An investigation of the mass-market fashion design process

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Abstract

Purpose – The process of fashion design varies between market segments, yet these variations have not yet been properly explored. This study aims to examine the fashion design process as practised at the mass-market level, as this is the most vibrant and the largest market segment in terms of production volumes and sales.

Design/methodology/approach – It is observed that 15 semi-structured interviews were conducted with mass-market fashion designers. Key activities of the mass-market design process were identified and a comparative analysis was conducted with the general design process.

Findings – The mass-market design process is found to prioritise profits rather than aesthetic aspects, with the buyer exercising more power than the designer. This hinders creativity, which, in turn, may impede a move towards more environmentally benign designs.

Originality/value – The clothing industry is responsible for high environmental impacts and many of these impacts arise through decisions made in the design stage. In particular, the mass-market for clothing because of its high volume of sales and fast throughput, accounts for a great deal of the impact. However, little is understood about the design process that is practised in the mass-fashion market. This paper fills the gap by developing a framework that describes the mass-market design process. Understanding the design process will enable progress to be made towards achieving the United Nations Sustainable Development Goal 12: Responsible Consumption and Production.

Keywords Clothing, Fast fashion, Fashion design, Design process, Mass-market, United Nations sustainable development goal 12 responsible consumption and production

Paper type Research paper

1. Introduction

The fashion industry plays a vital role in the development of the global economy. Globally, the fashion and footwear industry was worth US$1.9tn in 2019 and it is projected to increase to US$3.3tn by 2030 (Lehmann *et al.*, 2019). Global fashion consumption was 62 million

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tonnes in 2015 and this has been predicted to increase to 102 million tonnes in 2030 (Kerr and Landry, 2017). These increases are driven by fast-changing fashion trends, shortening life-cycles of fashion products (Dissanayake and Sinha, 2015) and high volumes offered at cheap prices (Bick *et al.*, 2018). Although the COVID-19 pandemic has severely disrupted these trends, the general pattern is expected to return in the longer term, although perhaps with lower throughput and a change in the balance of demand (Berg *et al.*, 2020; Boons *et al.*, 2020).

1.1 Fashion industry overview

The fashion industry comprises two major market levels: Haute couture and couture and ready to wear. The ready to wear market can be further segmented into high-end fashion; middle-market; and mass-market. The mass-market comprising two further segments: high street and value fashion (Babu and Arunraj, 2019; Posner, 2015). This classification is based on the quality level of fashionability and price (Babu and Arunraj, 2019; Posner, 2015).

1.1.1 Haute couture and couture. Haute couture and couture levels offer high-end fashion pieces with higher prices than luxury designer ready to wear items. This level uses a skilled workforce capable of expert craftsmanship: this, along with the use of expensive materials and production methods, enables its products to attract premium prices (Babu and Arunraj, 2019; Reilly, 2018; Posner, 2015). The term "Haute couture" is protected by law: The Chambre Syndicale de la Haute Couture, which is located in Paris, is its governing body. This body is in charge of classifying Haute couture designers and has specific requirements (Reilly, 2018; Posner, 2015; Renfrew and Renfrew, 2009):

> To be classified as a bona fide Haute couturier a fashion house must create made-to-order garments for private clients. They must also produce two collections a year in January and July, employ a minimum of 20 full-time staff, run an atelier in Paris and show a set minimum of runway looks, or "exits", as they are known, of evening and daywear (Posner, 2015, p. 12).

Furthermore, sales are limited to one garment per continent to retain exclusivity (Posner, 2015).

1.1.2 Ready to wear. Famous Haute couture brands such as Channel, Christion Dior and Givenchy use both bespoke methods (made-to-order: in which items are designed and made for a specific customer) and made to measure methods (in which a predesigned garment is made according to the measurements of the customer) to create personalised fashion pieces (Posner, 2015; Easey, 2009; Gwilt, 2012; Renfrew and Renfrew, 2009). However, some designers not recognised as Haute couturiers by the Chambre Syndicale de la Haute Couture also produce high-end exclusive fashion items using made-to-order and made-to-measure methods and maintain the same quality and price levels (Posner, 2015).

Within the ready to wear level or "off-the-peg clothing" (Posner, 2015, p. 14), the high-end luxury market is similar to Haute couture, but, through the ready to wear platform, it is accessible to a wider audience. This market-level offers fashion clothing in standard sizes rather than being made to customers' measurements as in Haute couture. High-end ready to wear products are sold in designers' shops, independent stores and some department stores such as Selfridges and Harvey Nichols at lower prices than Haute couture-level products (Posner, 2015; Easey, 2009; Renfrew and Renfrew, 2009). The middle market level acts as a bridging level between the high-end and mass-market: whilst the high-end maintains the originality in the design with high price points, in the mid-market, designs and prices fall between the high-end and mass-market levels. Individual brands operate at this level and the diffusion lines (or bridging lines) [1] of designer brands (Reilly, 2018; Posner, 2015; CBI, 2016; Jones, 2017).

