

## Consumer Emotional Needs in Textile, Clothing and Fashion Design

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### Abstract

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This study investigated the emotional impacts of textiles, clothing, and fashion design products. A framework highlighted the main aspects affecting consumers' emotions and psychological state. This model was based on three factors: Product, Consumer and Society. These aspects were concluded after analysing and categorising emotions adopted by researchers in textiles, clothing, and fashion design areas. Factors dominating each aspect of the three were identified. A comprehensive list of emotions was developed and employed by designers and researchers. Moreover, lists for each area studied and explored were developed. This study's outcomes will be supportive and informative for textile, clothing and fashion designers and researchers as they will use the developed groups of emotional impacts based on clear and comprehensive understanding.

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**Keywords:** Attitude, behaviour, consumer, emotion, Psychology

### 1. Introduction

The design process comprises a sequence of steps, starting with problem identification and then investigating it to ideate possible solutions to select one of them. The following step is to develop a prototype, test it in its context, and finally edit or improve the design to finalise it. For textile, clothing, or fashion design, designers must consider consumers' needs, demands, wants and motivations, including a product's functional, aesthetical and expressive features throughout the design process (Lamb & Kallal, 1992).

Research studies found that design's "emotional" aspect, including textiles, clothing, and fashion design, drives consumers towards or against a product (Davis, 2015; Jiang, 2021; Kim et al., 2020; Kim et al., 2005; Moody et al., 2010; Park & Kim, 2008). The emotional value encompasses the consumers' psychological attitude before, after or during the use of a product, which would be evoked by either the product's functional or aesthetical features. Consequently, they significantly impact the manufacturing processes, including design practices for identifying a product's qualities that induce specific emotions. Therefore, designers target emotional effects based on several factors, including the expected consumer characteristics, preferences, and cultural associations. These emotional impacts could be obtained via design specifications.

The significance of textile products' emotional impacts was discussed by Dolan & Holloway 2016 because of their distinctiveness as the following skin and their ability to reflect individuals' status and personality. Therefore, these are considered means of transferring consumers' distinctiveness. This feature confirms its uniqueness for makers, i.e., designers, marketers, and consumers (Dolan & Holloway, 2016). The targeted emotional impacts of textile and apparel design are employed in the design process as a source of inspiration and creativity to solve a design problem by conducting factor analysis to relate and refer the attributes of the designed products to their psychological motives, encouraging consumers' purchase intention or forming a confident attitude. Therefore, designers consider these factors in the design processes regarding the design elements, principles, and materials.

Several research studies investigated factors affecting human attitudes and behaviour towards textile and apparel products. These research studies explored emotions evoked by the surveyed and analysed samples and designs. Therefore, identifying the range of emotions affecting human response towards stimuli, i.e., textiles, clothing or fashion, was a core and pivotal process for researchers and designers (Van Gorp & Adams, 2012). However, these groups of emotions were found to be variable across research studies.

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Since these research studies adopted the semantic terms used in its previous research work/s in which various series of phrases, expressions, and words were used, it was found essential to conduct a comprehensive and extensive analysis of these terms used in investigating the psychological associations with textile design items to identify the most reliable and consistent semantic terms to be used in future research studies. The textile designers would adopt it. Besides, the researcher has found that placing a range/s of emotions has been challenging in conducting research studies exploring emotional semantics because it is consumer and product-dependent, i.e., affected by the perceiver's personality experiences and cultural and learned associations. Therefore, it was decided to survey consumers' emotional responses to various products to identify their arousing emotions. Then, both ranges of emotions highlighted in previous research studies on one side and consumers on the other are investigated, analysed and compared.

In this study, the researcher explores potential applications of unconscious associations to express emotion and personality through design. It aims to analyse the semantic terms and expressions considered and identified by authors and researchers in the textile, clothing and fashion fields compared to other areas of design. Besides, the emotional impacts of textile products on consumers are explored and analysed. This approach identifies, classifies and categorises the appropriate terms relevant to the psychological effects of textile products. The concluded range/s of words would be efficiently and reliably used in future research studies and design projects to explain consumer response, attitude, and behaviour towards textile, clothing, and fashion products. The value of current research lies in exploiting its findings to provide informative and knowledgeable psychological implications for researchers, designers, and students in textiles, apparel, and fashion design. Furthermore, it will equip them with adequate insights regarding the responsive aspects of their products to consider in their design process decisions.

## **2. Research Design and Approach**

This study investigates semantic terms employed in textile, clothing, or fashion design areas by researchers concerned with consumer attitude and behaviour and used by the consumers themselves. Therefore, a qualitative research method, content analysis, was used to analyse research studies in these fields and consumers' responses to purchased products to spot and identify the terms and words used in this context. These analyses are focused on extracting the emotional terms used in studying or responding to textile products, namely fabrics, clothing and fashion.

### **2.1. Emotions in Academic Research**

The researcher initiated this investigation by reviewing, studying, and analysing research studies in the explored areas, focusing on expressive values, terms and emotions. Therefore, the study will start with a literature review, assigning a section for each of the highlighted three areas, i.e., textiles, clothing, and fashion. This section, i.e., "Literature Review", focuses on all expressive, emotional, and psychological terms used in these studies.

Therefore, the first phase involved the contextualisation and triangulation of the argument; research studies exploring the emotional impacts of textile design and related industries were reviewed using the words/terms adopted by these studies. Scimago database listing journals from the data available in the Scopus® database- was used to find out the TEXTILE, CLOTHING, FASHION or DESIGN journals that could be reviewed and referenced in this study, such as Textile Research Journal, Journal of the Textile Institute and Clothing and Textile Research Journal. Search keywords in textile, clothing, and fashion journals included EMOTION, PSYCHOLOGY or AFFECTIVE. However, the search keywords in design journals were TEXTILE, CLOTHING, OR FASHION. As a result of the reviewing process, a total number  $n$  of 34 studies were found and believed enough for conducting the purposed content analysis in the textiles field ( $n=5$ , 14.7%), Clothing area ( $n=16$ , 47%), and fashion field ( $n=13$ , 38.2%).

