DESIGN INSPIRATION AND DESIGN PERFORMANCE

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ABSTRACT

The importance of effective design management, and the significance of the early stages of the design process, are well recognised in other design-led industries but little understood in the garment industry.

In the textile industry designers use other garments, photographs of garments, art objects and natural phenomena as inspiration for their designs. It is generally recognised that these sources of inspiration help designers to create features of individual designs, such as shape details in tailoring or pattern motifs in knitwear. But sources of inspiration also play a powerful role at the beginning of the design process, in research and strategic collection planning. They also play an essential role in the communication of design ideas, both among designers, and between designers and managers and buyers.

Gathering sources of inspiration costs time and money. Many companies attempt to save money by limiting the designers travelling time to see shops and shows, they do not purchase forecasting materials. This has a number of harmful effects on the design process: it reduces the designers’ job satisfaction and accelerates staff turnover; and it limits the range of ideas designers use, so that designs become stereotyped as designers grow stale, and the company loses business. The cost of travel to shops and fashion shows and the purchase of a collection of art books and CD-ROM is small compared to the potential profit on a successful design.

1. INTRODUCTION

Garments are sold on their visual and tactile appearance. Within the same price bracket customers select on subjective preferences; newly purchased garments must look new and modern. Designers in the textile industry are under constant pressure to develop new design ideas. A design must catch the mood of the season. Fashion changes very quickly, and continuously poses new challenges to resources and skills. For example in knitwear most production machines have been replaced in the last ten years, when technical innovations in machine knitting have nearly reached the patterning and shaping potential of hand knitting. In the early 1990s garments were still mainly sold on patterns and fancy structures; current fashion demands simple elegant knitwear with interesting shapes.

Design research (gathering background information for design, including studying current and future fashion trends) defines the range of possibilities for designs within the scope of fashion and the intended target markets. It provides the sources of inspiration designs are based on, and enables designers to relate their designs to the context of fashion. The quality of designs depends not only on the designers’ talents but also on the quality of their design research. Only extensive research enables designers to stay fresh and keep up to date with developments.
This paper addresses the question of how design performance can be improved through better support for the use of sources of inspiration. To a designer anything that sparks off a design idea can be source of inspiration. They are the sine qua non of knitwear design. Sources of inspiration play a crucial role throughout the whole design process; however different types of source are important at different stages. This paper gives an overview of the knitwear design process and explains how sources of inspiration are employed. The use of inspiration varies in different contexts, but the some fundamental functions of sources of inspiration remain constant for all the different companies and countries.

The objective of this paper is to explain the vital importance of sources of inspiration in the design process to non-designers, who might perceive the designers’ study of fashion and artwork as artistic self indulgence. At the same time this paper can reassure designers that their working style reflects a wider practise in the industry. At present designers get little support or encouragement to do research; this paper gives straightforward guidelines for how knitwear and fashion companies can support their designers in their use of sources of inspiration.

1.1 Research Context

Designers often work in isolation and know very little about the practices of other companies. They have no way to judge the efficiency of their own approach or that of the company as a whole. The textile industry has been neglected as an area of academic design studies. [4] try to explain the fashion design process in terms of quantum mechanics, psychoanalysis and mother child bonding, and see design creativity as the ultimate mystery; their description of the design process is simplistic. In an empirical study of the fashion industry, [5] have found that the industry loses out by not keeping adequate records of previous designs.

The author has undertaken a large ethnographic study of the knitwear industry with the aim of identifying suitable applications of intelligent computer support in the knitwear industry [2]. This study has identified the communication between designers and technicians as a major bottleneck in the design process. In the course of programming knitting machines, the knitwear technicians create the detailed design of garments, often from incomplete and inaccurate descriptions. [2] attributes the communication difficulties to inherent difficulties in the communication of knitted structures and shapes, as well as to cognitive and organisational factors. [1] argue that a concurrent engineering approach can resolve some of these problems by integrating the technicians early into the design process, and so ease some of the pressures on the design process.

