Impact of technology on the fashion industry

Background of clothing industry :

Textile and clothing manufacturing businesses are one of the most traditional and oldest industries in United Kingdom. The clothing industry dates back to 4000 BC when these textiles were used for decorative beauty as well as to preserve and the balance body heat and the outside environment including protection from injuries.(Niwa, 2002). Although this was the original function and purpose, they would also aspire to have fabrics portraying a beautiful appearance forming decorative beauty too.

The industry has grown greatly over time, and has since blossomed into an area where supply and demand is high, not just for functional purposes, but for decorative purposes too. With technologies growing too, and demand in the retail area, the clothing industry is booming. " Clothing manufacture is a an assembly oriented activity with a great range of raw materials, product type, production volumes, supply chain, retail market and associated technologies". (carr & latham's, p1)

This clothing industry will continue to play crucial role in the economy from manufacturing, to retail as long as marketing still does its job.

Introduction

The aim of this paper is to research and evaluate the clothing technology and its use in the fashion market. This will cover the quality of fabric and garment; discussing the importance of stitch, machinery and fibres, the creation of the garment, CAD and human measurement.

" Fashion marketing is a profession with diverse activities that indentify consumer's needs, develop good products, price, distribute and promote them effectively"(Stone, 1990, p5). In order to be successful within this field it is important to have good knowledge of the product, which includes understanding the quality of the product and also being aware of the manufacturing process involved in clothing production.

As a fashion marketer is it is important to understand the age group, the product is being catered for and also be aware of the current trend and design within the clothing industry to be able to communicate with the consumer. Not only to make the consumer aware of it but to be able to encourage them to buy it.

Clothing manufacturers and retailers have established principles for quality, fit, and the performance of the product. These standards are used to guide the product development, selection of material, production method, and finishing techniques.

" According to the fashion theory, consumers quickly become bored of whatever is commonly accepted, thus they constantly seek of new and different variation of products and activities" (Ruth E. Glock et al, p5), this demand requires a rapid change in fashion. The fashion changes involve the colour, styling, fabrication, silhouette and the performance of the garment that relates to the fashion trend, this change takes place depending on the demand of their targeted market and on the season, collection is produced for.

Today's consumers have high expectations of the entire product they purchase, especially fashion items they pay expensive prices for. They demand their garments to be constructed of high quality fabric, having a durable performance and having a perfect fit.

The quality of a garment is determined by the features of each of its components including details of the fabric, stitch, fitting and to the very last finishing detail. To the consumer's eye, quality is very important in the external appearance of the garment. When consumers find the product performance to be poor, it is often the result of the manufacturer using lower-quality materials or a lack of quality workmanship (Claxton and Ritchie 1979).

Quality standard overall reflects the essential quality of the firm seeks to achieve within their product.(Ruth E. Glock et al, p101) the quality of the garment is not measured through its mechanical performance e. g the feel of the drape and fit of the garment, but it is also defined through its positive and negative properties that can properly define settle over garment e. g the appearance of the fabric on the garment.

There are several factors which determine the overall quality of apparel, including fabric selection and the manufacturer's methods of construction, which includes stitches and seam finishes, buttonhole construction, use of interfacing, and matching of seams (Rogers and Lutz, 1990). These elements do not only affect the appearance of the garment but also retains the shape. High street garments are expected to be high quality: however this is not always the case.

Each fabric has its own quality that contains its own features depending on the fibre used to construct the fabric. Some fibres are absorbent, some are resilient, and some are less durable. Every fibre has its negative and positive quality and to improve this, it is recommended to test the quality before sending the garment to the retail. The recent technology use has made the fabric more durable and comfortable than ever before. The quality of the fabric is built up depending on the type of yarn being used and production of the yarn. There are various different type of yarns used to make the garment durable for a certain market and season. Majorie A Taylor, 1990 (3rd Ed) have stated that

" introducing of new yarn fibres type has become quite expensive, therefore it can only be introduced if there is an advantage in the performance or cost" the cost of the fibres type have raised due to the production method used to create these yarns. Fibres, Yarns, & Threads are the basic requirement of any textile apparel or related industry. These are selected according to the product being manufactured. Fabrics used frequently in the industry are wool, silk, cotton and linen, these are commonly used in the industry due to the fine texture, stronger, aesthetic and durable purposes. These fibres are also occasionally blended with other man-made fibres to create strength in the garment.