In the second phase, the terms and words found will be analysed in terms of classification, finding common and similar ones across different subareas/fields, the frequently used phrases, and identifying the significance and importance of each category and term.

### **2.2. Emotions in Consumers' Responses**

Emotional responses to textiles, clothing, and fashion products were extracted from consumers' reviews. Therefore, compared to the research studies, this study explores the emotional reactions to the products after purchase and subsequently embeds them in the lists of emotions developed.

### 2.2.1. Collecting consumers' responses/reviews

The reviews were collected from Amazon's online shop on clothing, fashion and textiles products. In this shop, the clothing category is included in the fashion department; therefore, they were considered two sides of the same coin. Two main areas were the concerns in this section: fashion/clothing and fabric. In the clothing category, three subcategories were searched, i.e. women's, men's, and sports-specific clothing. For women's and men's clothing, the five most frequently used subcategories by users were selected. In women's clothing, the following subcategories were employed: Women's Dresses, Women's Tops, Tees and blouses, Women's Pants, Women's Coats, Jackets and Vests and Women's Skirts. In men's clothes, Men's Shirts, Men's Fashion Hoodies and sweatshirts, Men's Outerwear Jackets and coats, Men's Pants and Men's T-shirts and tanks subcategories were used. In the textiles' emotions investigation, the fabric products were obtained from the Arts, Crafts & Sewing department, then Craft & Hobby Fabric, and the following filters were applied: Usage filter: Apparel, Item Form: Cut by the yard.

In all subcategories, the items were sorted by featured; then, the first ten items were investigated to analyse customer reviews. Therefore, 120 reviews were explored in this study (five subcategories ×, ten items per each main category of women's and men's fashion and clothing, ten items of Specific Sports clothing category and ten items of fabric by yard).

### 2.2.2. Analysis of Product Reviews

The collected reviews in the previous process were gone under the following analysis processes:

Most frequently used phrases and words (for each item studied)

Two primary sources of the most frequently used words were taken into consideration. The first is scraping customers' reviews to find the most popular words. So, the reviews are scraped and analysed using an Artificial Intelligence platform, AIPKimola.com. This platform includes an Amazon Review Analyzer that can analyse and classify customer feedback or text data using a product's link. This app produces popular phrases and words found in product reviews. Therefore, for the identified products in the previous section, the link of each product was used and inserted in <https://kimola.com/scrape-and-analyze-amazon-reviews> to extract the popular phrases and words in customer reviews on each product. The second source is the section labelled "Read reviews that mention" in the reviews section of each product. This section provides the words customers most frequently express. Subsequently, A list of the most popular words and phrases is set in a document using those collected from the two sources.

### 2.2.3. Sentimental Analysis (for all items)

The collected data and words are analysed, passing through two stages. Firstly, the AIP <https://kimola.com/cognitive> is used to analyse and classify text data obtained in the previous step. This AIP groups words of similar roots, including emotional and non-emotional words such as location. Then, these words in common were processed by a sentiment analysis app, <https://text2data.com/>, to determine the expressive words most commonly mentioned by consumers/customers.

## 2.3. Academic vs Market Emotions

The final phase is developing the suggested lists of semantic terms that could be used in survey studies, design research, and projects. Since researchers recommended a short questionnaire to obtain accurate data from respondents, researchers and design managers will develop and adopt two lists of terms. The first will be a comprehensive, detailed list of emotional impacts; the other will be concise to produce a brief, effective data collection tool.

Finally, the researcher developed a conceptual framework for emotional design for textiles, clothing, and fashion products. This model classifies emotional impacts according to human needs and perceptions and identifies the levels of designer focus when designing a textile, clothing, or fashion product.

## 3. Literature Review

Several researchers have been concerned about and focused on the psychological impacts of textile, clothing, and fashion design products. Therefore, this section reviews previous research studies to analyse the terms adopted by previous studies concerned with the psychological impacts and impressions of textile, clothing, and fashion products on consumers. Moreover, product design and colour studies related to the investigated products are discussed.

### 3.1. Textiles-Emotions association

A textile product is any item created by weaving, knitting, or felting. Textile or fabric design could be based on weave type or printed design. In this section, the researcher explores the psychological words and terms highlighted in research studies focused on textile design (see Table 1).

Kim S. J. *et al.* 2005 developed a textile indexing system to classify textile images based on human emotional responses towards their texture, colour, and pattern (Kim et al., 2005). Niinimäki, K. and Koskinen, I. (2011) investigated long-term relationships between product users to enhance the sustainable design approach in the textile and clothing field (Niinimäki & Koskinen, 2011). Davis, F. 2015 examined the relationship between textile Texture and Emotion by employing various methods of sample exploration. They believed an effective relationship exists between Expressed words towards textile texture and its role in communicating emotion. Moreover, the participants were asked to select the facial/verbal expression that would be found associated with the examined sample using a range of emotions. Later, the output of the survey study was analysed using the circumplex model of the effect (Davis, 2015). However, Saiki and Nam identified the overall emotional responses to the fabric sample (Nam & Saiki, 2011). Keith, S and Silies, M. 2015 studied Scottish heritage textiles and the designer's role in creating luxurious products reflecting traditional values (Brun et al., 2015).

Table 1 Emotional terms, words and expressions adopted in textile design in previous research.