This paper comes from the tradition of design studies, an academic field that analyses design processes and the factors that influence them, including cognitive processes, organisational structures, and the application of CAD systems and artificial intelligence to design. Research in design studies has identified a characteristic pattern of thinking in design: a cycle of creating a holistic solution, criticising it and redefining the problem. Most of the seminal work is on architecture (textile practitioners would find the work of [3] or [4] instructive).
1.2 Research Methodology

The current research has been undertaken as part of the MIND project (Mechanisms of Inspiration in Novel Design) at the Open University. The project addresses the question of how sources of inspiration are used in the design process. It aims to produce cognitive and computational models of the adaptations involved in creating designs from sources of inspiration. One aim of the project is to develop support strategies for the use of sources of inspiration.

As part of the MIND project and her previous research, the author has undertaken an ethnographic study in over 25 knitwear companies in Britain and Germany, visiting a cross-section of companies from the suppliers of cheap retail chains to international market leaders working with the highest standards and best possible materials. The author learned the domain skills by taking part in classes in the knitwear BA course at De Montfort University and attending knitting machine programming courses; and took the role of a novice designer in interviewing and observing designers and technicians at work.

2. WHAT IS A SOURCE OF INSPIRATION?

Anything visual can be a source of inspiration for a design, from a John Galliano garment to a plate of baked beans. Designers are mainly interested in the visual appearance and connotations of the objects, and seldom in the conceptual integrity of the design. Different sources of inspiration can be combined in one garment: a designer garment, a Roman ornament, a piece of tree bark. Even though the use of sources of inspiration is entirely pragmatic, it is possible to identify different types of sources of inspiration performing different roles.

2.1 Garments

Designers attend fashion shows, such as Premier Vision, and yarn shows, mainly Pitti Filati and Expofil. On the same trips they often go shopping in the great fashion centres of the world, like New York, Paris, Milan or London. Designers study garments ranging from the designs of the great couturiers to high street fashion slightly more upmarket than their own target product. They also study competitors’ garments to gauge their own designs and extract information about production methods. Some designers also use historic garments as inspirations, most famously Vivienne Westwood. Some companies have archives of their own old designs or antique garments bought in from other sources.

Actual garments enable designers to study designs and technical features in detail. On shopping trips the designers look at garments carefully and take measurements - often they get close to being thrown out of shops. Designers buy key garments which have important features or encapsulate a mood particularly well, to study them in more detail and show them to colleagues.

Designers always keep their eyes open for interesting garments. They watch people on the streets or at parties; and take inspiration from street fashion.
In the course of studying garments designers recognise shape details and motifs as prominent or ubiquitous in a season and apply them in their new designs.

2.2 Photographs of Garments

All designers study fashion photographs in magazines. A photograph rarely shows details as clearly as the real thing. However it provides a clear indication of the mood of the garment, its context within a collection and the projected image of the target customer. Fashion photographs enables the designers to gauge their understanding of the Zeitgeist.

Some companies subscribe to fashion magazines. German designers make good use of Collectioni. Catwalk photographs begin to be offered on CD-ROM. Most designers have a personal interest in fashion and buy fashion magazines such as Vogue.

2.3 Artefacts and Images

Designers look for repeat patterns, ornaments, and motifs. Other textiles are often used as sources of inspiration for patterns. They provide rich sources of ornamental patterns, for example in embroideries, rugs, or tie patterns. Knitwear is often coordinated with other textile ranges. It is often seen as a strong but subsidiary part of a collection. Knitwear designs are often based on textile prints in the same collection.

All other design objects with patterns, such as tiles and mosaics, serve as sources of inspiration. Designers frequently use historic designs, such as William Morris wallpaper, and fine art can also provide a rich source. Everyday objects like sweet wrappers or buildings are also useful.

On shopping trips knitwear designers also buy other textiles, such as ties or tights as inspirations. Designs use art and design books frequently. They collect ornament books, such as the copyright free series published by Dover in the United States, with hundreds of pictures of the same type of object.

2.4 Natural Objects

Many themes take their inspiration from nature. Designers are inspired by animals, plants and other natural objects, as well as natural phenomena such as thunderstorms or sunsets. Designers collect portable physical objects like leaves or shells, use photographs or work from memory.

Designers never stop looking for sources of inspiration. When they see something suitable they turn it into a design.

