FASHION FOR ALL – CREATING INCLUSIVE APPAREL

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Abstract

Fashion is seen as a phenomenon for the young, by the young, and of the young. It is also considered as the prerogative of those who are seen to be normal and unimpaired. The assumption is that beautiful clothes are meant for beautiful people, an assumption that is being challenged today in multiple ways including the understanding of the concepts of beauty, style, and the sartorial. This paper looks at how fashion can give voice to those in the margins, giving space to their desire for a style and an image that is **fashionable** and **in fashion**.

Fashion brands have become sensitive to the requirements of a varied consumer audience. Clothes that are trendy and fashionable are being made for those who do not fall into the ideal size bracket, including Plus sizes, Petites, and others with size anomalies. These have made fashion accessible to a wider consumer segment making it more democratic. A few brands are also coming up with apparel for consumers who are differently abled, elderly, and others with cognitive challenges. While these are great initiatives to widen the fashion consumer base, these are still separate lines of adaptive clothing and products.

When clothing is created for diverse body types irrespective of mobility and other cognitive challenges it is inclusive, and only when fashion is inclusive can it become sustainable. As fashion becomes more representative, it increases consumer confidence and comfort in shopping. The call for inclusivity in apparel has made designers relook at the design process, and its approach, and to see how elements can be incorporated, making the same garment accessible to all including those with special needs.

This paper uses a case study where a garment, a pair of footwear and their packaging were designed such that those with normal vision and those with impaired vision could use them. This made the same set of apparel expand its consumer base and be seen as inclusive. The paper discusses the design process with the objective of making fashion inclusive. In the process, it also contributed to the cause of sustainability by removing the need for a separate line of adaptive clothing. The project was part of a student craft-based initiative where the product was ideated in the classroom and developed in a specific craft cluster.

Introduction

People are meant to wear fashions thus linking fashion intimately to the body. It is not just the visual, but is also about the experience of the wearer and the interaction of the worn object with the body wearing it. Clothes become an important aspect for not only expressing image but also to negotiate the social world full of self and others. In fact individuals and groups use clothes as a significant tool to define what is acceptable, appropriate and apt based on use context, spaces and places. Entwistle (2000a) states,

> Dressed inappropriately we are uncomfortable; we feel ourselves open to social condemnation. According to Bell (1976), wearing the right clothes is so very important that even people not interested in their appearance will dress well enough to avoid social censure (Entwistle, 2000a, p. 326).

Fashion engages a large part of the consumer market since it is no longer viewed as a basic necessity. It is now a part of the consumer experience and self-expression for many and as Entwistle (2000a) argues "when we dress we do so to make our bodies acceptable to a social situation" (Entwistle, 2000a, p. 326) making the fashion experience a part of the everyday lives of fashion consumers.

Fashion's democratisation provided consumers the opportunity to harness the extraordinariness of fashion into their everyday lives. They used it to create and transform self-image and identity and as a marker of social mobility and cultural capital. From being a "socially derived valuation of an idea, practice or product, or as a form of collective behaviour" (Schrank, 1973, p. 534), fashion has changed its role over time. Today, fashion is read, not merely seen; what matters are the signs and symbols with fit and proportions taking a backseat.

Fashion has become a global cultural giant, described as "one of the greatest forces in present-day life and is all pervasive" (Schrank, 1973, p. 534). The global fashion and clothing industry is valued at $US2.5 trillion (BOF Mckinsy Report, 2017) and employs between 60 to 75 million people worldwide (Stotz and Kane, 2015). India isn't far behind in the fashion scene with an annual consumer expenditure on fashion at 6 per cent, which in value terms are 68 billion USD and employing more than 45 million people (India Brand Equity Foundation, 2017).