1.1.3 The mass-market. The mass-market features high volumes and low price points (Babu and Arunraj, 2019; Posner, 2015; Easey, 2009) and is the largest market segment in

terms of both production volumes and sales (Renfrew and Renfrew, 2009; Choi, 2013; Munasinghe *et al.*, 2019). It is characterised as highly fragmented, complex, highly competitive, fast-phased and driven by profit (Renfrew and Renfrew, 2009), with fashion items becoming increasingly affordable and disposable, involving ever-shortening life cycles. The resultant faster throughput creates numerous sustainability issues (Binet *et al.*, 2019; Dissanayake *et al.*, 2018; Mair *et al.*, 2019; Bick *et al.*, 2018; Dissanayake and Sinha, 2015; Weerasinghe *et al.*, 2019). As noted above, it comprises the high street and value fashion segments, with some mass fashion brands having two product types: a "core" range (basic products), which evolves from season to season; and a "new fashion" range which changes more frequently, offering more trendy looks (Backs *et al.*, 2020; Renfrew and Renfrew, 2009). Brands such as Zara and H&M offer particularly fast-changing fashion cycles with exceptionally short lead times (Backs *et al.*, 2020), such as one collection per week (Binet *et al.*, 2019). This business model is called "fast fashion" and it operates at the extreme end of the value fashion segment, with its success relying on speed, flexibility and design (Cietta, 2009). So whilst the design phase of the value fashion segment takes around 10 weeks, in the fast fashion model it typically takes only one week (Berg *et al.*, 2018).

Digital technologies have been key in enabling fast fashion. For example, digital technologies reduce the time taken to implement changes in design, so that the industry can react fast and efficiently to consumer demand driven by fast-moving e-commerce platforms. Digital technologies include platforms such as Adobe Photoshop and Illustrator, Vision Fashion Studio and Kaledo which support fashion designers develop sketches and colour combinations and manage complete ranges (Mcquillan, 2020; Lipol and Haq, 2012; Sayema *et al.*, 2010). Gerber Technology, Lectra and Tukatech platforms support flat pattern making for prototyping (Trivedi, 2015; Sayema *et al.*, 2010). Digital technologies such as VStitcher, Modaris 3D and Tuka3D support three-dimensional prototyping: they are able to simulate designs to demonstrate life-like fit using virtual avatars that perform real-time motion simulations, thus eliminating the need for physical samples (Mcquillan, 2020; Lipol and Haq, 2012; Sayema *et al.*, 2010). Such digital solutions enable quick decision-making, thus reducing lead times (Cietta, 2019). However, Cietta (2019) emphasises that speed is not the sole driver of success: in successful fast fashion business models, "the focus is on the consumer not only upon the purchase and consumption but also during the creation and production step" (Cietta, 2019, p. 18). Thus, design is spread along the supply chain, involving sub-suppliers from the production chain and multi-brand shops on the distribution side (Cietta, 2009).

1.2 Purpose of the study

As discussed above, the mass-market is the most influential sector in the fashion industry in terms of volume and profits and it also raises serious sustainability issues. The features of the mass-market have resulted in significant changes to its product design process. However, a detailed investigation of how the mass-market fashion design process has changed to cater to these characteristics of the mass-market is absent to date. It is vital to understand the design process used in this segment to inform improvements to its operational and environmental aspects. The purpose of this study is, therefore, to uncover the design process used in the mass-market and explore the similarities and differences of the mass-market fashion design process compared to the generally accepted fashion design process as described in the literature (Section 2). Through this, we aim to gain new insights into the mass-market fashion design process and make recommendations for improvements.

The paper is organised as follows: a literature review of the fashion design process comes next (Section 2). This is followed by Section 3 in which the methodology used in this paper is described, with the results being presented in Section 4. In Section 5 (Discussion) the

differences found between the design process used in the mass-market and other market segments are discussed, along with the limitations of the study and recommendations for further research. Section 6 concludes with suggestions for improvements.

2. Review of the fashion design process

In this section, we review the design process described in the literature and synthesise our findings into a model of the general fashion design process.

There are several studies that describe the design process of different products and systems: these include Koberg and Bagnail (1981), Roozenburg and Eekels (1995), Wilson (2001), Taura (2016) and Arora (2017). Koberg and Bagnail (1981) explain a general design process which can be used as a problem-solving method that consists of seven stages; accept (willingness to explore the problem to creative solutions), analyse (in-depth exploration about the problem), define (decide the most important aspects of the problem), ideate (create several solutions to the problem), select (select best idea or ideas), implement (establish the best ideas) and evaluate (analyse the implemented idea for further actions). Watkins (1981) used this method to teach functional apparel designs in a study in the early 1980s.

Roozenburg and Eekels (1995) describe the general design process of a product, which in their view includes 11 components, namely, identify the function; analysis; criteria; synthesis; provincial designs; simulation; expected properties; evaluation; the value of the design; final decision and approve the design. Wilson (2001) then described a five-step design process applied to textiles: this starts with the identification of the need, followed by the research stage, generating ideas, design development and finally the completion of the design. Some years later "The design cycle model" was introduced by Taura (2016), who studied engineering design processes and described three design phases: pre-design phase, design phase and post-design phase. In the pre-design phase, the design is identified and specifications are developed. The design phase involves the implementation of the design and the developed design is evaluated in the post-design phase. This is an iterative, circular design model, which interconnects the results of the evaluation with the pre-design stage. This enables improvements in products and can lead to the development of new designs (Taura, 2016). Following this, Arora (2017) described a system design process which he called a "system evaluation model" which has five steps: define the specifications, design preliminary ideas, develop the detailed designs, prototype and test.