3. THE KNITWEAR DESIGN PROCESS AND THE USE OF SOURCES OF INSPIRATION

Knitwear involves the creation of the fabric, as in textile design, and the creation of the shape, as in fashion design. These two elements need to be coordinated. The knitwear design and sampling process is highly complex, as there is a subtle interaction between the technical features of knitted fabric and its visual appearance. The following
description concentrates on the tasks of the designers. A more detailed description of the whole process can be found [2]; an overview is given in [1]. In Figure  and Figure  the square boxes indicate stages of the design process and oval ones show the uses of inspiration employed in them.

Sources of inspiration are used throughout this process in different functions, which will be summarised in section 4. The following description explains the typical pattern observed in British and German industry.

The design and sampling process for one season stretches over more than one year from the first visit to yarn shows to the sale of the sample garment. Designers and technicians work on two or three seasons at once. While the designers are researching a new season the technicians sample the previous one [1].

3.1 Research

Work on a new season begins with general research into the context of the coming fashion. Designers form an initial opinion of trends and strong design features by looking at forecasting materials from trend prediction bureaux, visiting shows and looking through magazines. Designers work out themes for their new collection and select a yarn colour palette. From the beginning many designers think in terms of concrete garments. The result of the research process is a skeletal concept of their new collection, the design framework.

Establishing a Fashion Context

At the beginning of a season designers gain an overview of the coming styles and trends. The designers gain a feeling for the looks of the season and know what will look “right”. Designers develop preferences for features that they carry through the rest of the season. Knitwear designers traditionally begin by visiting yarn shows and yarn catalogues. They look at the feel and appearance of the yarn. Head designers often return from a yarn show with a fairly clear idea of their collection. Important fundamental design decisions are made at this very early stage, for example what types of yarns to pursue.

Cones of yarn and yarn sale swatches get transformed instantly into garments in the inner eye of many designers. The garments in catwalk shows and fashion photographs provide a broader context for knitwear and show trends independently of the material the garment is made of. By being inundated with designs at a show designers can spot recurring features and form an opinion of the strong characteristics of that season. Individual garments, studied or purchased on shopping trips, illustrate important features and designers learn how they can be manufactured.

Themes

General design research continues with the development of individual themes, a topic tying together a range of garments. The themes are derived from the forecasting materials. The themes are expressed by sketches of garments, a colour palette and some topical images. When looking at them many designers think in terms of concrete garments. Not all themes are suitable to knitwear or to companies’ own styles and needs.
Based on forecasting materials from forecasting bureaux, write ups about them in press and the their own overall understanding of the context of a new season, designers develop about four or five themes for their own collection. The space of possible designs is severely limited by the selection of themes.

The company themes are expressed in theme boards with sketches and magazine clippings. Topical photographs can set a context, such a photograph of a Scottish heather landscape for a tweed collection.

**Yarn Selection**

Most companies work with a colour palette for each season. While identifying themes the designers select the yarns. For each theme the designers roughly have the colours and textures in mind. They develop a detailed colour story by looking through yarn cards and selecting yarns with the right colour and texture initially independent of the price. Most companies cannot afford to develop or even die their own yarns, but try to find the closest match to what they want. Their choice of yarns is limited and already biased towards fashionable colours and textures.

A photograph of a work of art or nature often provides the basis for a “yarn story”, a group of yarns used together. The designers pick four or five colours from it and other colours can be taken from the picture to extent the story.

New yarns need to be tested for aesthetic and technical properties. The technicians produce fabric swatches and do finishing tests. Old designs and swatches are revisited to select plausible yarns and structures to continue. Many companies only include a few new yarns every season.

From the beginning of yarn selection designers work on swatches. Initially swatches are used to test yarn qualities and colour combinations. The swatch development becomes more and more focused towards certain designs.

**Design Framework**

The themes and yarns are developed further into a more detailed specification of the garments within a theme or a collection, specifying roughly which garments are produced in which type of yarns. The designers incorporate strong design features which they have identified in other garments, determine the numbers of jacquard, intarsia or structure garments, and select the shapes and styles of garments. Again this is represented on a board with sketches, photographs of catwalk garments, and swatches.