All this tells us how fashion is a part and parcel of lives of all, yet this industry has been one of the most 'exclusionary' where beauty with perfect looks and bodies have been the mainstay, thus lacking in both inclusion and diversity. But change comes to all industries and it is coming for the fashion industry, with conversations on the need for fashion to be sustainable, inclusive and taking into account the diversity, with consumers challenging the premise of beauty and perfect bodies and making brands acknowledge diversity, and designers joining these conversations on universal designs and inclusive fashions.

The issues of inclusivity and diversity are now taking centre stage, as their impact is being felt by fashion retail and marketing. This paper presents the case for inclusive fashion as the way forward for this industry. Fashion is a powerful tool to create and present consumer identities and image and hence should be equally available to those in the margins along with those in the mainstream and this study provides a window to creating fashions that can give voice to those in the margins, giving space to their desire for a style and an image that is **fashionable** and **in fashion**.

Literature Review

Sociologists of culture, Yuniya Kawamura (2005) and Diane Crane (1997), have studied the social nature of fashion using the fashion system, comprising of fashion professionals, networks and institutions. Other contemporary scholars of fashion have been using varied lenses to understand fashion as cultural expression. Susan Kaiser (2013) has combined fashion with cultural studies; specifically feminist cultural studies perspective that disrupts, blurs and transcends binary oppositions. Jennifer Craik (1994) examines gender politics represented through a variety of fashion categories, such as swimwear, cosmetics, men's fashion, blue jeans and so on, thus attempting to study the questions on construction of identities. Pamela Gibson (2000) investigates the impact of ageing on fashion choices among women, outlining the negative perceptions of ageing in Western cultures. This is primarily due to most fashions being youth-driven.

With fashion being seen as a part of peoples' daily routines, the fashion practices of people have become embedded within their everyday lives. Thus fashions' presence can be located in spaces people frequent that include the street, the workplace, the events of social importance, interactions like weddings and other get-togethers, and in their wardrobes (Buckley and Clark, 2014). While the fashion system is seeing disruptive change, consumption practices too are seeing disruptions with consumers looking for personalization, curation and storytelling in their fashion choices.

The desire for fashionable clothes, to look trendy and fashionable and hence a desire for fashion capital, is integral to an individual's experiences in constructing her self-image and identity. The inherent everydayness of fashion and clothing make it a popular cultural phenomenon revealing the prevalent and dominant zeitgeist. Joanne Entwistle (2000b) argues,

> Understanding dress in everyday life requires understanding not just of how the body is represented within the fashion system and its discourses on dress, but also how the body is experienced and lived and the role dress plays in the presentation of the body/self (Entwistle, 2000b, p. 344).

The dominant tropes of being in fashion or out of fashion come at the cost of rejection and exclusion that feed into consumption and are in opposition to the norms of sustainable fashion practices. Thus to encourage sustainability, designers and brands need to address both sustainable consumption and inclusivity by including a wider consumer engagement, and this at its heart involves addressing social issues of stigma attached to the body that is not considered as the fashion ideal.

While inclusivity is considered as a moral imperative, many fashion consumers have critiqued how available mainstream fashion options are limiting in many ways, one of the most discussed being size options. These conversations are now leading to a demand for fashion apparel that can cater to the needs of a larger consumer base making fashion fit for diverse body types including size, shape and ability and, wider range of age and demographic groups. To this extent, there are researches that address such issues in clothing, especially women's wear, that identify universal design and user-centric design practices that focus on specific problems. Technology and 3-D prototyping have been major factors in the design process and in such research studies. Some of these studies include designing for plus sizes, creating adaptive clothing for consumers with disabilities and designing for older women.

The objective of this paper is to elaborate on the considerations to the design process needed to create aesthetic and trendy apparel for the visually challenged consumer without altering the basic style that would be used by the regular consumers. The aim was to create mainstream clothing, footwear and packaging that are functional yet fashionable, and inclusive, with modifications that make them functional for those with visual impairment.