Study/Author and Year	Terms adopted
Kim, S. J. et al. 2005	warm- cold, gay- sober, cheerful- dismal, light- dark, strong- and hard- soft, natural- unnatural, dynamic- static, unstable- stable, and gaudy- plain
Niinimäki, K. and Koskinen, I. 2011	Love, makes me feel beautiful. Users' attachment to textiles and clothing products would be because of several reasons such as Connection to 'Self'/Personal values, i.e. Expression of 'self', Uniqueness, Made for me and One's ideology
Davis, F. 2015	Positive and negative moods and relaxed and stimulated, Happy, Cross, Scared, Sad, O.K., Horrible, Worried, and Excited
Saiki and Nam	feel bad, feels alright, decent feel, fun, cosy, hideous, bland, grandma, 1950s, during the 1970s
Keith, S and Silies, M. 2015	Luxurious, traditional

### 3.2. Clothing- Emotions Association

Clothing/garment is a product used to cover the consumer's body. The emotional impacts found linked and associated with clothing or garment products in research studies are discussed in this section (see Table 2).

Davis, L. (1985) investigated the perception of clothing quality and aspects that affect consumer perception, including the quality of construction, fabric, notions, and design (Davis, 1985). Eckman M. et al. (1990) studied the criteria for women's apparel products that affect consumer purchase decisions (Eckman et al., 1990). The impact of brand name on consumer perception of apparel products was studied by Forsythe, S. 1991 (Forsythe, 1991). Abraham, L. 1992 reviewed consumer perception of the quality of apparel products, namely their extrinsic and intrinsic features. An expressive group of questions is the precise one relevant to the emotional aspect (Abraham-Murali & Littrell, 1995a). Fiore, A. 1992 studied the relationship between apparel products' intrinsic cues and their recognised quality (Fiore & Damhorst, 1992). Lamb, J. and Kallal, M. 1992 developed a conceptual framework considering user needs in apparel products. Functional, Expression and Aesthetic requirements were investigated (Lamb & Kallal, 1992). Hines, J. and O'Neal, G. 1995 investigated the importance of psychological factors in determining the quality of clothing products. In this study, the fabric was the best predictor of apparel quality (Hines & O'Neal, 1995). Abraham and Littrell (1995) studied factors that affect consumers' perception of apparel products over time. Participants were asked to rate the examined samples measuring a range of aspects, including the following groups: fabric and garment construction, care, value, Style, appearance on the body, Individuality, and expression (Abraham-Murali & Littrell, 1995b). Forsythe investigated the perceived quality of apparel products. S. et al. 1996 expressions relevant to aesthetics are considered emotional and psychological rather than functional (Forsythe et al., 1996). Park and Kim 2008 classified experienced emotions during apparel shopping into Positive and negative emotions (Park & Kim, 2008). Wendy, M. and Sinha, Pammi, S. 2010 investigated the relationship between clothing trying and consumer mood and preference. Several clothing features and factors would be involved in evaluating clothing items (Moody et al., 2010). Lerpiniere, C. 2013 indicated the importance of the sentimental response and embodiment of worn items of clothing linked to our cultural and social conditions and status (Lerpiniere, 2013).

Davidson, H. 2016 explored the emotions evoked by grained textiles and clothing since the 19th century (Davidson, 2016). Rahman et al. 2018 studied apparel consumer behaviour. It could be believed that 'colour' and 'style' are the apparel evaluative criteria (Rahman et al., 2018). Ghalachyan, A. 2018 was concerned with consumer perception of sustainable fashion products. Intrinsic, functional, marketing and social-communicative attributes were investigated. However, social-communicative details include specifications related to the symbolic side of the products, which could be linked to product perception's psychological and emotional aspects (Ghalachyan, 2018). Rahman O. et al. (2019) considered style, colour, wardrobe coordination, and fabric as psychic cues in the investigation (Rahman et al., 2019).

Table 2 Emotional terms, words and expressions adopted in Clothing design previous research.

Study/Author and Year	Terms adopted
Davis, L. 1985	Fashion ability, status, and uniqueness
Eckman, M. et al. 1990	Colour/pattern, style, fabric, and uniqueness, garment's versatility, matching (with other pieces owned), Appropriateness (to social occasions), and utility (to fulfilling wardrobe needs)
Forsythe, S. 1991	quality of notions, construction quality, and design quality.
Abraham, L. 1992	Looks good on me, Interaction of style with body type, Interaction of colour with personal features, Appropriateness for age and personality, makes me look, Provides scope for individual creativity; involves unusual or new colour/design/style/fabric, Fun and adventurous, Appropriateness to lifestyle; involves. Comments of others, Compliments of associates, Appropriateness for the subject, i.e., style - body type, colour -personal features, age-personality, Makes the subject look. Reflects subject creativity: unusual or new colour/design/style/fabric, Fun and adventurous. Relevance to lifestyle: Usefulness, Appropriateness for work/casual/special occasion, Coordinates with wardrobe, Provides confidence.
Fiore, A. 1992	Liked, Fashionable, New Style, unusual Style, Style would be worn, would be bought, leg shape style, upper hip area style, shape on the body, unique, would not be worn, compatible with items in a wardrobe
Lamb, J. and Kallal, M. 1992	Values, Roles, Status and Self- esteem
Hines, J. and O'Neal, G. 1995	"feel good about self", "able to create images" and "look good to other people". These consequences resulted from personal values of capability, self-esteem, and social recognition/respect
Abraham and Littrell 1995	gives confidence, looks good on me, is fun to wear, looks good on my body type, provides an opportunity for my creativity, is suitable for my personality, is fashionable, fits well, is appropriate for my age, has received compliments from others, can be dressed up and down when required, covers up my figure problems, is a classic style, interesting colour, versatile. Regarding Individuality, the subjects evaluated the samples explored in terms of Style: new, unique, and unusual
Forsythe, S. et al. 1996	attractive designs, good styling, Style looks good on the wearer, and the fabric feels good on the skin.
Park and Kim 2008	satisfied, pleased and excited, hostile and unhappy, New Style, just came out, new feature.
Wendy, M. and Sinha, Pammi, S. 2010	satisfaction, self-perception (of sociability, emotional stability, and dominance), coping with social circumstances and the wearer's feelings, self-consciousness, sociability and work competency.
Lerpiniere, C. 2013	cultural and social conditions and status
Davidson, H. 2016	Emotions discussed include pride, dignity, religious feeling, tenderness, and socially codified grief.
Rahman et al. 2018	Style
Ghalachyan, A. 2018	Uniqueness/Novelty, Fashionability, Suitability to Lifestyle, and Values
Rahman, O. et al 2019	style, colour, wardrobe coordination, and fabric

### 3.3. Fashion-Emotions association

The satisfactory Style accepted, adopted, or approved by a group of wearers to become a trend of any category is recognised as "Fashion" (see Table 3).