Chapter 1

Fabrics: like wool, mohair, cashmere, angora, camel hair, and llama are acknowledged to have a special properties such as warmth, smoothness, softness and lustre are mainly used in winter collection. (Leeder et al.. (1998). They cost a lot, however are in high demand by the consumers over

winters due to the absorbent, contributing to their comfort characteristic in cold, damp weather. Wool is preferred for tailored garments in the apparel industry as it is easily cut and sewn; however it does require some moulding or blending with other fibres during the construction to generate strength in the garment. Wool is usually tightly woven or finished, which stops the fabric from ravelling. The disadvantage of the wool is that, it can often cause pilling on the garment, after being worn several times. Another disadvantage in wool fabric is that once it's transformed into felt, it cans occasionally cause some problem during washing and wearing example Heat, moisture and agitation can cause the wool fibres to shrink and mat together. Therefore for a consumer it is important to follow the instructions on the label. Various different articles and books do recommend dry-cleaning Wool, rather than washing it as it can cause shrinkage. (Stamper, Anita A, 1991)

Silk is another luxury fibre used in designers fashion and is more expensive ready-to-wear. This fabric is mostly used for summer collection because its light weight fabric, it keeps you cool, it has crease recovery and the colours fasten very well on this fabric. The main purpose of this fabric is to be aesthetic; the fabric has been regarded as excellent materials for its softness, elegance, lust, resilience and drape. (Chollakup . R, 2004)

The fabric itself is so unique and delicate, that it requires careful handling while washing and sewing, as it can cause slippage and the fabric can tear apart. It is suggested to dry clean rather than laundering. However it has also been mentioned to steam press the fabric before using it. This is because most of the fabrics tend to shrink after being in a press and it does help to release the crease and makes the fabric smooth and flat. In previous

decades silk could not be duplicated in the industry; however in 1891 an English scientist C. F. Cross and E. J. Bevan succeeded in discovering a man-made silk look like fibre known as viscous. This was cheaper in cost, contained strength, durability , however the fibres are weak enough cause slippage and tear in the garment.

Viscose is a soft material commonly used in shirt, coats, jackets, and other outer wear.

Viscose is a viscous organic liquid used to make rayon and cellophane. Cellulose from wood or cotton fibers is treated with sodium hydroxide, then mixed with carbon disulfide to form cellulose xanthate. which is dissolved in more sodium hydroxide. The resulting viscose is extruded into an acid bath either through a slit to make cellophane, or through a spinneret to make rayon. The acid converts the viscose back into cellulose.

They replaced silk with man-man fibres like viscous rayon or acetate to save the cost. Viscous rayon can still be found in apparel products such as stockings, lingerie and ribbons.

Cotton is another fibre being used in clothing industry for decades. This is produced on a bush which is widely grown in sub-tropical region throughout the world, lying roughly between the parallel of latitude of 35C North and South of the Equator. (Miller, Ed 1, 1992). The price is of the cotton has increase in last few years however it still remains fairly competitive to synthetic fabric. Cotton is the favourite fabric used in industry for baby clothing, men's brief, summer and winter clothes for all age group, this is

due to its absorbent and comfort. It is easily cut and sewn and constructed into a garment.

Yarns: These fabrics are made out of yarns that are divided into two major types, based on the length of fibre used in the manufacture. Spun yarns are mostly made out of short hair staple fibre which contains of natural appearance then filament fibres. The qualities in the spun yarn are: they are more absorbent, porous and comfortable. It ravels and shifts less, puckers less while when stitched, presses flat and shows less construction error. Due to all these qualities in the natural fibre, spun yarn is expensive and is in high demand in the industry.

Filament is a man-made mechanically produced yarn; it can be subdivided in to two types, smooth and textured. The smooth filament yarn is selected for their smooth and shiny appearance and their ability to be packed tightly together for air and water resistance. The problems with filament fibres are: that the stitch on the garment has more chances to unravel and cause slippage due to the weak method used to construct these yarns. However as they fibres contain long hair it takes less time to produce this, just like spun yarn does. Filament yarns can also be transformed to make it look like natural fibre by trimming the fibres length. (Miller. E, 1992 p73)

Once the yarns are selected, it is than combined together to produce a fabric. Most textiles are produced by twisting fibres into yarns and then knitting or weaving the yarns into a fabric. Woven fabric is made out of two yarns. The length wise set is called warp and the crosswise is called weft. Unless it's manufactured with stretch-texture or elasticized, it has very little

stretch on its own. This process can usually be found in winter coats preventing the air and water. It is essential for a fashion marketer to be aware of the procedure used to construct

Thread, stitches, seams, interlining: These yarns are also used to construct threads, which are used to stitch pieces of fabric together to construct garments. Threads are selected matching the style, design and colour of the garment. These threads are used on the industrial machines, to create an appearance, durability, strength and elasticity on the garment.