Whilst several authors have reported the general design process, some authors specifically address the key stages involved in the fashion design process and they show that the fashion design process demonstrates certain differences when compared with the general design process models described above. The general fashion design process, which covers all fashion market segments, comprises a sequence of identifiable activities, that go from research to generate ideas, to final product approval (Glock and Kunz, 1990; Regan and Kincade, 1998; Dissanayake, 2012; Labat *et al.*, 1999; Sinha, 2015; Renfrew and Renfrew, 2009; Mckelvey and Munslow, 2012; James *et al.*, 2016; Fung and Choi, 2018; Slijepčević and Perčić, 2019). Whilst each description of the design process found in the literature differs, key stages of the general fashion design process can be elicited, comprising six common steps; research, concept development, design of the collection, prototype development, finalisation of the collection and approval. This is illustrated in Figure 1.

Figure 2 summarises how descriptions given in key publications contribute to the six stages in the general fashion design process. The first stage is the research phase, which includes both market research and creative research. Market research focusses

on market-related inputs such as consumer behaviours, trends, sales information and social movements (Glock and Kunz, 1990; Regan and Kincade, 1998; Gwilt and Rissanen, 2011; Gwilt, 2012; Sinha, 2015; Slijepčević and Perčić, 2019). Creative research focusses on creative elements that include inspirations, colours, materials and shapes (Regan and Kincade, 1998; Sorger and Udale, 2006; Renfrew and Renfrew, 2009; Fung and Choi, 2018). The concept development phase, which comes next, comprises an analysis of the research findings to create an outline for the collections (Regan and Kincade, 1998; Gwilt and Rissanen, 2011; James *et al.*, 2016; Sinha, 2015). The following phase is the design of the collection, in which colours, shapes and materials are combined to develop new designs (Regan and Kincade, 1998; Sorger and Udale, 2006; Jones, 2005; Fung and Choi, 2018; Slijepčević and Perčić, 2019). The prototyping stage follows in which two-dimensional design ideas are converted into three-dimensional garments: this traditionally involves pattern making and toile modelling (Regan and Kincade, 1998; Jones, 2005; Fung and Choi, 2018; Slijepčević and Perčić, 2019). Once prototypes are approved, the final product range is developed. The penultimate stage is the finalisation of the collection: in this stage, the collection is analysed and edited to make decisions about which parts of the collection to take forward for final approval (Regan and Kincade, 1998; Sinha, 2015; Mckelvey and Munslow, 2012; Renfrew and Renfrew, 2009). The last phase, approval of the collection is described in different ways. Final decisions on the collection, such as which items to proceed for the production and

Sources: Adapted from Labat *et al.* (1999); Sinha (2002); Renfrew and TRenfrew (2009); Mckelvey and Munslow (2012); James *et al.* (2016)

Figure 1.
The general fashion design process

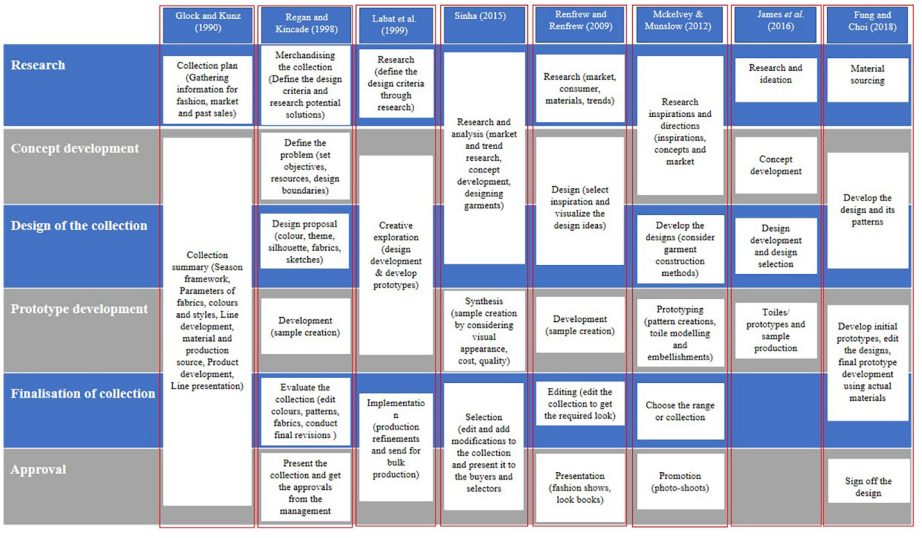

Figure 2.
General fashion design process – summary of the literature

production quantities, are taken by merchandisers, buyers or investors (Regan and Kincade, 1998; Sinha, 2015; Renfrew and Renfrew, 2009). This can be through a variety of ways, which may include a general presentation to the buyers (Regan and Kincade, 1998; Labat *et al.*, 1999; Sinha, 2015), conducting fashion shows and photoshoots or presenting the collection in a "lookbook" [2] (Mckelvey and Munslow, 2012; Renfrew and Renfrew, 2009).

Despite the similarities in the description of the activities presented by each of the authors, there may be differences in the steps depending on the market segment, as each has unique features and characteristics that may influence their business process, and hence the product design activities (Gwilt, 2012; Sinha, 2015). These differences are illustrated in Figure 2. For example, Glock and Kunz (1990) explain the design process under two main phases, collection plan and collection summary, whilst Regan and Kincade's (1998) explanation identifies six stages based on the engineering design process. Labat *et al.* (1999) describe concept development, design of the collection and prototype development as a single step which is similar to the process described by Slijepčević and Perčić (2019), whilst Sinha (2015) describes research, concept development and design of the collection as a single step. Fung and Choi (2018) start their description of the design process from the material sourcing stage, followed by design and prototype development. Furthermore, Renfrew and Renfrew (2009) explains the concept development and design of the collection as a single step and James *et al.* (2016) does not mention the finalisation of the collection and the approval stages in their explanations.