Beaudoin *et al.* 2000 addressed the attributes highly considered by fashion leaders rather than followers (Beaudoin *et al.*, 2000). Stead L. *et al.* (2004) developed an electronic platform integrating technology and fashion, concerned with expressing and visualising emotional impressions in fashion apparel design (Stead *et al.*, 2004; Stead, 2005). Cho, H. and Lee, J. 2005 concluded that emotional descriptors describe fashion trends (Cho & Lee, 2005). Park E. *et al.* 2006 explored the impact of consumer fashion experience on impulse buying. Fashion involvement had a positive causal effect on positive emotion (Joo Park *et al.*, 2006). Tillotson J. 2009 examined a project concerned with developing a responsive fashion that can be modified with feeling and form a healing platform producing olfactory experiences (Tillotson, 2009). Miller K. 2013 studied the hedonic customers' perception of various types of fashion products, i.e., fast fashion, luxury, and knock-offs/replicas; several expressions represented hedonistic consumption (Miller, 2013). Dhurup, M. 2014 confirmed that retailers should consider consumers' positive emotional state to support and enhance impulsive buying by advocating indulgent experiences (Dhurup, 2014). Hyosun An & Inseong Lee 2015 investigated Asian women's needs for fashion design by upgrading the Functional, Expressive and Aesthetic emotion model FEA and categorising 25 pairs of adjectives demonstrating emotional impacts according to the areas of this model (An & Lee, 2015). Katherine Townsend *et al.* 2017 adopted the expression "emotional fit" to express the importance of balancing design specifications with the wearer's needs.

Moreover, it was confirmed that the developed approach would maintain a stable wearer-centred design that considers their body and cultural needs (Townsend *et al.*, 2016; Townsend *et al.*, 2017). An, H., & Park, M. 2018 analysed words and expressions used to describe fashion design products, focusing on the relationship between design elements and their emotional impacts (An & Park, 2018). A study conducted by Wang, W. 2018 investigated interactive clothing reflecting human emotion (Wang *et al.*, 2018). Giri *et al.* (2018) analysed consumer emotions towards fashion brands, namely Zara and Levis, employing feelings and words to express customers' sentiments on Twitter (Giri *et al.*, 2018). Rahman *et al.* (2019) conducted a comparative study between fashion innovators and non-innovators regarding the evaluative cues of apparel products (Rahman *et al.*, 2019). Kim, Y. and Sullivan, P. 2019 investigated engaging fashion brands' customers through emotional branding. Four significant strategies were proposed for better achieving emotional branding (Kim & Sullivan, 2019). Heinze L. 2020 highlighted the role of emotional labour in transferring the fashion design industry to sustainability (Heinze, 2020).

Table 3 Emotional terms, words, and expressions adopted in fashion design's previous research.

Study/Author and Year	Terms adopted
Beaudoin <i>et al.</i> 2000	colour, attractiveness, fashionableness, brand name, Appropriateness for the occasion, and choice of styles
Stead, L. <i>et al.</i> 2004	Acceptance, Fear, Surprise, Sadness, Disgust, Anger, Anticipation and Joy
Cho, H. and Lee, J. 2005	Exaggerated, Geometric, Charming, Elegant, Classic, Retrospective, Fresh, Ethnic, Futuristic, Mystic, Modern, Simple, Romantic, Fun, Technological, Minimal, Innocent, Splendid, Free, and Natural. Sweet, lovely, feminine, sensual and girlish were stated in another group. ('active', 'antique', 'classic', 'clean', 'conservative', 'cool', 'feminine', 'mannish', 'psychedelic'), besides the 10 descriptors showing the highest frequency quotient ('ethnic', 'free', 'futuristic', 'innocent', 'natural', 'modern', 'mystic', 'simple', 'splendid', 'technological')
Park, E. <i>et al.</i> 2006	excited and satisfied, latest Style, dressing smartly, fashion VS comfort, offering a new experience, new feature, just came out.
Tillotson, J. 2009	wearer's condition and well-being
Miller K. 2013	fantasy, dreams, aesthetics, Fun, excitement, love, desire, or beauty
Dhurup, M. 2014	being free and rewarded, amusing, delighting, enthusiastic and joy
Hyosun An & Inseong Lee 2015	'soft-hard', 'feminine-mannish', 'light-heavy', 'clean-dirty', 'natural-technical', 'warm-cool', 'delicate-rough', 'fluid-stiff', 'bright-dark', 'shiny-rusty', 'young-adult', 'funny-serious'. 'appropriate-inappropriate', 'multicultural-traditional', 'global-local', 'new-old', 'modern-classic'. 'fit-baggy', 'complex-simple', 'vivid-neutral', 'unique-ordinary', 'dynamic-static', 'brave-shy', 'edgy-safe'
Katherine Townsend <i>et al.</i> 2017	wearer needs, cultural needs

An, H., & Park, M. 2018	Coordination, Style, Basic, Customised, Fabulous, Pretty, Pointy, Trendy, Charming, Big, Simple, Classic, Popular, Luxurious, Cute, Concerned, Unique, Fresh, Perfect, Formal, Functional, Chic, Matching, Smart
Wang, W. 2018	arousal; excitement; joy; fun; composure; laziness; sadness; anger
Giri et al., 2018	Joy, sadness, anger, surprise, fear and disgust
Rahman <i>et al.</i> 2019	style, colour and fabric

**4. Discussion**

Emotional impacts adopted, explored, investigated, or surveyed in the previous research literature are analysed to examine the impressions and emotions linked to the investigated products, classify them, and study common and significant images, emotions or sentiments for the area/s of the current study investigation.