At this stage most major design decisions are made, before any designing has become visible to the outsider. Designers have clear ideas of specific garments or features in their mind. Only a few designers document this mental designing through sketches.

The themes and swatches are approved and selected within a company, according to emerging fashion trends and price considerations. Sometimes the designers also receive feedback from retail chain buyers.
3.2 Design

The design of garments and swatches begins at the beginning of the research process; however there is a distinct phase in the design process when the designers concentrate on design. They begin by working on general idea swatches and move on to designing colour combinations, structures and motifs. Some fabric elements are not developed for a particular garment, but for a theme. They are used as required in different garments. However many garments are designed from scratch without using existing design elements.

Swatches

Some swatches are developed purely to select yarns and work out colour combinations. Others are designed to achieve a specific visual effect. Swatches keep evolving until the designer is happy with their visual and tactile appearance; or until time runs out. Their general understanding of the fashion context allows designers to recognise a suitable colour combination or structure.

Most swatches are based on other swatches. Stocks of old swatches and the fabric of garments that designers have seen in their research are often used as starting points. The swatches shown by the spinners at yarn shows and in catalogues are major source of interesting structures for many companies. Art work and natural objects often inspire designs, see Figure . Designers comment that they can instantly see a source of inspiration as a design; for example a designer might develop a tuck stitch pattern based on a tree bark.

Shapes

Many knitted garments have a simple shape which can be described in a few words, such as T-sleeve turtle neck tunic; designers might have a shape in mind, but don’t work on designing it specifically. Other designs require a highly complex interaction between shape and pattern. In recent years, shape features have become increasingly more important. The designers identify shape features in their research.

Designers use garments they have designed previously themselves or encountered in their research as a basis for new shapes. Shape features are often lifted directly from other garments and communicated by reference to these designs.

Garments

The designers use sampled swatches and other inspiration material to design individual garments. Some designs are very closely based on other garments. The new design picks up on the original garment’s main features and tries to achieve the same overall effect. The research process enables the designers to pick topical garments as a basis for adaptation and to transform them to fit their own target customers and price points. The sources are recognisable in the new designs. Designers don’t see this as a copying process, but an improvement on a source of inspiration.
Many designs are based on concrete sources of inspiration, such as a Persian rug, which fit into a general themes, such as “Arabian Nights”. The designers select prominent features of sources and adapt them to the theme and colours they are working with. These adaptations can be very close to the original sources, or free associations. The adaptation to knitwear involves varying degrees of abstraction, ranging from literal adaptation where the design is converted into a grid pattern as closely as possible, to capturing the essence of the source in a few stitches. The aim of a designer is however to design a beautiful garment, not to be faithful to the source. They deviate from it as it suits them.

Technical Specification

A garment is formally specified by a technical sketch including an outline sketch, measurements and a rough verbal description of the garment. Designers often spend weeks producing these technical sketches. Only at this point, when most of the design decisions are made, a design becomes a traceable and accountable entity within a company.

A further selection is made of the technical sketches before further sampling resources are committed. All technical sketches are reviewed at once in some companies which sample only at specific times; in other companies this is an ongoing process.

3.3 Pattern of Variation in the Use of Sources of Inspiration

In Britain the big retail chains, exemplified by Marks & Spencer, are extremely influential. Designers at the retail chain headquarters research the fashion background and develop a plan for their garments for a season, develop colour palettes and select themes, and set briefs for individual designs in collaboration with buyers. These briefs are given to different suppliers. The suppliers research, design and present their garments to the buyers. The buyers select the retail chains’ ranges from different suppliers. The designers in the supplier companies follow the same design process, as described above. In addition the buyers provide them with trend information and colour schemes; and give feedback at different stages of the design process. The suppliers can also suggest unprompted designs they feel strongly about to the buyers. Buyers want to be sure that their garments will sell, and feel vastly reassured by designs that are closely based on garments of designer labels, which have sold at catwalk shows.

