

TYPES OF FASHION DESIGN AND PATTERNMAKING PRACTICE

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INTRODUCTION

This paper originates from a doctoral (PhD) research project that investigates the elimination of fabric waste from the production of clothing. Regardless of economic cost, fabric arrives at the fashion designer with an ecological footprint and it is a sophisticated product in its own right. Most efforts to reduce fabric waste have centred on marker-making software that place the garment pieces on a length of fabric as closely together as possible. Despite these efforts, in adult outerwear on average 15 percent of the total fabric used is wasted at the cutting out stage, according to Cooklin (1997: 9). Feyerabend's wastage estimate is 10 to 20 percent (2004: 4), while Abernathy, Dunlop et al. (1999: 136) place the figure at 10 percent for pants and jeans, but higher for blouses.

The primary obstacle for fabric waste elimination is that the software is always limited by what has already been designed and patternmade. This project proposes that to eliminate fabric waste, the garment must be designed and patternmade with fabric waste

elimination as a design consideration, equal to visual elements (aesthetics), price and target market. To avoid wasting any fabric, the pattern pieces of a garment must interlock on a given length of fabric prior to cutting; fabric waste elimination is also a patternmaking consideration. The aim of the project is to provide practical, accessible information for fashion designers and patternmakers about how they may modify their practices to eliminate or drastically reduce fabric waste. The motivation is ecological sustainability. Current levels and ways of consuming clothing are a larger and perhaps more urgent problem, in which the fashion designer is one of several actors. This research examines a nevertheless significant issue, one that is almost exclusively within the domain of the fashion designer and patternmaker – one that the fashion designer and patternmaker can have a direct impact upon.

THE DESIGN EXPERIMENTS

In developing the research methodology for the project, the accessibility of the research findings to industry practitioners has been a key reason for including fashion design and patternmaking practice in the methodology. The researcher, a fashion designer and patternmaker by trade, is undertaking these practices. This part of the

research is divided into two phases. The first is a series of fashion design experiments, followed by the development of a menswear collection. The design briefs for the experiments draw from available literature on fabric waste reduction or elimination through design. Many examples of such designing, historical and contemporary, have been uncovered (Rissanen, 2005), but the literature falls short of explaining *how* designers and patternmakers may create fashion without creating fabric waste. The findings from the experiments will further influence the development of the design brief for the menswear collection.

During developing the design briefs for the design experiments, it has emerged that different fashion designers and patternmakers may use different approaches to reach the final design, the sample garment. Therefore it was necessary to begin developing categorisations of fashion design and patternmaking practices, to ensure the accessibility of the research to practitioners with different types, or ways of practising. This paper is an introduction to these two categorisations and how they have influenced the design briefs. Both practices have so far been subject to little research. 'How-to' manuals exist on both, and monographs on fashion designers discuss designers' practice with varying levels of detail, but the kinds of studies on the practice of designing available in other design disciplines (for example, architectural and industrial design) are still lacking in fashion design and patternmaking. The paper topic is perhaps 'basic' in its nature, but nevertheless necessary: to the author's knowledge fashion design and patternmaking practices have not been discussed in such a way previously. For example, some fashion design manuals seem to work on assumptions about how fashion designers work, but as this paper uncovers, various modes of practice exist.

TYPES OF FASHION DESIGN PRACTICE

Different approaches to designing fashion exist; these have implications for fabric waste elimination. Because

the aim is to provide practical, accessible information for fashion designers and patternmakers about fabric waste elimination, an understanding of different ways of creating fashion is important; fabric waste elimination may need to be investigated through several types of design practice. It is acknowledged that haute couture (high-end, made-to-measure and made-to-order) fashion designing may differ from ready-to-wear and mass-market fashion designing. The aim is to be broad; the author believes that fabric waste elimination is possible at all levels of the fashion system.

The types of fashion design practice presented here are simplified to the core stages that the fashion designer is influential in. Each begins with the initial manifestation of a design idea and finishes with the final sample garment. Only stages with direct impact on waste elimination are included; some, such as market research conducted by the designer, are thus omitted. In practice some stages such as making a toile or pattern alteration may be repeated more than once. A toile is a garment prototype made to check how the pattern fits on the body, and how it reflects the designer's initial idea. If necessary, the patternmaker alters the pattern after the toile has been fitted on the body. The fashion designer may wish to alter the design after a toile has been made, but often this does not occur.

1. Sketch – Pattern – Toile – (Design alteration) – Pattern alteration – Sample garment

This may be the most common approach to designing in industry and fashion design education. The designer produces a sketch, which the patternmaker uses to create a pattern. The fashion designer may also be responsible for the pattern. Sketching is a fast way of communicating an idea to others, and the role of sketching in the conceptualisation phase of the design process has been widely researched. Menezes and Lawson (2006) review much of the research to date, and note that sketching is particularly important during early design activity (572). Jonson (2005) concludes that while the verbalisation of ideas may be the most used

conceptual tool in design, designers nevertheless perceive sketching as an important skill (623). In regard to fabric waste elimination, sketching poses particular problems, which the research needs to address through the experiments, given the widespread use of sketching in the industry.