**4.1. Classification of Emotions related to Textiles, clothing, and Fashion.**

All sentimental values explored previously by researchers were investigated. Seven emotional groups were found in responding to the studied area, which was classified as Product, Consumer, and Soc. The Product category was sub-classified into Physical properties, Usability, Aesthetics, and styling. The consumer category encompasses impressions and emotions relevant to the self -including the purchaser's self-perception, beliefs, and values. However, the social emotions group are those related to others' recognition of the item being explored and its place of use. A category of emotions group general was used to highlight the emotions used in textiles, clothing, and fashion design versus other products.

One of the apparent outputs was that the emotions employed varied across areas of study and among each area of research study. In other words, the terms/emotions used in conducting research studies in one place, such as clothing, varied throughout the investigations. Besides, different areas employed various emotions.

**4.1.1. Emotions Related to Textiles.**

The textiles field focused on aesthetic values, emotional impact, self-expression, beliefs, and values. On the other hand, usability, Style, and social aspects were discussed only limitedly (See Table 4). Researchers have limited concerns due to limited research studies in textiles.

Table 4 Product, Consumer and Society linked emotions for Textiles products and design.

Product				Consumer		Society					
Physical properties		Usability		AESTHETICS		STYLING		SELF/ME		SOCIAL	
Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion
					plain				SELF/ME		
					Unique				Express myself		
					dark				Feel alright		
					light				Feel bad		
									Made for me		
									makes me feel beautiful		
									Beliefs and values		
									decent feel		
									Express my ideology		

**4.1.2. Emotions Related to Clothing**

Table 5 shows that the range of emotions researchers consider is significantly more comprehensive than that of the textiles area. Moreover, some categories were not explored in the textiles but are investigated here. The terms "New" and "Unique" are employed. Apparel style is adopted and associated with words such as GOOD, Classic, NEW and UNIQUE. The term "APPROPRIATE" and looks good was used in association with several words. The SELF-impression, i.e., a person's perception of self, was a concern of the researchers in these studies. Furthermore, the clothing's significance, relationship with others, and place of usage were highlighted in the clothing studies. Notably, the textile studies should have investigated this emotion in the " Social " category. Seeing more feelings adopted in clothing studies than in textiles is interesting. This would be because of the wide range of usability, usefulness, and expressiveness that consumers should consider due to the significance of clothing and apparel's use.

Researchers have investigated a considerable range of emotions in the clothing products design field compared to the textiles area.

Table 5 Product, Consumer and Society linked emotions for Clothing products and design.

Product								Consumer		Society	
Physical properties		Usability		AESTHETICS		STYLING		SELF/ME		SOCIAL	
Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Emotion	Aspect	Emotion	Aspect
Fabric	New		capability	Design	attractive	Style	Good	Create	image	Appropriate	to social occasions
Fabric	feels good on the skin		dressed up_down when required	Design	new	Style	classic	Appropriate	for age	Appropriate	for special occasion
			Useful	colour	interesting	Style	of shape	Appropriate_Looks good	to_on me	Appropriate	for work
		Feature	New	colour	new	Style	New_just came out	Appropriate_Colours	tot my personality_interacts well	Appropriate	for casual
			Versatile			Style	Unique	Appropriate_Relevant	to my lifestyle	looks good_social	to other people_has received compliments from others_recognition/respect
		Fits	well			Style	would be worn	Looks good on my body_type	Style	codified grief	socially
								Appropriate	religious feeling		Status
								Appropriate	Values		
								compatible_Coordinates	with items in wardrobe		
								covers up	my figure problems		
								dignity			
								feel good about	self-esteem_gives confidence		
								provides an opportunity to	reflect my own creativity		
								dominance	self-perception		
								emotional stability	self-perception		
								of sociability	self-perception		

4.1.3. Emotions Related to Fashion

Fashion studies were the highest in considering emotions of products made in this area, with around 50% of the total emotions found in the three areas (See Table 6). Clothing and fashion areas were found to discuss product, consumer, and societal association aspects. However, there is a broader range of style associations and emotions in the fashion field. New subcategories were developed, namely: "New", "Gender", and "age" in the styling class, and the Culture group was created in the social group.

Table 6 Product, Consumer and Society linked emotions for Fashion products and design.

Product						Consumer		Society			
Physical properties		Usability		AESTHETICS		STYLING		SELF/ME		SOCIAL	
Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Emotion	Aspect	Emotion	Aspect
	comfort		edgy-safe		bright-dark	Style	antique	being free		appropriateness for the occasion	
	Functional		Matching		delicate-rough		choice of styles	being rewarded			CULTURE
	Technological				Futuristic		classic	brave-shy			global-local
	soft-hard				Geometric		fashionableness	Innocent			Popular
	sensual				Minimal		modern-classic	support the wearer's well-being			
					natural-technical		multicultural-traditional	support the wearer's condition			
					Pointy		Trendy	Belives & Values			
					shiny-rusty		Basic	Mystic			
					vivid-neutral		Formal	conservative			
					warm-cool		Ethnic				
					Coordination		fit-baggy				
					fluid-stiff		Big				
							Retrospective				
						NEW					
							just came out				
							new feature				
							new-old				
							offering new experience				
							unique-ordinary				
						GENDER					
							girlish				
							feminine				
							mannish				
						AGE					
							young				
							adult				

4.1.4. Products Emotion VS Textiles, Clothing, and Fashion

In this section, the general emotions stated in the book "Design for Emotion"(Van Gorp & Adams, 2012) as the Emotions adapted from several studies, namely Russell,1980; Desmet, 2002 and Van Gorp, 2006 (according to (Van Gorp & Adams, 2012)) were used to review and analyse the emotions mentioned in the areas of this current study topic. Therefore, from sections 4.1 to 4.3, all emotions found significant for the present study were analysed; on the other hand, this section analyses the general emotions associated with Textiles, Clothing and

Fashion. Fig. 1 shows the available emotions highlighted in this section. The diagram is based on low and high Un/Pleasant feelings and stimulation. In addition, intermediate feelings between both aspects were presented. At the bottom of the diagram, emotions relevant to products were given, and the ones adopted in current study areas were highlighted. On the upper part of the diagram, general emotions were investigated in textiles, and clothing and fashion design studies were listed.