When we further analyse the variations shown between studies as illustrated in Figure 2, it is evident that the varying nature of the samples studied and the different perspectives and contexts, contribute to the differences identified. Therefore the differing ways that the design procedures are described may be considered to be complementary. For example, Glock and Kunz (1990) synthesise the process based on a wide range of experience and information from industry experts, whilst Regan and Kincade (1998) conducted two case studies with large scale apparel companies. Labat *et al.* (1999) focussed on a textile product design company as a case study, whilst Sinha (2015) looked at five fashion companies as representative of all market segments. In addition, Gwilt (2012) applied the same model as Sinha (2015) to the process of a luxury fashion brand. Fung and Choi (2018) conducted a case study of the product development process in a luxury fashion brand. Furthermore, Renfrew and Renfrew (2009) is based on interviews with designers across all market segments, whilst Mckelvey and Munslow (2012) presented a fashion design process that is used in fashion education. James *et al.* (2016)'s study focussed on the zero-waste pattern cutting and this largely explains why the stages of finalisation of the collection and approval stages are omitted from their study.

These variations in the samples and the results show that the context of the studies may influence the differences in the ways in which the general fashion design process is described. Moreover, the activities and inputs of a fashion designer can vary based on the market segment. For example, the mass-market fashion designer may repeat the silhouettes of previous collections based on the sales statistics whilst Haute couture and designer-level market segments use more creative and novel approaches to develop silhouettes (Gwilt, 2012).

This review shows that the fashion design process varies depending on the context of the study and market segment and therefore underlines the need for more focussed studies to gain a deeper understanding.

3. Methodology

This study used a qualitative research approach to investigate the mass-market design process. A qualitative approach was chosen as it enables in-depth study in which information is sought about the essence of something, some phenomenon or even some event (Given, 2008) and is especially recommended by Bye (2010) in the context of design, as is the case in this study.

Semi-structured interviews were conducted during February–July 2019 with designers who serve mass-market fashion brands. Prior to carrying out the interviews, an interview guide that outlined the key investigative points was developed. Semi-structured interviews were chosen because they are focussed and yet flexible: they are useful where the researcher may not be able to fully define the questions in advance, as is necessary for structured interviews or questionnaires (Galletta, 2013; Yin, 2016). In particular, they allow deeper probing on issues of specific interest and they are especially appropriate for use in commercially sensitive topics, as is the case in this investigation (Atman, 2019; Bye, 2010; Bogner *et al.*, 2009; Bogner *et al.*, 2009; Carson *et al.*, 2001). Open-ended questions were used in a conversational atmosphere, as this has been shown to help in-depth investigation (Given, 2008).

The participants in this study were selected through both purposive and snowball sampling. Purposive sampling [also referred to as a judgmental or expert sampling (Lavrakas, 2008)] means "that researchers intentionally select (or recruit) participants who have experienced the central phenomenon or the key concept being explored in the study" (Creswell and Clark, 2018, p. 259). It is important to collect a wide range of information and viewpoints (Kuzel, 1992) to maximise the quality level of information (Lincoln and Guba, 1985) and so participants were also approached via snowball sampling, in which the pool of initial informants was asked to nominate other participants who meet the eligibility criteria for a study (Given, 2008).

Qualitative studies normally use small samples (Miles *et al.*, 2014) and "There are no rules for sample size in the qualitative inquiry" (Patton, 2015, p. 244). In this study data collection ceased when data saturation was reached (Schwandt, 2007) – in other words, when no new or relevant information emerging was emerging from the interviews (Given, 2008).

Initially, designers who work for top mass-market fashion brands based on market share, brand value and consumer perception were identified using desk-based research, using their online profiles. Only European, the UK and US fashion brands were considered for the study and only designers who have worked for those brands with a minimum of 5 years' experience were approached. From these, 24 designers were selected, providing a spread across the UK, European and the US brands. They were contacted through emails, LinkedIn and the private contacts of the researcher. As noted above, snowball sampling was then used to expand the sample.

The final sample of 15 designers consisted of 10 designers selected through purposive sampling from the original 24 designers approached and further 5 contacted through snowball sampling. As shown in Table 1, the sample consists of 6 design managers, 5 senior designers, 2 designers and 2 design consultants. Each interview was approximately 1-h in duration and was conducted and recorded with the consent of the interviewee. Three face-to-face interviews and 12 online interviews through WhatsApp audio calls were conducted. Interviews were recorded and transcribed.

