [M]+[Y], [R]+[Y], [R]+[G], [M]+[G], [B]+[R], [C]+[R], [B]+[G], and [B]+[Y].
- The prototypes of weave colour samples are produced and measured by spectrophotometer (X-Rite Ci7500, UK) with the iControl software (X-Rite PANTONE®, UK).

Secondary weave colour production

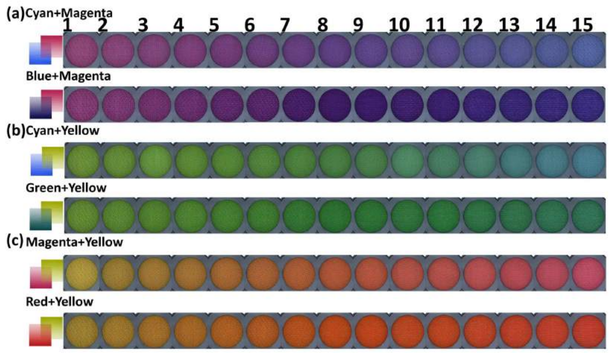

Figure 2. Secondary colour production comparison. Fabric images of (a) [C]+[M] vs. [B]+[M]; (b) [C]+[Y] vs. [G]+[Y]; (c) [M]+[Y] vs. [R]+[Y].

In this study, two sets of primary colours (C, M, Y, K, R, G, and B) are paired to produce secondary weave colours. The experiment results are shown in Figure 2 to compare the weave colour differences.

For the [C]+[M] and [B]+[M] samples, all lightness values of the [C]+[M] samples are higher than the values of the [B]+[M] samples of which results indicate replacing [C] with [B] decreases the lightness of the fabric. For the [C]+[Y] and [G]+[Y] samples, the test results imply that more vivid tones of green colours are produced with using the green yarn. Comparing the [M]+[Y] and [R]+[Y] weave colours, the [R]+[Y] samples are slightly darker than the [M]+[Y] samples, but the saturation of the weave colours was presented better with the red yarn.

Expanding colour gamut with CMYRGB yarns

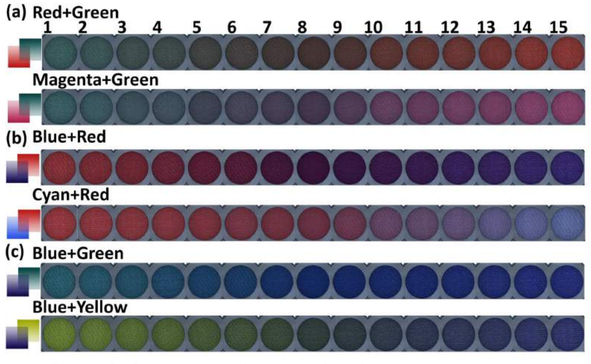

Figure 3. Colour effect investigation. Images of weave colour prototype of (a) [R]+[G] vs. [M]+[G]; (b) [B]+[R] vs. [C]+[R]; (c) [B]+[G] vs. [B]+[Y].

The pair combinations of [R], [G], and [B] yarns (i.e., [R]+[G], [R]+[B], and [B]+[G]) were produced and compared with the three groups of weave colours of which pair combinations were produced by replacing [R], [G], and [B] yarns with the similar yarn colours from CMYK system (i.e., [M]+[G], [C]+[R], and [B]+[Y]). Fifteen weave colour samples are produced in each combination to examine the colour differences.

Conclusions

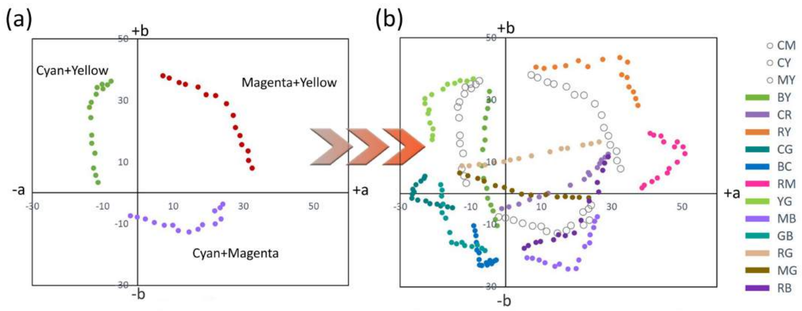

Figure 4. CIELAB gamut expansion by adding RGB yarns. (a) Measured a*b* values of using CMY yarns mixing and (b) the expanded gamut with CMYRGB yarns.

- Producing a large scope of weave colours by using a small variety of weft yarn colours are important to improve colour reproduction quality.
- The CIELAB colour space was expanded by adding [R], [G] and [B] coloured yarns. Feasible hue and chroma range were expanded compared with using only [C], [M], and [Y] yarn colours.
- The [R], [G], and [B] yarns could be considered to expand a feasible weave colour gamut.
- These findings contribute our understanding of the possibilities in colour reproduction and suggest great potential in producing a wide scope of weave colours by using primary colours yarns.

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