2. Pattern – Toile – (Design alteration) – Pattern Alteration – Sample garment

Fashion designers capable of patternmaking may skip sketching to realise their idea in pattern. Julian Roberts, an English designer, designs large garment patterns, which often consist of large rectangles with curved holes of various shapes. These are necklines and armholes, which help anchor the garment onto the body. The drape of the large fabric rectangles depends on the position of the anchor points and the way the fabric loops in relation to these. There seems to be a great deal of uncertainty in this kind of designing; the final form of the garment is not revealed until it is made up and tried on. Quinn's (2002: 87-92) account of Roberts's design process is disappointing in failing to describe it in detail. There are references to "complicated" and "elaborate" processes (89), and Roberts's own discussion on the significance of patternmaking in the fashion design process and the uncertain nature of the final outcome are brief (91). On their website (Roberts and Cheung, 2003) Roberts and Sophie Cheung elaborate more: "Pattern-cutting is about possibilities & what-ifs and experimentation... New ways of cutting come to life through a mixture of luck, risk & mistake." (Introduction, page 7) Roberts's approach shows that serendipitous patternmaking can be a design tool, a view supported by Aldrich (1996: 5): "...the tension between precision and the speculative cut of new fabrics can generate new garment forms".

For Yeohlee Teng, a contemporary designer in New York, fabric waste reduction is integral to her work. Like Roberts, Teng's design process may begin with the flat pattern (Major and Teng, 2003: 140-1). Some

examples of her work create very little waste. To achieve the interlocking of the patterns Teng would have needed to consider the garment patterns from the outset. During this research it has emerged that it is possible to design scaled-down pattern layouts on graph paper. While this approach has certain limitations, it is speedier than working with full-scale patterns. Sketching patterns on graph paper seems to have many of the same benefits that sketching garments in the early phases of designing has, and transferring ideas from graph paper to full-scale patterns is relatively easy.

During the 1980s, Yoshiki Hishinuma in Japan created a series of garments made entirely of equilateral triangles, presented in *Clothes by Hishinuma* (Hishinuma, 1986: 162-72). No account of the design process is included, but it is likely that the process begins with a pattern rather than a sketch. The book includes with each garment a diagram of its composition, hinting that Hishinuma places great importance on how the garments are designed, patternmade and made. It seems that the three designers, while allowing a degree of uncertainty into their designing, decide on the type of garment (dress, jacket, trousers) before the pattern is made.

3. Sketch – Draping – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment

Draping with fabric can be an extension of the patternmaking process, whereby fabric is 'worked' on a mannequin according to a sketch. The resulting fabric pieces are then developed into a garment pattern from which a toile can be made. Jaffe & Relis (1993) provide one of many manuals for this approach.

4. Draping – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment

Draping can also be a way of exploring the potential of a fabric on the body, and therefore it can initiate the design idea. Madeleine Vionnet, a French designer from early twentieth century, developed her ideas exclusively through draping on a half-scale mannequin (Kirke, 1998: 28, 233-4). This type is similar in many ways to

beginning with pattern (Type 2), except that a pattern is created in two dimensions and flat, while draping investigates three-dimensional form with two-dimensional fabric. Research on the practice of draping in fashion design, other than draping manuals for fashion designers, is scarce. Virtual or simulated draping using various types of software, on the other hand, has been widely researched. While initially the primary use of simulated draping may seem to be dressing virtual humans in computer games and animated films, some recent research is directed specifically at the fashion designer: simulated draping as a design tool (for example, see Volino et al., 2005). Such investigations are welcome but the author would like to call for more research on the practice of draping with 'real' fabric and its role within fashion design.

5. Existing garment – Sketch – Pattern – Toile – (Design alteration) - Pattern alteration – Sample garment

It is common practice in Australia and probably elsewhere for the fashion designer to purchase a garment and develop a slightly modified sketch based on it. The patternmaker then creates a pattern based on both the garment and the sketch.

6. Existing garment – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment

Sometimes the existing garment is given directly to the patternmaker to create a pattern from. This in effect is copying and it is doubtful whether making the garment in a fabric different to the original constitutes fashion design. One might expect this to be more common in 'lower' levels of the fashion system (mass-market), but the author has witnessed this practice within the Australian designer ready-to-wear market. In some instances this practice may have merit. Vivienne Westwood states: "By trying to copy technique, you build your own technique." (Wilcox, 2004: 9) Westwood began her career as a self-taught fashion designer in the early 1970s by copying Teddy boy suits. Arguably she ventured beyond copying; she

analysed the garments' structure and construction, and later applied this knowledge into ideas of her own.

A designer may also give the patternmaker a photograph of a garment to make a pattern from. Notes and sketches of modifications may accompany the photograph. In this research, the various ways of copying do not inform the experiment briefs. The assumption is that most existing garments waste fabric as stated earlier; copying them would create the same amount of waste. The research does, however, include a brief for modifying an existing 'wasteful' design by the researcher, to one that does not create fabric waste.

