

Identifying and Ranking the Problems and Preferences of Wedding Dress Customers

Abstract

The current study aimed to identify and rank the problems and preferences of wedding dress customers. It is applied in terms of the objective and qualitative survey in nature and method. The statistical population of the study included the customers and experts in the field of the wedding dress industry. Since the statistical population is infinite, the sample size was 100 persons for each group (customers and experts). A total of 200 persons were studied, among which 100 answered a part of the questionnaire, and the remaining 100 answered the other part. The validity of the questionnaire was confirmed by factor analysis in terms of the face, content, and structural validity. The reliability of the questionnaire was also tested by Cronbach's alpha which was 0.799 for the existing wedding dress variable and 0.725 for the customers' preferences for the preparation of the wedding dress. The results indicated that in terms of ranking the problems of existing wedding dresses from customers' perspective, the sitting and standing difficulties, heavyweight, lack of ventilation, movement limitation, and inactivity were the most important ones by order of priority. Then, the customers' preferences for improvement of the efficiency of wedding dress were investigated, and it was revealed that the priority of customers is to solve the problem of the size of the wedding dress, with the ability to assemble the wedding dress being in the next rank, followed by higher mobility, ventilation, and weight. Height is the last priority.

Keywords: *Wedding dress problems, customers preferences, mobility, wedding dress.*

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Introduction

Any clothes have several functions, such as protection, beauty, and cover-up (Perry et al., 2017). Therefore, perhaps making functional clothing independent is a bit unfamiliar with the other clothing. Be it in a metaphoric language such as the 'second skin' and 'prosthesis' or a functional language such as the protective clothing, Workwear, and job clothes; it should be said that the functional clothing is specifically clothing or wearables that increase or enhance our abilities in the face of a variety of harsh environmental, work, and personal conditions. Here, the function can be a value-added or a level of expected technical function based on a definition of the problem description that includes the protection of workers against heat-related conditions to monitoring vital signs of soldiers and premature infants (Nemati, 2015).

Design problems often refer to the human (or ergonomic) aspects of a design problem. They can cover many human factors as defined by the problem description and purpose application (Watkins and Dunne, 2015). Therefore, the design problems which may emerge in functional clothing designs include the size and percentile, comfort and mobility, weight and volume, wearing speed (related to the design of cloth shape), aesthetics, fashion, and body image (mental self-image), and its effects on the interaction with the clothing.

Unlike modern-day fashionable clothing, which is a function of the designer's creativity, functional clothing is initiated and ended with research about the user's needs (Watkins & Dunne, 2015). User needs can be divided into four general categories:

physiological, biomechanical, ergonomic, and psychological needs. The correlation between the characteristics of clothing and these needs can be influential on the design of effective and efficient clothing. Therefore, the objective of research can be proportionally combining and merging all these factors into the design system (Gupta, 2001). New products always bring about new challenges, which may delay their practical development or cause problems in case of failure to respond properly. They may remain at the research level. Dunne, a prominent researcher in functional clothing, believes that in the countries with a history in this field, the design obstacles and challenges are the most important reasons for this failure in practical development (Dune, 2010).

The functional clothing design process is a real example of interdisciplinary cooperation with all its specific challenges and difficulties. Lack of common scientific literature, development cycles, and different design culture are the issues that pose at the beginning of such activities. In addition, new functions and development of the hidden technology in the clothing are added to functional clothing, and new issues emerge that necessitate a user-centered process and co-design (Suh et al., 2010). Based on what was mentioned, the current study aimed to identify and rank the problems and preferences of wedding dress customers.

Theoretical Framework:

Problems of Functional Clothing Design:

The functional clothing should provide the basic capabilities of clothing and the technical functions simultaneously and

consider human aspects for the effective interaction between the users and the environment. These human aspects are ease of use, comfort and convenience, aesthetics and fashion, socio-cultural factors, and interaction.