Thematic analysis was used to analyse the results. This identifies uniformities and patterns within qualitative data and from these coded categories and/or concepts are developed (Maguire and Delahunt, 2017). These categories/concepts were further analysed through comparison to sharpen the final concept in a more plausible way (Schwandt, 2007;

Table 1.
Details of the sample

Role	#	Years of experience	No. of brands worked for	Countries worked in	Brand positioning of the best brand worked for	
					Factor	Position
Design Manager	1	12	7	UK, USA	Market share	Within the top 10 clothing and footwear retailers in the UK
	2	9	6	UK, USA, Europe	Brand value	Within the top 10 apparel brands globally
	3	14	3	UK, Europe	Market share	Within the top 10 clothing and footwear retailers in the UK
	4	10	5	UK, USA	Brand value	Within the top 10 sportswear brands globally
	5	6	3	UK, Europe	Market share	Within the top 10 clothing and footwear retailers in the UK
	6	9	5	UK, USA	Market share	Within the top 10 retailers in the UK
Senior Designer	7	5	2	UK	Market share	Within the top 10 clothing and footwear retailers in the UK
	8	6	3	UK, USA	Brand value	Within the top 10 apparel brands globally
	9	7	3	USA, Europe	Brand value	Within the top 20 apparel brands globally
	10	5	3	USA	Brand value	Within the top 30 apparel brands globally
	11	7	3	UK, Europe	Brand value	Within the top 10 apparel brands globally
Designer	12	5	2	UK	Market share	Within the top 10 clothing and footwear retailers in the UK
	13	5	3	UK, USA	Brand value	Within the top 10 sportswear brands globally
Design Consultant	14	29	1	UK	Market share	Within the top 10 clothing and footwear retailers in the UK
	15	20	2	UK	Market share	Within the top 10 clothing and footwear retailers in the UK

Jones *et al.*, 2006). QSR International's NVivo 12 Qualitative Data Analysis Software was used.

4. Results

Analysis of the interviews revealed that the mass-market system was, prior to the advent of COVID-19, experiencing frequent changes to fashion collections with ever-shortening cycle times. Multiple collections were being released on a monthly or even weekly basis within a fashion season.

Figures 3 and 4 illustrate the key decisions in the mass-market design process and the overall process map as described by the interviewees. Figure 4 shows that two types of designers contribute to developing a collection: direct designers and industrial designers. As shown in the diagram, industrial designers work in parallel with direct designers during certain phases of the design process.

Direct designers. Work directly for the fashion brand. They are responsible for developing the fashion collection and presenting it to the management team.

Industrial designers Work for apparel manufacturers. They provide design ideas and suggestions for fashion brands by developing new collections.

Table 2 summarises the key decision makers, the people who influence those decisions and the major outcomes in each stage of the mass-market design process.

The following sub-sections describe the mass-market design process uncovered by the interviews.

4.1 Trend research

Research to identify trends in both couture-level and designer-level fashion brands is carried out by mass-market designers with the aim of replicating the trends in upcoming mass-market fashion collections. Trend research consists of the following key activities;

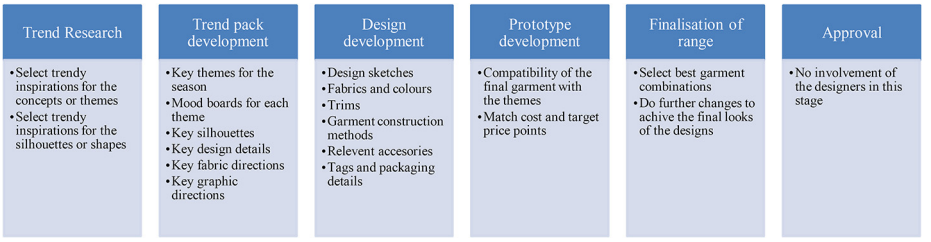

Figure 3.
Key design decisions in each stage of the fashion design process

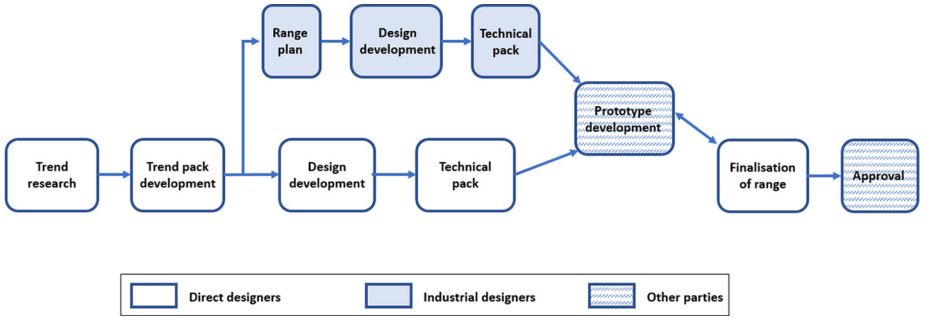

Figure 4.
The mass-market fashion design process

Table 2.
Key decision-makers, influences and outcomes in the mass-market design process

Stage	Key decision makers	Influenced by	Outcome
Trend research	Direct designers	Design managers, buyers	Collection of samples, images, swatches which has high trending potential
Trend pack development	Direct designers	Design, buying and merchandising managers	The trend pack which has all design directions for the target season
Design development	Direct designers and industrial designers	Design managers, material suppliers	The technical package which includes all design details
Prototype development	Development merchandiser	Direct and industrial designers, product developers, pattern makers, sample room technical team	Prototypes and mockups for critical design elements and cost information
Finalisation of range	Direct designers, buyers	Design, buying and merchandising managers	Final collection with all financial details
Approval	Board of Directors		Approval of the collection

Shopping trips. Direct designers travel to major fashion cities such as Paris and New York to get an understanding of the recent trends in couture and designer fashion brands. Meanwhile, they also visit the shops of their competitors' brands to identify the fast-moving fashion collections and the associated trends.