Stitches and seams are measured to have major effect on the quality of the garments. Stitches are used to convert a two-dimensional fabric to a three-dimensional garment form. This requires a number of operations which affects the drape of the fabric formed into a garment. (kashual Rah Sharma and B. K. Behera, 2004, p75) effect of sewing and fusing. Wrong selection of threads and stitches can occasionally cause seam pucker in the garment, which than leads to costumers complain. Therefore in order to meet customers' satisfactory, it is important for the fashion marketer to be aware of the process used in stitching and seam to construct a garment.

There are 6 different type of stitches used in the industry to construct garment. " Each stitch is classified into a Class which is designed and identifies by the first digit of a three-digit numeral" (R. M Laing, 1998). Stitch formation is the actual process by which threads are interlaced in or around a material resulting in a stitch. It can be formed on a without a material, inside the material, without it and upon it. When a stitch is used with a defined geometry of material layer positioning, a seam is formed. Bad

quality stitch can occasionally ravel and put the consumers off, so it is important to choose the right stitch and thread for the construction of the garment.

Class 100 is chain stitch used only for temporary stitching. This is formed with one or more needle-thread, introduced from one side of the material only.

Loop of the thread is passed through the material and secured by interloping, with succeeding loops underside of the material. Chain stitch properties involve: elastic and are thicker then lock stitch. It can easily be ravelled; particular care is required to prevent runback from the last stitch.

Class 200 is hand stitches: formed by single thread passing through one side of the material to the other end in successive needle penetration.

Thread passes through the material as a single line and the stitch is secured by the succeeding formation of thread which passing in and out of the material or interloping of the threads with themselves.

When more than one thread is used, the threads pass through the same perforations in the material.

The formation of three common stitches class 200 is used for are:

- Over stitching or over casting commonly as a seam finish, involves ISO 211. This is formed with one needle thread which passes through the material from the inside of the garment, a small distance from the edge, casting the thread over the edge. (R. M Laing, 1998).

- Slip and blind hemming stitch (ISO 213) is formed with one needle thread, which is passed through a yarn of the single layer of material being hemmed, passed forward through the turned over edge of the hem allowance itself, emerging a short distance along. The thread is then brought forward through to repeat the stitch. (R. M Laing, 1998).

- Pad stitch commonly referred as ISO 219, this is formed with single needle thread, which is passed horizontally through the material and emerges on the same side. This stitch is used to attach interfacings(interling, canvas) to the under collar and under-lapel and to create shape by introducing slight difference in the dimensions of the garment components relative to each others. (R. M Laing, 1998).

Class 300 Lock stitch is used for seams that require stretch. This is formed by a needle thread, introduced from one side of the material, interlacing with an under thread supplied through bobbin on the other side. The quality in this stitch is , that it is low in bulk and thin.

It has Good strength and abrasion resistance. It has Poor elasticity, non-ravel.

The bad quality is this is that, it has limited sewing length and the bobbin requires frequent change of thread to continue the stitching.

Class 400 is multi thread chain stitch formed by a sewing machine passing one or more needle thread loops through the material. Those needle thread loops are interlope on the underside with a loop thread supported on a loop. This stitch tends to be very elastic and is well suited for seaming operations, for example, in seaming pants and closing synthetic bags, on woven and

knits of many types and weights of materials. However, in Class 400 chainstitch, distorted or skipped stitching tend to weaken the entire stitch chain and, as a result when included in the final product, the defective product may prematurely fail, for example by unravelling (www. patentstorm. us, 29/11/09)

Class 500 over edge stitch: A stitch formed with one or more groups of threads at least one of which passes around the edge of the material. This property this stitch contains are: excellent stretch ability and good recovery. It is used for seam and edge neatening, suitable for various different type of fabric.

Class 600 flat stitch: Multi-needle stitches that provide the elasticity necessary for knits. While applying these stitches onto the garment, it is very important to be aware of the size and fit, as the consumers asses these for an apparel product. Not only do them asses the quality apparel product but are also highly inspired by the ambience of the store. The ambience of the store is created by a visual merchandiser, who sets up the over all layout of the store, window display and takes responsibility for the ' the look' of the store, with the aim of promoting goods in order to maximise sales.

Chapter 2

The windows display is planned as per the look of the event (Sale, Valentines, Festivals and other activities.

They are least expensive form of advertising. A good window display brings customers into the store. Windows sets the scene for what the customer will find inside, there is no second chance to make the first impression. For a

smooth set up in the store, it important to have cooperation from all support function, good coordination in between the members of staff. The setup of the store and the installation has to be made over night, after the shop has closed and before it re-opens again the next morning.