Methodology

The research uses a case study approach to show how the use of universal design can make the same fashion apparel accessible to a wider consumer base. Since the case was also part of the student craft-based design project, the design modifications needed to be small and simple. The craft-based design project is part of the design curriculum wherein students co-create with artisans, and there is sharing of design intelligence with the artisans to expand their repertoire of products. As these artisans do not have access to technology, at the outset the scope for innovation in design was identified as ideas that would be easy to implement at a rural cluster level and would be simple without requiring technology. This was part of the brief for the project while creating adaptive and/or inclusive fashion. The craft with which the student was working was the *Ajrakh* craft from the *Barmer* region of Rajasthan, India.

The study uses the FEA (Functional-Expressive-Aesthetic) model proposed by Lamb and Kallal (1992) of design process for apparel to identify the steps in designing the products. Hudson and Hwang (2020) in their research on plus-size apparel design practices have used the FEA design process model along with virtual and physical 3D prototyping. The research combines functional and aesthetic considerations for the plus-size women based on an analysis user needs and available options in the market and highlights the market potential of this consumer group. Thus as a design method, this research shows the effectiveness of the FEA model when it comes to user-centric and inclusive design for apparel.

Figure 1 below shows the steps of design process adapted from the FEA model. In the problem identification stage, once the student and the authors as her mentors had decided to work on inclusive fashion for regular and visually impaired consumers, a market research was conducted to identify the design options available in mainstream fashion apparel for the visually impaired. This was followed by an analysis of user needs based on qualitative interviews with users. A sample of 20 respondents was identified for interview through the snowball technique. The respondents were all young adults who were working or studying in college, with 12 male and 8 female having medium to severe visual impairment and requiring the use of Braille to identify products. The analysis of this stage influenced the ideas generated where we analysed the craft and the materials beings used and the fashion trends. This stage also influenced the design refinement/prototype development stage which was done both in the campus and in the cluster with artisans where the blocks were created, the print placements and patterns were worked out, and the construction ideas were finalized. Finally the prototypes were assessed in the evaluation stage.

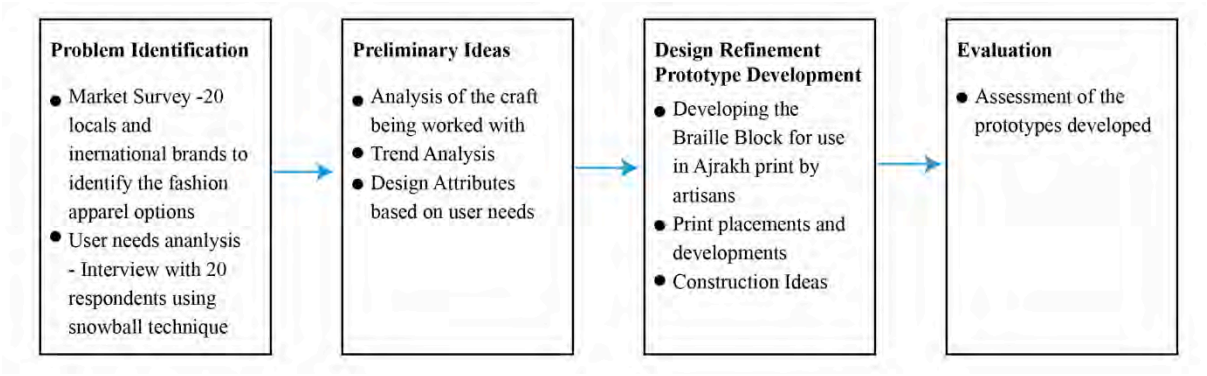

Figure 1. Design Process – Based on the FEA Model

To further understand the purchase behaviour, questions on whether they shopped from retail stores, or made customized garments, the stores and brands preferred, the styles and sizes and their satisfaction/dissatisfaction with what they find in the markets were included. Along with this, to understand how the respondents identified certain specific products like cash, a set of observations were included while conducting the interview. As mentors of the student doing the project, the authors trained her in the interview process and in recording her observations. All respondents were informed about the study and it was communicated that confidentiality would be maintained.