In the light of comparing emotions mentioned in the "Design for Emotion"(Van Gorp & Adams, 2012) as the Emotions Relevant to Products with current study areas' emotions, it was found that the first of 53% of the total emotions found while the latter is for 47%. This means that a wide range of emotions was significant and not considered in the primary sources of product emotion referenced in this study.

Moreover, after analysing the product emotions cited in Fig. 1, it was found that common emotions between current study areas' studies and product emotions are around 28%. In other words, T, C and F researchers also discussed twenty-eight per cent of the mentioned emotions associated with products.

These findings address a signed note indicating the significant emotions being considered by researchers and consumers of T, C and F designs, making these designs/products meaningful regarding emotional associations. This output made developing a dynamic model an essential part of the design process and could be a practical guide for researchers and designers in these fields.

Emotions reviewed from previous RESEARCH		gaudy						
		would be bought						
		would be worn						
		tenderness						
		unique						
		creative						
		Liked						
		light						
		clean						
		cool						
		Luxurious						
		Customized						
		serious						
	stimulated	appropriate						
	Adventurous	simple						
Fun	Perfect							
Fashionable	Sweet				Cold			
Fabulous	smart				bland			
delight	Pretty				weak		hard	
Charming	Chic	strong			Sad		dismal	
active	Cute	stable			heavy		hideous	
Fresh	Elegant	OK			Dirty		unstable	
funny	beauty	natural			inappropriate		unnatural	
dynamic	Splendid	fantasy			complex	Unhappy	Scaring	
	Romantic	dreamy			concerned	Exaggerated	Worried	
		Romantic	Soft		static	angry	Horrible	
			warm		lazy			
					psychedelic			
Emotions adapted from (Russell,1980) (Desmet, 2002) (van Gorp, 2006).	High stimulation	High stimulation_Pleasant	Pleasant	Pleasant_Low Stimulation	Low Stimulation	Low Stimulation_Unpleasant	Unpleasant	Unpleasant_High Stimulation
	Aroused	Loving	Happy	Satisfied	Composed	SAD	Contemptuous	Hostile
	Surprised	Excited	Cheerful	Relaxed	Awaiting	Melancholy	Flabbergasted	Disgusted
	Astonished	Desiring	Proud	Cosy	Deferent	Isolated	Disturbed	Fearful
	Amazed	Enthusiastic	Pleasantly	Softened	Passive	Guilty	Jealous	Despise
	Avaricious	Jubilant	Joyful	Fulfilled		Gloomy	Ashamed	Indignant
	Longing	Inspired	Amused	Intimate		Disillusioned	Grouchy	Greedy
	Concentrated		Attracted to	Comfortable		Cheerless	Aversive	Frightened
	Eager		Yearning			Bored	Irked	Alarmed
	Curious		Fascinated				Moody	Irritated
			Admiring				Cynical	Annoyed
			Entertained				Embarrassed	Frustrated
			Appreciate				Disapproving	Bewildered
			Sociable				Confused	Nervous
							Dissatisfied	
						Disappointed		
		Fashion & Clothing					Clothing & Textiles	
		Fashion & Clothing & Textile					Textiles & Fashion	
		TEXTILES					Fashion	
		Clothing					Clothing	
		Fashion					Textiles	
		Desmet (2002)						

Fig. 1 Lists of emotions related to (Products) VS Textiles, Clothing and Fashion Products.

Common emotions between products emotions and T, C and F areas were found as follows: Aroused Loving Happy Satisfied Composed SAD Surprised Excited Cheerful Relaxed Desiring Proud Hostile Enthusiastic Pleasantly Disgusted Joyful Amused Attracted to Fearful. Although Loving and Excited were used in the three areas, Satisfaction was found to be used in both the Clothing and Fashion fields. The fashion area had the highest level of common emotions with the Products' emotions field. Significant emotions would be associated with T, C or F products rather than other design products due to their considerable nature and value.

**4.2. Emotions expressed by consumers**

The emotional expressions associated with textiles, clothing, and fashion products are obtained from an online shop that employs the processes discussed in section 2.2. The expressions found are listed in Table 7.

In comparing emotions used intuitively by consumers in their reviews, it was found that the ranges of words and phrases used are limited to those adopted in research studies. Moreover, some words were used by consumers significantly, which were not found in the research studies (highlighted in yellow in Table 7). In Product-related emotions, emotion accuracy is used in the physical properties of emotional impact; Super, wonderful and adjustable impressions are used in the Usability category, and Stunning, amazing and awesome are adopted in the aesthetics category. In the product styling category, an updated impression is used. Vibrant and affordable impressions are found in the consumer category. Researchers should study expressions consumers use to set realistic questions reflecting realistic impressions.

Table 7 Product, Consumer and Society linked emotions for textiles, clothing, fashion products, and design responses by consumers.