Most German companies and some British companies produce entire collections, sometimes in conjunction with non-knitwear ranges. The ranges are often coordinated so that garments not only share a common colour scheme, but also structural elements. Collections often have very elaborate flagship garments, which draw the attention of the customers to the entire range. Even though these garments rarely sell in large numbers they take up a significant sampling effort. These garments often serve as sources of inspiration for other designs. Collections need to be very carefully researched and gauged at the market. Designers receive very little feedback on the success of their garments other than their own sales figures.

The use of sources of inspiration varies significantly with fashion. In times when the pattern elements are very strong in knitwear, as in the late 1980’s and early 1990s,
artwork and craft product are used extensively as sources of inspiration. The degree of detail a design is worked out from a source of inspiration varies significantly between designers. Some designers specify the Jacquard for the garment and work out all measurements leaving little scope for interpretation. Others only give a rough verbal description of the shape and structure; and leave the detailed design to the technician. All technicians do a significant amount of detailed design. Sometimes the technicians are given the original source, such as a picture, and are asked to turn it into an intarsia pattern. Otherwise technicians have surprisingly little access to the original sources of inspiration.

Another important factor that influences the use of sources of inspiration is the skill level of the designers. In Germany knitwear is often designed by designers who lack a specific understanding of knitted structures. These designers depend heavily on other knitwear designs, for example student swatches from Britain which are displayed at yarn shows or purchased through agencies. They collect features from other designs and point to them in their design specifications. To some extent this approach excludes innovations. It works effectively, partly because the German knitwear technicians are highly skilled. In Germany many designers work freelance. They carry the cost of their own research process.

British knitwear designers often have degrees in knitwear and are expected to understand the principles of how knitwear is created technically. On the other hand British technicians are on average less well trained then their German counterparts.

With a deeper understanding of knitwear the adaptation of a source of inspiration can be less literal. Especially the creation of structure patterns from sources of inspirations such as a stone masonry or plants requires an in-depth understanding of the technical properties of knitted fabric. The ability to visualise a design from a source of inspiration increases with the understanding of knitwear.

4. ROLE OF SOURCES OF INSPIRATION IN THE DESIGN PROCESS

As it can be seen from the description in section 3, sources of inspiration are used throughout the entire design process. Their roles can be summarised:

**Context of the fashion of a season:** By looking primarily at other garments or photographs of garments, designers learn about the space of possible designs. They develop a feeling for what would look outdated, what captures the mood and what would look just strange. Gaining this intuitive understanding is one of the most important skills of a designer.

**Illustrations of concepts:** Design features or looks are communicated on theme boards, and the design framework through photographs of garments. The concrete shape of a design is often specified with reference to another garment.

**Sources of design features:** By studying other garments designers learn about the important design features, such as necklines or pockets. These features set a context in terms of design proportions and style. They can also be used directly in designs.
Sources of particular designs: Garments and swatches are often based on one or more particular objects or garments, which can be adapted fairly literally, see Figure 1. The adaptation of a source into knitwear involves an abstraction of the source. This can range from a direct transformation into a grid pattern to a free association.

Colour schemes: Designers often derive colour schemes from photographs, by picking colours from an image. They also use images to communicate colour schemes by setting a context for the whole design and showing possible colours to extend the colour schemes. For example a typical colour story might have five colours, but a particular stripe design in it has ten different colours. The additional colours could be taken from such an image.

Coordination of a collection: Common sources of inspiration automatically tie garments within a collection together through reoccurring motifs or structures. For example a whole collection based on oriental rugs from a book, to which all designers have access, can easily look coordinated.

In addition designers often refer to sources of inspiration to communicate design ideas. When designers are talking among themselves they often refer to sources of inspiration that they are both familiar with, such as garments that they have all seen or images in fashion magazines. Each designer describes their mental model of the design and the listeners redesign in their heads from the same sources. Designers can also show sources of inspiration, such as a piece of artwork to technicians to explain what they have intended.

5. SUPPORT FOR THE USE OF SOURCES OF INSPIRATION

Innovative design is built upon careful research, which requires times and resources. Designers run out of ideas without constant stimulation. Tired, burned out designers can not produce competitive designs. Many designs are created under time pressure. When a buyer rings up and demands a number of design suggestions a few days later, only immediate access to all research material and thorough general research can guarantee success.