A casual style shirt for both men and women and the Indian *jutti* for women were selected, as these were apparel items that were challenging and unsatisfactory according to consumers; formal shirts and footwear were excluded. Since the respondents were looking for shirts to wear for casual outings, and as the project also involved the use of the *Ajrakh* craft, it was decided that the casual shirt would be garment that would be worked on for design modification. Ten casual-style shirts and five *jutti* styles were analysed across the 20 stores to include attributes like style, silhouette, fabrics, colours, market level, and price range. Since this project was linked to craft and as the student had selected the *Ajrakh* craft for her work, the choice of colours came from the *Ajrakh* palette of neutrals and indigos.

The case presents the design modifications done to a garment, footwear and the packaging developed that made them user friendly for consumers with vision impairment while being used by those having normal vision as well, and discusses the design process followed. Such inclusive designs while appealing to and working for all consumers also further the cause of sustainability.

Findings and Analysis

Market research and user need analysis

The research was done on the fashions available in the markets of Delhi National Capital Region where about 20 local and brand-based stores were selected for a content analysis of their design offerings and if anything was being offered for those consumers with special needs. The results did not show any of these having either a separate line for special needs nor clothes that had any such additions or modifications that made them usable for consumers with special needs.

Since the brief had been narrowed to design-inclusive apparel for the visually impaired, the next step was to understand the user needs and design attributes that would be necessary for design ideation. The user needs interview included questions that tried to gauge the preferred design attributes in casual shirts (that is, lengths, colours, fabrics, closures, and so on) and casual footwear (that is, open/closed, colours, materials, and so on) and the needs and shopping behaviours of the respondents, in this case those with medium to severe visual impairment, in apparel acquisition.

FEA – function attributes

Based on responses, the problems identified were separated into two parts—one for garment and one for footwear. From the interviews, it was identified that the respondents were more concerned with wearing their clothes independently without help of a caregiver and also being able to wear it correctly in the first go. Based on these criteria, both the male and female respondents felt that the shirt that was fully buttoned from the front was a challenge to match each button with the buttonhole.

For the women respondents, the use of the Indian *jutti* was a challenge. Unlike open and closed footwear which have both the left and the right foot clearly distinguished, the Indian *jutti*, while a closed footwear, is the same for both foot and hence even those with no impairment make a mistake while wearing them. For the respondents, being able to identify the left from the right saved them time and also did not require them to take any help thus aiding in their independence.

The next challenge discussed with respondents was choosing their clothes every day. This, as understood from the responses, was another factor that made everyday dressing a challenge as they had to identify the clothing in their wardrobes before wearing, and then either needed to get help or spend more time in identification. Respondents expressed that if they had some kind of a bag or packet which indicated what was stored within, even an indication of it being a shirt, or a *kurta*, or trousers, for example, it would assist them. This led to the idea of creating packaging for the shirts that would be designed in this project. Users would be able to store their daily wear clothes in these bags and it could also be customized.

FEA – expressive attributes

Respondents felt that apparel brands did not consider them as a consumer base and even society did not think about their need to be not just well-dressed but also smart and stylish. In many ways, they felt left out in social groups when peers who had no such impairment would discuss fashion and clothing. The fact that they were left out by retailers and brands came out in their desire for garments that they could wear independently and had some element of style added through the use of material and processes. While conversing, the idea of Ajrakh craft was introduced to them through its use of colour and technique which enthused them. Since they all were customising their garments with the help of their caregivers by tailoring, they were already using textiles that had block prints and other such textile crafts. For the female respondents, the use of Ajrakh fabrics in their juttis added an element of chic and pride.