Product								Consumer		Society	
Physical properties		Usability		AESTHETICS		STYLING		SELF/ME		SOCIAL	
Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Aspect	Emotion	Emotion	Aspect	Emotion	Aspect
	accurate		super		stunning		stylish	vibrant			
			comfortable/comfy		amazing			affordable			CULTURE
			good		beautiful						
			wonderful		attractive						
			adjustable		warm						
					bright						
					awesome			Belives & Values			
							NEW	update			
							GENDER				
							AGE				

**4.3. Emotional Framework for Textiles, clothing, and fashion design**

A model is developed to determine the aspects of textiles, clothing, or fashion design that could affect and guide designers in the design process and request solutions for the design process. (see Fig. 2). In this framework, emotions are controlled and affected by product, consumer, and social aspects. Consumer aspects involve features and qualities of self-esteem, self-image, beliefs, and values. The social element is affected by culture, place of use and others' recognition. Moreover, product features, including physical features, aesthetic attributes, usability, and styling, should be considered when affecting human emotions.

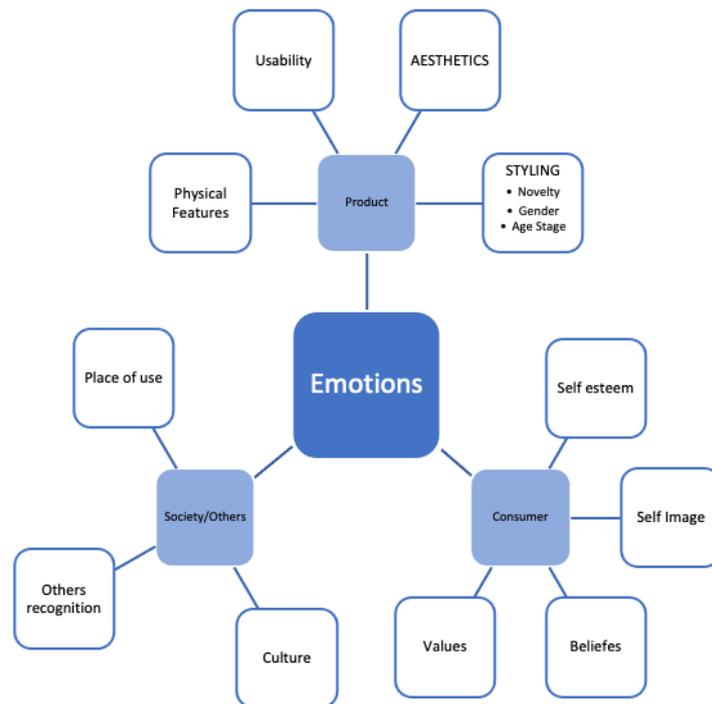


Fig. 2 A diagram of the developed model representing the aspects contributing to the emotional association between textiles, clothing, and fashion products.

## 5. Conclusion

This study found that textile, clothing, and fashion design products possess significant emotional impacts, which are believed to inspire designers to fulfil consumers' preferences, needs, demands, motivations, and aspirations. Three aspects were found to dominate the emotional impact expected by the consumer and consequently targeted by the designer, namely, the Product, Consumer and Society facets. When ranges of emotions were referenced and adapted from significant resources/research studies concerned with product emotion, there were standard, significant emotions among Textiles, clothing, and fashion studies. This output confirms the significance of these areas of personality and existence in the art and design area. However, developing a circumflex represents an ideal comprehensive range of emotions relevant to Pleasantness and stimulation. However, textiles, clothing, fashion products, and industries are interrelated, and these fields should consider a standard wide comprehensive range of emotions in their design processes. It was concluded that independent Style and classes of emotions were evaluated by researchers in each field and among areas of design, namely textiles, clothing, and fashion. It is recommended that the comprehensive lists and framework developed in this study by designers and researchers be employed to focus on the expected emotions of consumers.

## 6. Limitations and Future Studies

This research study is based on analysing various research studies and resources investigating the emotional associations of textiles, clothing, and fashion products. Although ranges of emotions were obtained from these studies, surveying consumers' dynamic values towards these categories of products and comparing these emotions with the circumflex model represented (Van Gorp & Adams, 2012) is suggested for future studies.