1- **Ease of Use:**

Although some functional clothing (body modification) is created based on the pressure, tension, and shaping of the body, a group of functional clothing (health monitoring) should be worn under other clothes that generate extra heat. Some other functional clothing (protective) is fully covered, or only the eyes are uncovered. Sometimes, these clothing has several layers, especially the astronauts' clothes that consist of about 18000 parts and up to 11 layers or have metal-ceramic joints. Some other types of functional clothing (sports) are equipped with shock-absorbing pads on different areas of the body or some bulky electronic devices. It is necessary to merge the electronic and technical functions of the clothes (Interfaces, communications, energy management, data management, and integrated circuits) into the textiles to preserve both the technical and textile capabilities of the clothing. In practice, the needs of the device often outweigh the needs of the user, resulting in a physical structure that is optimized for durability rather than convenience. To communicate with a piece of functional clothing, it should not require the constant and full attention of the user (at all times and hours), but it must always be ready to work. Functional clothes should not have to be on all the time, and the user has to wear the same shirt for a week, but they should be able to have a full closet of them (Seymour, 2008). However, the most obvious challenge in encountering this problem is the mobility, i.e., the user should not only be able to move, but they should be able to actively support the movement, and the clothes should adapt to our moves when we are doing our daily activities (Dvorak, 2008).

2- **Comfort and Convenience:**

The convenience of the wearables means getting rid of the discomfort and pain and having a desirable state between the three factors of the body, the physical shape of the worn device (the ergonomics of the surrounding object), and the external environment created by the surrounding object or device. In other references, the term 'wearability' has been used instead of the comfort factor, which is introduced as one of the important subjects of the wearable computers field. It emphasizes more the important variables for the convenience of that wearable gadget than the possibility of placing an object in the body's surrounding environment. The intersection of the physical perception and psychological manifestations of the wearables will coincide with the factors that allow the worn object to be perceived as part of the body (Dvorak, 2008). The functional clothes' comfort requirements are much more important than a mobile set's convenience, and it is likely to be marginalized in the development process. The type of parts

placement, the method of merging with the textile, and closeness to the skin and surface fabric all affect the smart clothing comfort and have to be computed during the development (Dunne, 2010). The wiring, pads, and cases should not be visible or feel unnatural. The technological components of these clothes impose extra weight and pressure even though being tiny and thin, and they may cause inconvenience. For convenience, the electronics-technical part should be as much as possible in the center of gravity of the body, and the total weight should not disturb the user's movement and balance (Dunne and Smyth, 2005).

Regarding the different dimensions of comfort in the functional clothes (the Chu, 2010), reviewing and analyzing different references, four dimensions of comfort as the thermo-physiological comfort, sensory or neurophysiological comfort, socio-psychological comfort, and body-movement comfort can be extracted. Based on the requirements of each field, paying attention to a type of this comfort is more important. For example, the clothes designed for the disabled and sick people should not imply their weakness since they are extremely sensitive to their appearance and clothes. The clothes should promote their mental self-image.

The thermo-physiological comfort is related to the time the body is interacting with the cloth and its feeling. It affects the ability to exchange moisture-heat and air circulation and is described by roughness, softness, coldness, warmth, itching, and the like.

The sensory or neurophysiological comfort is related to when the cloth is in contact with the skin. How do the users feel it? It includes the sensory criteria (related to the appearance and rest), attachment (the comfort related to the safe physical effect of the device on the body), damage (the physical feeling of pain transfer), perceived change (indirect and safe physical effect created by different senses for the person wearing the clothes to perceive their consistency), movement (awareness or improvement of the posture or movement due to the restriction created by the device for indication of the emotions), and anxiety (the concerns related to the safety of the device and whether it is worn or used properly).