Catwalk analysis. The latest catwalk shows of both couture and designer brands are analysed by direct designers, to pick the trend ideas, concepts and product features.

Trade shows. Direct designers visit trade shows to identify upcoming materials, trims and technologies. These trade shows provide a comprehensive picture regarding future trends of textiles, fabric finishing methods, trims and embellishments.

Desk research. Direct designers refer to trend forecasting websites and social media such as Instagram to get an understanding regarding the upcoming trends. For example,WGSN.com is the "World's Global Style Network" which provides an online subscription service that provides access to insights concerning upcoming collections, trend reports on key silhouette ideas, material directions, colours, trims and concepts. Complementing this, Instagram is used to investigate new trends by referring to pictures posted by both trendsetters and trend followers.

Sales statistics. Sales statistics are used to identify best-selling silhouettes in the current season. These sales statistics inform silhouettes that are selected by the direct designers to continue in the upcoming season.

4.2 Trend pack development

Creating trend packs is the second key step in the mass-market design process. There are two types of collections in the mass-market for a particular season: "core" collections and "new fashion" collections. The core collection includes the repeat styles from the previous season. In a core-collection, basic silhouettes and the types of material do not change frequently, yet there may be slight changes in colours, design details and value additions. New fashion collections are derived based on trend research. As the trend of mass-market has become fast-phased, there is more than one collection delivered within the season. New fashion collections are hence released either on a weekly or monthly basis, depending on the

brand, with the duration of a particular theme based on factors such as the sales of the region, volumes, the sales patterns of the outlets and special social events in the sales region. Detailed planning is essential in deciding the number of themes and collections and the timeline to change the collections from one theme to the next.

Direct designers create several sub-themes for each new collection and define timelines for the release of each sub-theme. Theme boards are developed which include key silhouettes, colours and fabrics, inspirational images obtained from catwalks or shop visits and some keywords to convey the theme. Finally, these theme boards are compiled as a document which is called the "trend pack" and sent for approval by the management team. The management team generally includes the design manager or creative director, the head of buying and the head of merchandising. The decisions are mostly influenced by price points as profitability is the key concern.

4.3 Design development

Once the trend pack is approved, industrial design teams are briefed. The briefing is either done through face-to-face meetings or online methods. After the briefing session, both the direct designers and industrial designers start working on the designs.

One of the key features identified in this stage is the use of fabrics as key inspirations. The main reason to start the design development process with fabrics is to minimise the lead time of the entire process. There is generally less than two months to complete the entire design process (from research to finalising the collection), hence the design development stage cannot be delayed until the fabrics are manufactured. Therefore, the process starts with fabric ideas in mind.

Direct designers pick potential fabric ideas from the trend pack and advise fabric suppliers to develop those fabric ideas with low price points. New fabric ideas could be new structures, wash effects, finishing methods, value additions or dying effects. Simultaneously, these designers select silhouette ideas from the trend pack and start developing designs that are suitable for the fabric ideas they have already selected. Once the designs are finalised, a "technical pack" is prepared for the selected designs and sent to the development merchandiser at the relevant manufacturing plant for the development of prototypes.

Similar to direct designers, industrial designers also start to develop designs based on the trend pack. Unlike direct designers, industrial designers develop a "range plan", which is an overview of the entire collection and includes parameters such as the number of styles, colours, design features and variations. Initially, the range plan is decided by the industrial design manager by analysing the trend pack. Key factors such as the cost of the product and capabilities of the manufacturing plants are taken into account when deciding a range plan. After the range plan is decided, the industrial design manager briefs the industrial design team. The industrial designers then start to develop storyboards and designs according to the range plan. Meanwhile, they contact the material and trim suppliers and order the required quantities to make the samples. Once the designs are approved by the industrial design manager, industrial designers prepare technical packs and hand them over to the development merchandiser to proceed with prototype development.

4.4 Prototype development

Prototype development takes place in a manufacturing plant, mostly overseas. Initially, a development meeting is conducted by the development merchandiser together with the technical specialists, to explore the new designs and evaluate the possibilities and challenges in developing prototypes. Cost is also taken into consideration in this stage. The sample room is instructed to make the prototypes. Once the samples are made, the development

merchandiser calculates the garment costing and communicates this with the design teams, both direct and industrial.

Whilst the industrial designers get an opportunity to overlook the prototype development process and make necessary changes without delay, direct designers do not. Therefore, to speed up the process, direct designers sometimes arrange visits to the manufacturing plant during the prototype development stage. These "development trips" are helpful for the direct designers to understand the manufacturing process and improve their design skills by considering factors such as the feasibility of manufacturing and cost-effectiveness. If such visits do not take place, the prototypes are sent to the direct designers and further changes to the prototypes are communicated to the sample room through the development merchandiser. Meanwhile, prototypes made based on the industrial designers' concepts are reviewed and selected by the industrial design manager and the development merchandiser, by considering factors such as cost, quality, profitability and manufacturing feasibility.

Once all the prototypes are manufactured and finalised, they are sent back to the direct design team for final selections to be made.

4.5 Finalisation of range

In this stage, the direct design team, together with the buying and merchandising managers, conduct the selection meeting to finalise the collection based on all the prototypes commissioned by the direct designers and the industrial designers. Factors such as the cost, quality, profitability and manufacturing feasibility of each of the prototypes are taken into consideration in this stage. The prototypes made by industrial designers are often modified before final acceptance. These modifications are done through development merchandisers. The size of the collection is defined based on the sales requirements of the regions and outlets.