Technology has expanded a lot in terms of size and fitting; to get accurate consumers body measurement, for visual merchandising and with other internet sources that eases the communication between the consumer and a marketer.

Size is related to individual body dimensions. They are grouped together into size classification according to the age, ethnicity, sex and body type of consumers. (Brown. P and Rice. J, 2000, p147).

The apparel industry has challenged in meeting costumer's needs for well fitting apparel. About 49 percent of women's have difficulty finding clothes that fit ((Kurt Salmon Associates, 2004), every year 12 percent of clothes purchased, are returned due to poor fitting (Barbaro, 2006). This has a big impact on the company, as due to the poor quality, company starts losing the customers, which leads to loss of profit, which then forces the company to shut down.

The body shape and size is often influenced by consumer's social life and it is important for those managing products and those marketing the product to be aware of this.

In the past few years, size standardising was used in the retail to cure problem solving in garments fit. The average figure of consumers was

usually from size 8 to 14; focusing on costumers aged from 18-30, concentrating on smaller shapes and sizes, while ignoring the disproportional figures. This has been a disappointment for consumer's size 16 or above, as they struggle to find clothes that may fit their body shape and " finding well fitted ready-to-wear clothing takes a considerable amount of consumers' time" (LaBat, 1987).

Size codes used commonly on the apparel products are based on numbers and figure type Size labelling on the apparel product suggest the suitability of the garment to the consumer's body dimension. Consumers size 8 to 14 have also often complained about not getting there sizes right even after the apparel products being labelled, this is due to Apparel size and fit have a difficult in researching and analyzing relationship between body and clothing. Current methods of creating size and analysing garments were based on measurement of the ideal customer embodied in single fit model; however this has still an issue in the fashion industry, as consumers were still not pleased with the fitting.

Therefore, in order to fulfil consumers requirement and to maintain competitiveness in the industry, Clothing industries around the world is aiming to on utilising the latest Technologies being launched measure the body shapes. These technologies are used for and to manufacture clothing involving body scanner used for collecting body measurement, CAD system for patter making , internet for communication between consumer and customizer , and the computerized visual process which will aware the consumer of the accurate and rapid production and delivery process.

This 3D technology scans around 300, 000 points on the body, which will help the apparel firms to manufacture clothing rapidly and succeed with on time delivery by providing valuable body measurement data on consumer population. The main purpose of using this technology is to gain better understanding of current human size and shape enabling the industry to develop sizing system that will fit most of the population.(Phoebe R. Apeagyei and Rose Otieno, 2006)

Retailers are now providing different shopping experiences by combing 2D to 3D interactivity visualisation technologies with advanced marketing techniques, to create virtual retail environments that attempts to actualise the true essence of shopping by browsing, socialising, trying-on before buying and, in a new twist, leaving the store proudly wearing the item just purchased.

The original virtual mega stores, offering newly, innovative and alternative shopping experiencing in multi 3D user environment are American apparel brands Bershka, L'Oreal, Calvin Klein, Reebok, Sears, Nike and Adidas.

Conclusion:

Marketing provides an important link between the manufacturer, the retailer and the consumer. The marketing of fashion takes place at all stages of the development, production and distribution of garments.

Fashion marketer must be well aware of the targeted audience, the current trend, quality within the product and the production methods used to enable themselves to aim at the right audience.

The purpose of this term paper was to research within the significant elements of technology taken into consideration by the marketing department of the fashion company. These elements included the quality and the purpose of fabric construction, garment creation, New 3D scan technology and body measurement and how the related to fashion marketing.

From my personal research experience for this term paper, I do believe that being aware of the stitches on a garment could be useful information for a fashion marketer; however it may not be necessary that a fashion market would have knowledge of stitches and seams in so much debt. It is also highly important for the marketer in the fashion department to be good knowledge about the fibres and fabrics, to be able to market the quality of the garment, which is measure by the overall performance of the drape garment.

In the large fashion retailing organization, fashion buyers, marketer and technologist work very closely, with the technologist often involved right from the early stage. In any business activity, fashion buyer requires a marketing approach to succeed in the business. (Jackson, 2001, p5).

Size and body measurement has always been an issue in the fashion business. Consumers have previously complained a lot about not being able to find the right size i. e: size 16, tall and etc.

This remains still an issue in a few fashion retails, However to resolve this problem, fashion businesses have started to launch a new 3D scan

technology, that measure various different parts of body and than ready-

wear garment gets construct according to the measurement.