The psychological comfort-smoothness is associated with the social character and position of the individual, the apparent dimensions of the clothing, and its design, color, and proportionality with the situation it is used. The body-movement comfort is associated with the cloth's ability to allow for free movement, weight reduction, and support for the body. The human movement includes the proxemics (human perception of the space), size diversity, attachment, handling and restriction, weight, optimal accessibility, sensory interaction, temperature, aesthetics, and long-term use. Among the instructions, the proxemics opens a new horizon toward smart clothing design. This concept refers to the perception of

the layers of perception around the body. It states that the brain notices an aura around the body, and the distance between the object and the user in which the object is in the intimate space of the wearer and, over time, it felt like a body part, is 0 to 5 inches. In terms of the aesthetics and fashion of the functional clothing, although even the choice of color has become subject to some regulations and considerations such as protection and camouflage since it is considered a fashion item, the aesthetics should be mixed with other human aspects to create a balance between the functional and aesthetic considerations. Technology and fashion may not be as far as they initially seem. The electronics and fashion should be mixed so that the cloth still feels natural. Technology must be simple and intangible so that the product can be stylish and attractive as part of clothing accessories (Dvorak, 2008). The importance of human reaction to the positive visual and aesthetic stimuli should be considered an important factor in terms of professional and personal clothing, protective textile, and garment. Although the visual-aesthetic perception is highly related to and dependent on the background, social norms, and previous experiences of the user (Dunne et al., 2014), there is evidence that observance of the fashion affects the way the protective clothes are perceived (Seymour, 2008). The physical appearance and fashionableness of a topic advance with the culture and background. In addition, the perception of technology use as a normative behavior might be different in all cultures (Dunne et al., 2014). Visually, many functional clothes seek to employ a technological aesthetic: Polished lines, simple colors, and shapes, shapes for the future. However, the fashion change trend is faster than the product change or technological aesthetics, and the current trend is more focused on nostalgic references than on science-fiction futurism.

Another point is to consider fashion and trends. Fashion unites and mixes those technological elements that change the functional clothes into an interactional relationship. Yet, other researchers have suggested shape simplification to increase the functional clothes life-span (Nemati, 2015).

The sociocultural factors are the first point in the technology acceptance level. The wearable technologies acceptance is significantly affected by technological and human factors. The research indicates that six human factors of the basic needs, cognitive activities, physical aspects, socio-cultural aspects, demographic features, and the technical experience play a key role in technology acceptance. Knowing this will help designers and developers to evaluate the acceptability and usability of functional clothing (Buenaflor Ch. and Kim, 2013). Although functional clothing has brought many achievements, it has created challenges and concerns, too. The cultural conditions of the field, while affecting the market entry timing and the reception of users of their development programs, have

new consequences. Paying attention to ethical principles is among the cases related to cultural differences, implied in many references (Hurford R. and McCann J, 2007). In cases in which the smart clothes play the role of receiving, storing, and displaying the user's personal information, such as health monitoring systems simultaneous with the follow-up of the activities and location, as well as the access to the perianal information and individual records of the users, the information safety and security should not be ignored (Langenhove, 2007).

3- Interaction and User Experience:

In designing functional clothing, it can reduce the probability of future adverse effects and non-perception and acceptance by the user. To further elaborate, it should be said that functional clothing is considered a dynamic interface between us and the environment and an interactive indicator. Naturally, functional clothing, equipped with communicative elements, can even be a sender-receiver of emotions, experiences, and meanings. This communicative element should send correct messages to the user through a correct and pleasant interactive way to perceive the product (clothing). The way of interacting with the clothing through the shape, color, access, and the type of technical facilities and wearability. Although the perception largely depends on the cultural expectations and human interaction regulations, it should be considered through the appearance design (aesthetics) of the functional clothing.

4- Materials and Manufacturing Technology:

One of the most important challenges in the initial stages is the development, precision, and reliability of the sensors merged into the cloth. Most body-sensing technologies are developed for clinical or laboratory use in controlled environments that lead to the control of noise-producing variables as much as possible. In contrast, in the routine wearable environment, this factor (noise production) is highly influential in physical and social comfort (Dunne, 2010). On the other hand, the variables usually obtained for the noise sensor, the mechanical coupling of the sensor with the body and its contact with the skin would find lower permeation if the smart cloth is in the tight-skin form. This state would be physically and socially unpleasant for many people. Accordingly, the conflict between the sensor's signal quality and human comfort would be a key restriction for many functional clothing types, especially in monitoring vital signs. Indeed, paying attention to electromagnetic compatibility in terms of circuit design can be helpful to some extent (Hurford and McCann, 2007).