4.6 Approval

Once the final collection is selected, it is presented to the board of directors, to get approval. The board of directors evaluates the range in terms of selling potential, overall profitability and the return on investment. Other aspects such as design elements, aesthetics or ethical aspects are not thoroughly questioned at this stage. Once the board is satisfied with the forecasted financial outcomes of the range, the collection is signed off by the board of directors.

5. Discussion

The mass-market design process follows somewhat similar steps as the general fashion design process as summarised in Figure 2, based on the literature, however, this study revealed some of the significant differences in the ways that each step is carried out. The differences are mainly due to the variations in the inputs and outputs, in the timing and in the professional roles involved that are rooted in the different positioning and commercial objectives. As can be seen, by a comparison between Figures 1 and 4, the mass-market design process is more complicated. The following section discusses the key features of the mass-market fashion design process and their differences to the general fashion design process.

5.1 Trend research

A major difference between the mass-market fashion design process and general fashion design processes is in the market research stage. When compared to the descriptions of the design process in Renfrew and Renfrew (2009), Fung and Choi (2018) and Sinha (2015), market research in the mass-market design process is narrower, focussing on identifying recent trends of Haute couture and designer-level fashion brands. This is because

conducting comprehensive research is time-restricted due to cost and quick turnaround times. Hence, identifying (and subsequently replicating) trends in high-end fashion brands has become a feasible and cost-effective way of conducting the research. Moreover, replication of high-end fashion trends at relatively low prices has been found to be successful in attracting and retaining consumers, hence achieving target sales and profit figures.

To identify the trends associated with high-end fashion brands, the designers pay attention to the fashion shows of both couture and designer-level fashion brands and also conduct shop visits. This is a less time-consuming activity than the more extensive market research undertaken in the general design process. This quick process has become a necessity to deal with short lead times when offering multiple collections within a particular season. Furthermore, following social media such as Instagram to investigate consumer interests is identified as a new way of capturing trends.

5.2 Trend pack development

A trend pack can be viewed as an analytical summary of the trend research conducted: it focusses on reflecting existing trends in the high-end fashion markets. Differences were found here compared to the standard design process. For instance, Sinha (2015) explains this briefly under the research and analysis stage, whereas in our study it is clearly under the trend pack development stage. Labat *et al.* (1999) explain developing a set of criteria specifically for the prototyping stage as the second stage, whereas in our investigation this criterion is specifically identified as a trend package. James *et al.* (2016) emphasise concept development and the generation of new ideas as the second step of their design process, however, we identified these activities under the design third stage. They have not mentioned trend pack creation as a specific stage or activity. Apart from that, Labat *et al.* (1999) highlight aesthetic and functional values in the second stage, however, the mass-market design process emphasises profit margins in this stage. Furthermore, in mass-market design, exploring novel concepts is restricted by short lead times and a lack of comprehensive market research. Moreover, mass-market designers are limited by the number of silhouettes they can work with because new silhouette ideas can only be tested through an experimental process when setting up a new trend. Hence, in the mass-market design process, silhouettes are defined based on previous sales statistics.

5.3 Design development

Generally, the design development phase consists of various design elements that lead to discovering new ideas. As explained by Renfrew and Renfrew (2009), Mckelvey and Munslow (2012), Sinha (2015) and Fung and Choi (2018), several rounds of experiments with colours, materials and shapes are conducted as a part of developing new concepts: this results in new silhouettes, shapes, colour combinations and material combinations. However, the mass-market design process is restricted by short lead times and low price points and therefore the development of entirely new concepts is limited. Silhouettes are already defined in the trend pack and also the designers get limited opportunities to explore other aspects such as materials, colours and design details, due to time restrictions. Materials are ordered before finalising the designs to minimise lead times and therefore, the designer has to work with the features of those already selected materials in mind, which hinders the creativity and freedom of the mass-market designer.

In the mass-market fashion design process, not only direct designers but also industrial designers get an opportunity to contribute to developing design ideas. Renfrew and Renfrew (2009) mentioned industrial designers very briefly, however, their involvement in the design process is rarely discussed. The involvement of industrial designers gives them the feeling

of belonging and provides an avenue to explore their creativity, rather than simply following the samples made by the direct designers. The involvement of industrial designers can be identified as a strength of the mass-market process, as they generally possess a better understanding regarding the feasibility of the bulk manufacturing of new designs, in terms of resource availability, operators' skill levels and capacity. However, the interviews indicate that collections developed by industrial designers are hardly ever accepted as they are and some form of modification is often suggested. This may be due to the fact that the direct designer has more power in the process. However, collaborative working between direct and industrial designers offers opportunities for designing collections that are feasible to manufacture, cost-effective and suitable for the target market.

5.4 Prototype development

Prototype development in the mass-market is common to most of the descriptions in the literature relating to the design process; however, a few differences were identified. In the mass-market, prototypes are made in manufacturing facilities overseas rather than in-house. Renfrew and Renfrew (2009) indicate that the reason for outsourcing the sampling activity is to reduce costs and to get a competitive advantage from production overseas. Such dependence on overseas manufacturing plants for prototype manufacturing can significantly increase lead times and this can be problematic in the mass-market, where time is so critical. However, frequent and effective communication is required between designers and the manufacturing plant and the involvement of industrial designers can be beneficial as industrial designers tend to have greater expertise in manufacturing. Nevertheless, the interviews indicate that the presence of a direct designer is often required to run a smooth process and reduce the time spent on manufacturing prototypes.