In most companies the importance of sources of inspiration in the design process is grossly underestimated. Managers see the designers looking at pretty pictures or art books and think of it as the self indulgence of an artistic person. In consequence most designers have to fight to be able to do design research as part of their work.

Many designers gather sources of inspiration in their own time. They look through fashion magazines and art books at home. They go to museums on the weekends and on holiday, and collect natural objects on Sunday walks. Most designers I have talked to have commented that they have to fight to go to shows and on foreign shopping trips, because these are considered too expensive and time consuming. It is important to note that these research trips are very intensive and exhausting. However many designers
comment that they are also the most productive design times, when they plan most of their collections. Ideas created in this short space of time are used through the year.

Designers are often very unsatisfied because their design research is not valued within a company; they view it as a disregard for their own creative work. Many designers are already frustrated, because the pressures of the market give them little artistic freedom. The turnover of designers in companies can be high.

The following suggestions for facilitating more effective design research have to be seen in the context of other financial investment in the knitting industry. A new knitting machine with a CAD system and training costs in the order of £100 000. The costs for each sample are estimated at about £1000 per design.

Here are same simple suggestions to
• improve design quality immediately and directly;
• enable designers to produce more ideas from more sources of inspiration;
• allow designers to stay fresher and sharper;
• increase job satisfaction and reduce staff turnover.

Company archive of art books: A small annual budget - of say £500 - under the control of the designers can help to build a company library of inspiration books. In many companies the designers have a collection of art books. However these books often belong to individual designers, who can take them when they leave or guard them from colleagues. Designers could be reimbursed for books they buy, but they would have to justify each purchase in the light of current needs. Resources need to be available when the designers need them. When designers are stuck for ideas, a rich stock of inspirational books can help them to meet a critical deadline. Joint resources can also be accessed by all participants in the design process and facilitate communication and co-ordination in ranges.

Company archive of own garments: Old designs can often be an invaluable source of design features. If the designs have been created in-house cutting patterns and programs have already been worked out for them. They might still exist. If so, a new sample can be created very quickly. A company archive can give new designers an understanding of the style of company, and enable them to fit in accordingly.

Company archive of inspirational garments: Designers buy garments when they go on shopping trips. A physical garment enables them to study design elements in detail to increase their own vocabulary of design elements and features. It is essential that designers are in control of purchasing inspirational garments, because only they can judge whether they need to buy a garment to study it in detail. Well-meaning managers often bring garments home from trips that tell the designers very little.

Enable designers to attend shows and visit shops: Being immersed in new ideas is the most creative time for designers. Junior designers are often not taken to shows, even though they design most individual garments. Managers often attend shows to gain an overview of the coming fashion. This overview is also crucial for all designers.
Enable and support flexible work arrangements during the design and research phase of the design process: Designers should be able to work where they are most creative when they have to be creative. Most designers only spend a day or two every season working out and noting down large quantities of ideas. Many like to do this at home.

Reward designers for design research in their own time: Designers often visit museums and exhibitions out of personal interest, but also to gain inspiration. They do their own shopping and look out for new design ideas. In Britain the knitting industry is mainly located far from cultural centres, especially the Scottish Borders or the East Midlands, where designers need to travel significant distances to reach cities with designer shops or museums. By contrast designers in the Munich area make extensive use of the local designer shops, and mention it as one of their most important means of research. Travel expenses or museum entrances could be reimbursed.

6. CONCLUSIONS

Any thing visual can be a source of inspiration. Sources of inspiration are employed throughout the design process. Initially other garments allow the designers to develop a feel for the coming fashion and provide a source for design features which can be adapted into the designers own garments. Other objects and works of art are used to define and encapsulate themes and provide the inspiration for many detailed designs. Images are often used to derive and express colour schemes.

Most design decisions for a future collection are already made during the design research stage. Designers are little supported in their research work, when they are very productive. What is often perceived as artistic self-indulgence is fact a crucial part of the design process. By giving designers organisational support for their research and some financial resources, the use of sources of inspiration can be enhanced.

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ILLUSRATIONS

Figure 1 Design Research and Sources of Inspiration
Figure 2 Design and the Use of Sources of Inspiration

Figure 3 Adaptation of a Source of Inspiration into a Swatch