7. Conceptual idea – Pattern – Toile – (Design alteration) – Pattern alteration - Sample garment

Sudjic (1990: 30-4) provides a detailed account of how Rei Kawakubo of Comme des Garçons works with her patternmakers. Often the sketch given by Kawakubo lacks detail, and sometimes there is no sketch. For example, she may give the patternmaker a piece of crumpled paper and ask for an interpretation. The level of aesthetic and creative responsibility the patternmakers have may be higher than what is usual for patternmakers in the industry. Kawakubo states her patternmakers help her design.

8. Textile print on paper – Draping paper on body – (Sketch) - Pattern – Toile – (Design alteration) – Pattern alteration – Sample

Another contemporary designer of textiles and fashion, Zandra Rhodes often allows the printed fabric to determine the pattern shapes of a garment. She explains: "The [printed] patterns lead me along and influence the way I use them [in garments]...I always consider what is left and try to make it into another part of the dress. I can't tolerate waste and use every inch." (Rhodes and Knight 1984: 56). Rhodes pins the printed paper on herself in front of a mirror to determine the impact of the print on the body. Ironically for someone lacking formal fashion design training, for Rhodes patternmaking is an integral aspect of the fashion design process.

Every fashion designer may work somewhat differently and therefore various combinations of the above may exist, or there may be other types of designing that the list doesn't cover. For example, Jaffe and Relis (1993: 2) note that combining draping with patternmaking has certain benefits. Jenkyn Jones concurs (2002: 124): "Most pattern development is a mixture of [patternmaking] and draping." Even if not exhaustive, the eight types arguably cover the vast majority of fashion design practice in the industry.

COMMUNICATION BETWEEN THE FASHION DESIGNER AND PATTERNMAKER

From the types of fashion design practice, different types of patternmaking practice become evident. The focus here is on the type of communication from the fashion designer that initiates the patternmaking process. Because the amount of fabric waste produced depends on how well the pattern pieces are able to interlock on a length of fabric, patternmaking has great significance for fabric waste elimination.

Consequently, how a patternmaker approaches the making of a pattern has implications for fabric waste elimination. Relationships between designers and patternmakers are diverse; whilst the communication is simplified here into four types, combinations of the four probably take place. In some instances the designer may make the pattern, but may use sketches, draping or existing garments as conceptual tools preceding the patternmaking process. The importance of other forms of communication between the designer and patternmaker should not be underestimated. Regardless of the type of patternmaking practice, verbal conversations probably play a significant role in assisting the patternmaker to interpret the designer's idea.

1. The patternmaker may make a pattern from a sketch and notes produced by the designer. Often these take the form of a specification, or spec, sheet. This is perhaps the most common type in the industry, and the predominant type in cases where the designer and

patternmaker are in two different locations, an increasingly common occurrence with clothing production shifting to countries with low labour costs.

2. The patternmaker may make a pattern from draped pieces of fabric (or paper, as seen with Zandra Rhodes). If a sketch precedes draping (see Type 3 Fashion design practice), the patternmaker is likely to be responsible for draping, but if the idea were first conceived through drape, the designer would probably do this. The draped fabric pieces often do not match to each other exactly and some pieces, such as facings and linings are usually not draped. The patternmaker ensures that a complete set of patterns is produced, which can be made into a toile.

3. The patternmaker may make a pattern from an existing garment. It is possible to trace a pattern from a garment without taking it apart. Kirke (1998: 233-4) developed the patterns in her book on Madeleine Vionnet by laying the garments flat and analysing the fabric grain (direction of yarns) and taking measurements, preserving the often fragile museum specimens. With some shapes, such as trouser crotches and jacket sleeves, it would be more accurate to carefully unpick the garment first, lay the pieces flat and then trace them.

4. The patternmaker may make a pattern from an idea communicated non-verbally by the designer. This approach is evident in Kawakubo's approach to working with her patternmakers.

CONCLUDING NOTES

It is clear from this brief categorisation of fashion design and patternmaking practices that fashion design and patternmaking may interact in different ways. For some, patternmaking may be a technical step, necessary to realise a sketch into a garment. For others, patternmaking may be integral to the creative aspect of fashion design; it can sometimes replace sketching. It may be more difficult to eliminate fabric waste through processes initiating with a sketch, but these approaches need to be investigated in the design experiments as they are common in the industry and the research aims to serve the whole industry. Even a brief investigation into the

types of practice ensures that the design briefs reflect the diversity of practice in the industry.

It seems that the order in which an idea is conceived may have relevance to fabric waste elimination. In manufacturing, two-dimensional fabric is made into a three-dimensional garment. The designers who have eliminated fabric waste seem to have worked in a similar way: from two-dimensional fabric to a three-dimensional garment. Conversely, a sketch is a representation of a three-dimensional garment, from which a two-dimensional pattern is produced. This will be further investigated through the experiments and the menswear collection. While sketching may pose some problems for fabric waste elimination, it has many advantages and is probably indispensable for designers. Arguably not much critical inquiry about fashion design practice has taken place, and much remains uncovered about how fashion designers and patternmakers work and interact. This knowledge will be crucial when we begin speculating about how industry practitioners could work, if we were to move towards a more ecologically sustainable fashion industry.

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