The introduction of digital technologies such as computer-aided prototyping and virtual fitting to the design process can enhance the speed and smoothness of the design process (Mcquillan, 2020; Chaudhary *et al.*, 2020; Gazzola *et al.*, 2020). These technologies can reduce requirements for the production of physical samples during the design process, whilst still providing a robust vision of the final appearance of the design, including the fitting, colour options and fabric behaviours (Chaudhary *et al.*, 2020). The use of digital technologies, therefore, helps designers to make decisions fast, thus enabling shorter lead times (Mcquillan, 2020; Chaudhary *et al.*, 2020; Cietta, 2019). The reduction in physical prototypes made may reduce environmental impacts due to the material required for making prototypes, although the benefit of this must be weighed against the extra energy used by virtual prototype software (Mcquillan, 2020).

5.5 Finalisation of range

Generally, the designer has the freedom and power to make decisions regarding the final collection and the aesthetic aspects are considered important in making the final decision (Sinha, 2015; Fung and Choi, 2018). However, in the mass-market process, the involvement of the buyer and merchandisers is significant and the designer is pushed to select the final collection based on high-profit margins, rather than the novelty and the creativity of the design. Past sales statistics and the cost factors dominate the entire selection process and relatively little attention is paid to aesthetic aspects. Thus, creative designs may be dropped at this stage due to low-profit margins.

5.6 Approval

As Gwilt (2012) explains, either the design manager or the creative director signs off the collections in couture-level and designer-level fashion brands. In contrast, in the mass-

market process, the final approval is given by the board of directors. In this stage, financial factors are given more weight and mass-market designers do not get many opportunities to influence the decision.

5.7 Limitations of this study and recommendations for further studies

The major focus of this study is UK, Europe and US fashion markets, with manufacturing facilities based in Asian countries such as Bangladesh and Sri Lanka. Further exploration of the situation in other fashion markets such as China, South Korea and Japan may bring new insights.

Another limitation is that the study focusses on fashion designers and design consultants and does not include views of other stakeholders, such as buyers, merchandisers, product developers, investors and other technical actors. As Cietta (2019) and Cietta (2009) explained, the importance of analysing the design process along with the other functions is that the views of these people may add more information about micro-level decisions within the design process as they also have significant input into the design process. This may be addressed in future studies.

The findings of this study indicate that more in-depth investigations of the design processes at various market levels could be beneficial. This is because there may be important information, which is as yet unexplored, which is useful for the stakeholders in the fashion supply chain that may help them to improve the economic viability and sustainability of the fashion industry. Such investigations should include the Haute couture and couture-level and investigations into micro differences within the ready to wear market segment.

6. Conclusion

This study provides a comprehensive investigation of the mass-market fashion design process, in which significant differences between the general fashion design process and the mass-market design process were found. In particular, our study highlights the involvement of industrial designers in the design process, working in parallel with direct designers. Giving industrial designers more power and responsibility in the design development phase would help minimise the direct designers' travel to overseas manufacturing plants and also reduce the lead time of the process and the associated costs. Therefore, a collaborative approach amongst direct designers and industrial designers, based on mutual understanding, could be beneficial.

The mass-market is characterised by frequent changes in fashion collections within the fashion season: this involves shortened lead times and reduced quantities produced per collection, whilst at the same time increasing the overall volume of production. Our findings emphasise that mass-market designers are bound by a financially defined framework. Unlike in the general design process, decision-making in the mass-market process is largely influenced by the buyers, merchandisers and investors, who are purely looking at the process from the business perspective. Designers are often forced to reduce product costs, which significantly affects the creativity of designers throughout the process.

Fast fashion is a business model at the extreme end of the mass-market fashion segment, enabled by digital technologies such as e-commerce platforms, virtual prototyping, virtual fitting and digital manufacturing. Whilst this change has led to increased profits and digitalisation reduces some environmental impacts (for example, by reducing the production of physical samples), the disadvantages are many-fold; high volumes of production and consumption create adverse environmental impacts and fuel the waste issue (Niinimäki *et al.*, 2020) and short lead times limit designer creativity and their ability to incorporate

more environmentally benign designs. Therefore, it is recommended to slow down the process and reduce the number of sub-collections launched per season. It is also recommended to maximise the use of designer creativity and provide designers with more avenues to explore their new concepts so that the mass-market can be switched from cheap disposable garments to products that add value through creativity in design.

Whilst this paper has focussed on the particularities of the mass-market, insights may also be gained by conducting similar scrutiny of other levels of the fashion industry. Therefore, academics, industry professionals and policymakers are urged to explore micro differences amongst other market segments to shed light on how to increase efficiency and reduce the harmful environmental and social impacts of the industry. It is hoped that this will facilitate progress towards achieving the United Nations Sustainable Development Goal 12: Responsible Consumption and Production.

Notes

1. *Diffusion lines (also known as bridging lines) are lines* that build a bridge between high street and luxury brands. Diffusion lines are created by luxury labels as more budget-friendly, secondary lines (Posner, 2015; Jones, 2017).
2. A look book contains photographs of the finalise range (Renfrew and Renfrew, 2009, p. 33).

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