## References

- Abraham-Murali, L., & Littrell, M. A. (1995a). Consumers' conceptualization of apparel attributes. *Clothing and Textiles Research Journal*, 13(2), 65-74.
- Abraham-Murali, L., & Littrell, M. A. (1995b). Consumers' perceptions of apparel quality over time: An exploratory study. *Clothing and Textiles Research Journal*, 13(3), 149-158.
- An, H., & Lee, I. (2015). A conceptual framework for Asian women's emotional needs in fashion design. *International Journal of Fashion Design, Technology and Education*, 8(3), 206-213.
- An, H., & Park, M. (2018). A study on the evaluation of fashion design based on big data text analysis-Focus on semantic network analysis of design elements and emotional terms. *Journal of the Korean Society of Clothing and Textiles*, 42(3), 428-437.
- Beaudoin, P., Moore, M. A., & Goldsmith, R. E. (2000). Fashion leaders' and followers' attitudes toward buying domestic and imported apparel. *Clothing and Textiles Research Journal*, 18(1), 56-64.
- Brun, A., Castelli, C. M., Keith, S., & Silies, M. (2015). New life luxury: upcycled Scottish heritage textiles. *International Journal of Retail & Distribution Management*.
- Cho, H. S., & Lee, J. (2005). Development of a macroscopic model on recent fashion trends on the basis of consumer emotion. *International Journal of Consumer Studies*, 29(1), 17-33.
- Davidson, H. (2016). Grave Emotions: Textiles and clothing from nineteenth-century London cemeteries. *Textile*, 14(2), 226-243.
- Davis, F. (2015). The textility of emotion: A study relating computational textile textural expression to emotion. Proceedings of the 2015 ACM SIGCHI Conference on Creativity and Cognition,
- Davis, L. L. (1985). Effects of physical quality and brand labeling on perceptions of clothing quality. *Perceptual and Motor Skills*, 61(2), 671-677.
- Dhurup, M. (2014). Impulsive fashion apparel consumption: the role of hedonism, fashion involvement and emotional gratification in fashion apparel impulsive buying behaviour in a developing country. *Mediterranean Journal of Social Sciences*, 5(8), 168.
- Dolan, A., & Holloway, S. (2016). Emotional Textiles: An Introduction. *TEXTILE*, 14(2), 152-159. <https://doi.org/10.1080/14759756.2016.1139369>
- Eckman, M., Damhorst, M. L., & Kadolph, S. J. (1990). Toward a model of the in-store purchase decision process: Consumer use of criteria for evaluating women's apparel. *Clothing and Textiles Research Journal*, 8(2), 13-22.
- Fiore, A. M., & Damhorst, M. L. (1992). Intrinsic cues as predictors of perceived quality of apparel. *The Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 5, 168-178.
- Forsythe, S., Presley, A. B., & Caton, K. W. (1996). Dimensions of apparel quality influencing consumers' perceptions. *Perceptual and Motor Skills*, 83(1), 299-305.
- Forsythe, S. M. (1991). Effect of private, designer, and national brand names on shoppers' perception of apparel quality and price. *Clothing and Textiles Research Journal*, 9(2), 1-6.
- Ghalachyan, A. (2018). *Evaluation of consumer perceptions and acceptance of sustainable fashion products made of bacterial cellulose* [Iowa State University].
- Giri, C., Harale, N., Thomassey, S., & Zeng, X. (2018). Analysis of consumer emotions about fashion brands: An exploratory study. Data Science and Knowledge Engineering for Sensing Decision Support: Proceedings of the 13th International FLINS Conference (FLINS 2018),
- Heinze, L. (2020). Fashion with heart: Sustainable fashion entrepreneurs, emotional labour and implications for a sustainable fashion system. *Sustainable development*, 28(6), 1554-1563.
- Hines, J. D., & O'Neal, G. S. (1995). Underlying determinants of clothing quality: The consumers' perspective. *Clothing and Textiles Research Journal*, 13(4), 227-233.
- Jiang, M. (2021). Movement-Based Interactive Textiles Design for Emotion Regulation. *The Design Journal*, 24(3), 477-488.
- Joo Park, E., Young Kim, E., & Cardona Forney, J. (2006). A structural model of fashion-oriented impulse buying behavior. *Journal of Fashion Marketing and Management: An International Journal*, 10(4), 433-446.
- Kim, D., Hyun, H., & Park, J. (2020). The effect of interior color on customers' aesthetic perception, emotion, and behavior in the luxury service. *Journal of Retailing and Consumer Services*, 57, 102252.
- Kim, E. Y., Kim, S.-j., Koo, H.-j., Jeong, K., & Kim, J.-i. (2005). Emotion-based textile indexing using colors and texture. Fuzzy Systems and Knowledge Discovery: Second International Conference, FSKD 2005, Changsha, China, August 27-29, 2005, Proceedings, Part I 2,
- Kim, Y.-K., & Sullivan, P. (2019). Emotional branding speaks to consumers' heart: the case of fashion brands. *Fashion and Textiles*, 6(1), 1-16.

- Lamb, J. M., & Kallal, M. J. (1992). A Conceptual Framework for Apparel Design. *Clothing and Textiles Research Journal*, 10(2), 42-47. <https://doi.org/10.1177/0887302x9201000207>
- Lerpiniere, C. (2013). One Wedding, Two Cultures, Four Outfits: The Phenomenological Exploration of Fashion and Textiles. *Journal of Textile Design Research and Practice*, 1(1), 27-41. <https://doi.org/10.2752/175183513X13772670831074>
- Miller, K. (2013). Hedonic customer responses to fast fashion and replicas. *Journal of Fashion Marketing and Management: An International Journal*, 17(2), 160-174.
- Moody, W., Kinderman, P., & Sinha, P. (2010). An exploratory study: Relationships between trying on clothing, mood, emotion, personality and clothing preference. *Journal of Fashion Marketing and Management: An International Journal*.
- Nam, J., & Saiki, D. (2011). Identification and Comparison of Fabric Properties in the Age of Digital Communication. *Journal of Family & Consumer Sciences Education*, 29(1).
- Niinimäki, K., & Koskinen, I. (2011). I love this dress, it makes me feel beautiful! Empathic knowledge in sustainable design. *The Design Journal*, 14(2), 165-186.
- Park, E.-J., & Kim, E.-Y. (2008). Effects of consumer tendencies and positive emotion on impulse buying behavior for apparel. *Journal of the Korean society of clothing and textiles*, 32(6), 980-990.
- Rahman, O., Chen, Z., Fung, B. C., & Kharb, D. (2019). A cross-national study of young female consumer behaviour, innovativeness and apparel evaluation: China and India. *The Journal of The Textile Institute*.
- Rahman, O., Fung, B. C., Chen, Z., Chang, W.-L., & Gao, X. (2018). A study of apparel consumer behaviour in China and Taiwan. *International Journal of Fashion Design, Technology and Education*, 11(1), 22-33.
- Stead, L., Goulev, P., Evans, C., & Mamdani, E. (2004). The emotional wardrobe. *Personal and Ubiquitous Computing*, 8, 282-290.
- Stead, L. J. (2005). *'The emotional wardrobe': a fashion perspective on the integration of technology and clothing* [University of the Arts London].
- Tillotson, J. (2009). Scentsory Design: A "Holistic" Approach to Fashion as a Vehicle to Deliver Emotional Well-being. *Fashion Practice*, 1(1), 33-61.
- Townsend, K., Sadkowska, A., & Sissons, J. (2016). Emotional Fit: Developing a new fashion design methodology for mature women.
- Townsend, K., Sissons, J., & Sadkowska, A. (2017). Emotional Fit: Developing a new fashion methodology with older women. *Clothing Cultures*, 4(3), 235-251.
- Van Gorp, T., & Adams, E. (2012). *Design for emotion*. Elsevier.
- Wang, W., Nagai, Y., Fang, Y., & Maekawa, M. (2018). Interactive technology embedded in fashion emotional design: Case study on interactive clothing for couples. *International Journal of Clothing Science and Technology*.