FEA – aesthetic attributes

Aesthetic attributes focused on the fashion and design elements and the principles to be used in the garment and footwear like the design details, surface developments and material

characteristics. When discussed with the respondents about the *Ajrakh* craft and its colour palette, they felt it would suit their requirement for casual shirts that were stylish and trendy and could be paired with many outfits since the colours are dark, neutrals and indigos. The female respondents who teamed the *juttis* with their Indian wear felt that the use of Ajrakh in their footwear would add to their style quotient as one said "...bada stylish lagega...(it will look so stylish)." While the respondents could not see themselves, they did participate in conversations of fashion and could imagine themselves in colours and styles when expressed to them vividly. The desire to look smart and stylish was as much a dream for them as others.

FEA - Attributes	**Major Challenges / Concepts**
Functional – Garment – Shirt Functional – Footwear – *Jutti*	Right button into right buttonhole Able to identify right and left
Expressive	Limited options and/or have to get customised which is not an optimal solution
Aesthetic	

Table 1. FEA Attibutes and Major Concepts for Apparel for Visually Impaired Consumers

Design process – design ideas

Ajrakh is an extremely versatile art form that can be customised with different motifs. These designs are easily recognizable geometric repeats, in combinations of border designs. "A marker of identity and family associations, the origins, creation, colours and design of a piece of *Ajrakh* is crucial to its perceived authenticity and value" (House of Wandering Silk, 2020). It uses indigo, madder and printed mordants. Hand carved wooden blocks of different patterns are used to print the design on fabric and this aspect of the craft allowed us to leverage its potential in the project.

As mentioned in the previous section, along with interviews of the respondents, they were also observed as they identified different objects. This was also discussed with them and the respondents mentioned that touch and feel and use of Braille was the best way for them to know about different objects. They also mentioned how the Braille markers on the Indian rupee notes made it easier for them to identify the notes without help. Thus, the idea of creating Braille blocks which could be raised in some way to provide the texture that gave the identity to the users.

Two trends that were further noted were multi-seasonal and graphic prints. *Ajrakh* is a textile craft that uses colours that are not season specific and has the ability to transform seamlessly from summer to winter. The use of cotton as a fabric again ensures the garment is not season specific. Graphical prints have the ability to be seamlessly carved in wood, and Braille can be used to create graphic prints. Since *Ajrakh* is a print technique, this works into the process seamlessly.

Creating the Braille Block

The woodcarving artisans carve out *Ajrakh* blocks as per the designs and motifs provided to them (see Figure 2). This allowed the opportunity for creating Braille blocks that could be used for printing. The challenge of matching button to buttonhole was solvable if there was some way to number them such that the users could use touch to read. The same could be done to identify the left and right for the *juttis*. By creating a Braille texture this could be achieved and hence the idea of creating a Braille block that could be used to print and then crating the texture.

Figure 2. *Ajrakh* blocks in use at Barmer

The next step was to understand how numbers were read through Braille and how they could be *read* in clothing and how ‘left’ and ‘right’ could be *read* in footwear. We decided to use a full cell of six dots as the block for printing of numbers 1 to 6 and the words ‘left’ and ‘right.’ It was also noted that repeat of the six dot block created an interesting pattern and could be used as the main block for *Ajrakh* print. Below are the pictures of six dots and repeat of the six dot blocks that were created (Figures 3 and 4).

Figure 3. Six dot single block

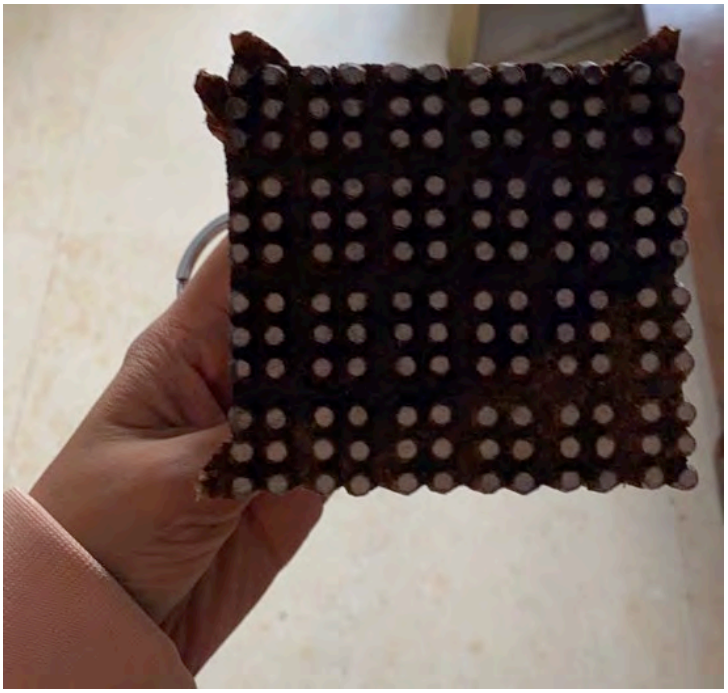

Figure 4. Repeat of the six dot block created in the *Ajrakh* block style

Print development

"*Ajrakh* is a traditional hand block printing and resist dyeing form using indigo, madder and printed mordants" (House of Wandering Silk, 2020). It has limited production and is found in

the regions of *Sindh* in Pakistan, *Kachchh* or *Kutch* in Gujarat, and *Barmer* in Rajasthan. It is also one the most complex of the many textile products. The cotton cloth used for making *Ajrakh* is called as *latha* or the basic material used for printing. The *Ajrakh* colours are made using natural ingredients such as iron rods, jaggery, tamarind seed and turmeric powder. The cloth is washed with *hardae* (process) solution, that is Myrobalan.

Some of the prints that the artisans were working on when this project was co-created with them are given below (Figures 5a and 5b).

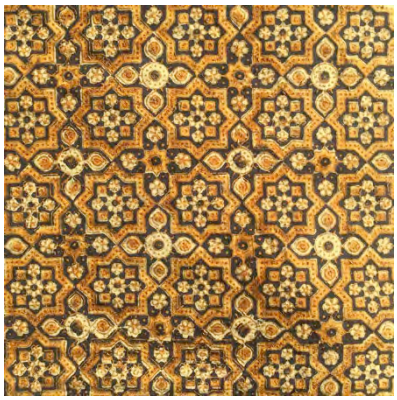

Figure 5a. A traditional *Ajrakh* print in process

Fig. 5b. A traditional *Ajrakh* print

Keeping these in view, we introduced the six dot single block and the six dot repeat block to create new prints that you can see below (see Figures 6a to 6e).

Figure 6a. Print Development

Figure 6b. Print Development

Figure 6c. Print Development

Figure 6d. Print Development

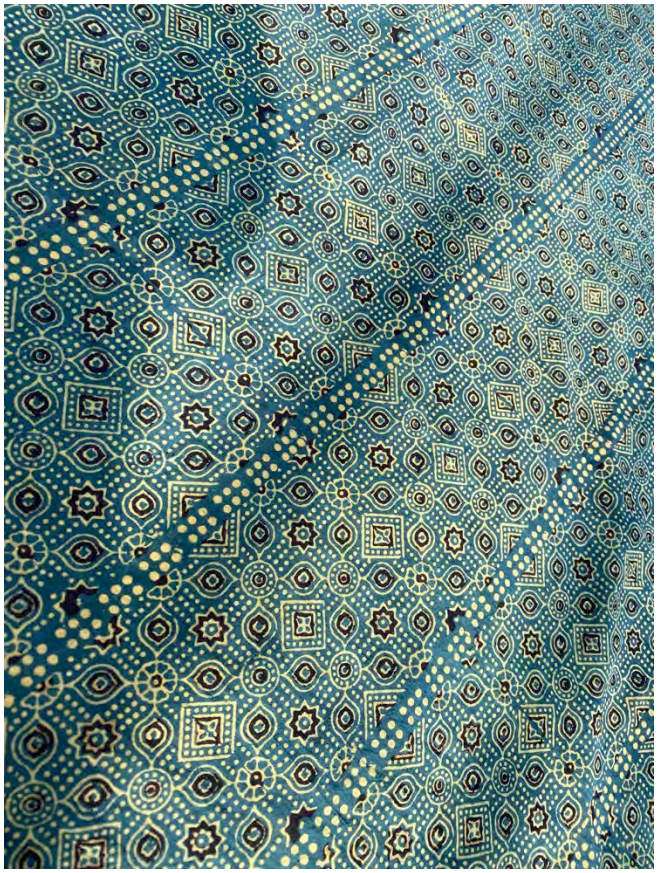

Figure 6e. Print Development

Prototypes and evaluation

Two unisex shirts were planned where the innovation was the Braille usage around the closures to help identify buttons and buttonholes, one shirt in a polka dot pattern and the second using the *Ajrakh* pattern with the six dots strategically placed upon the placket. The numbers, 1, 2, 3, 4, 5 and 6, were embroidered upon the Braille pattern creating a texture to help the visually impaired understand which button goes into which buttonhole. Another idea was to embroider Braille in the lining of the shirt to help users identify the garment by touch to decide if they want to wear that or something else, saving both their time and their caregiver's, and thus increasing their independence.

In footwear, the *juttis* were to be made in *Ajrakh* with leather trims. The *Ajrakh* on the inside heel part was embroidered in Braille to help identify the left from the right.

The third was creating fabric packaging for users, to be able to store their daily wear clothes. These packets had Braille written on top, to help users understand what exactly was inside, a possible solution to their daily morning struggles and help them feel a little more independent. The packets are customizable and can be made from the waste fabrics.

The evaluation was done by taking these prototypes to some of the respondents who had been part of the initial interviews, to get their feedback on the modifications incorporated. The caregivers were also present when the respondents tried the shirts on and told us how they were able to do so in the first go and without any help.

The female respondents also tried the *juttis* and could identify the left and the right and wear correctly. The packaging was received with enthusiasm as they could immediately identify the product within.

Below are the pictures of the final prototypes that were created (see Figures 7a to 7d).

Figure 7a. Prototype Development

Figure 7b. Prototype Development

Figure 7c. Prototype Development

Figure 7d. Prototype Development

Conclusion

This study incorporated FEA considerations in the design process for creating apparel, footwear and packaging for the visually impaired. A qualitative approach was used which included the following steps in sequential order: (1) problem identification which a market research and user needs analysis through interviews; (2) the preliminary ideas which included craft and trend analysis and identifying design challenges and concepts based on user needs; (3) the design refinement and prototype development stage included developing the Braille block, print developments and developing the fabrics and the final construction of the products; (4) and finally, in the evaluation stage a prototype assessment was done.

The practical implications of this study, the design process used and results achieved are immense for designers, brands and product developers to create inclusive designs. The study shows that a craft design practice can easily incorporate user-based design processes (research)

and generate simple ideas to innovate with design and product development that does not require technology and can be done at a Small and Medium Enterprise (SME) level. The use of FEA model was an innovative approach that placed the visually impaired consumer at the centre of the model. This design case study provides a practical guide for designers and students to create apparel and products for a larger consumer base by weaving in the aspects of special needs.

There are some limitations to this study, one of the main being no use of technology since this involved craft clusters. Future studies can look at different special needs, and through the use of technology can create inclusive apparel. This study also used user needs of the visually impaired as it was exploratory, while future studies can use multiple user needs while using the FEA model. This study focused on how fashion can give voice to those in the margins, giving space to their desire for a style and an image that is **fashionable** and **in fashion** and provides a possible design path, which creators, brands and retailers can use to include the marginalised consumers while creating their designs.

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