Method:

The current study is applied in terms of the objective and descriptive survey in terms of the nature and method. Since the statistical population is infinite, the sample size was 100 persons for each group (customers and experts). A total of 200

persons were studied, among which 100 answered a part of the questionnaire, and the remaining 100 answered the other part. The questionnaire of the current study was prepared using a questionnaire obtained from interviews with several professors and experts regarding the composition and general outline of the questionnaire, the use of Latin articles in this field, and the Likert scale to evaluate customer and expert opinions.

The validity of the questionnaire was confirmed by factor analysis in terms of the face, content, and structural validity. The reliability of the questionnaire was also tested by Cronbach's alpha which was 0.799 for the existing wedding dress variable and 0.725 for the customers' preferences for the preparation of the wedding dress.

Findings:

In the current study, some questions are first asked to evaluate the customers' problems in terms of the existing wedding dresses. The results indicate that 10% of the customers have considered the heavy weight of the existing wedding dresses to be a fundamental problem, 23% considered it to be a relative problem, 41% have considered it to be a negligible problem, 20% have considered it to be no problem, and 6% have considered it to be ineffective. Also, 7% of the customers have considered the lack of clothing ventilation of the existing

wedding dresses to be a fundamental problem, 25% considered it to be a relative problem, 37% have considered it to be a negligible problem, 24% have considered it to be no problem, and 7% have considered it to be ineffective. In terms of the immobility of existing wedding dresses, 1% of the customers have considered it to be a fundamental problem, 21% considered it to be a relative problem, 44% have considered it to be a negligible problem, 23% have considered it to be no problem, and 11% have considered it to be ineffective. Wearing the existing wedding dresses disrupts the individual and daily activities, and 4% of the customers have considered it to be a fundamental problem, 21% considered it to be a relative problem, 47% have considered it to be a negligible problem, 21% have considered it to be no problem, and 7% have considered it to be ineffective. In terms of sitting and standing difficulties, 7% of the customers have considered it to be a fundamental problem, 28% considered it to be a relative problem, 39% have considered it to be a negligible problem, 19% have considered it to be no problem, and 7% have considered it to be ineffective. The detailed results are presented in Table (4-1).

Table 1: Frequency and ranking of the existing problems in the wedding dresses from the customers' perspective

| Item | Heavyweight | Lack of ventilation | Immobility | Disruption of activities | Sitting/standing difficulties |
|----------------------------|-------------|---------------------|------------|--------------------------|-------------------------------|
| Fundamental problem | 10 | 7 | 1 | 4 | 7 |
| Relative problem | 23 | 25 | 21 | 21 | 28 |
| Negligible problem | 41 | 37 | 44 | 47 | 39 |
| No problem | 20 | 24 | 23 | 21 | 19 |
| Ineffective | 6 | 7 | 11 | 7 | 7 |
| Problem score | 33 | 32 | 22 | 25 | 35 |

Regarding the obtained problems and frequency of the items, the "fundamental problem" and "relative problem" mentioned by the customers were ranked. The results indicated that sitting/standing difficulties (35%), heavy weight (33%), lack of ventilation (32%), disruption of the activities (25%), and immobility (22%) were the most frequent problems as mentioned by the customers, by the order of priority.

In terms of preferences for solving the problems, the results indicate that 2% of the participants considered solving the problem of wedding dress volume to be very important, 23% considered it to be important, 38% considered it to be neither important/nor unimportant, 24% considered it to be unimportant, and 3% considered it to be ineffective. In terms of solving the problem of height, 1% of the participants

considered it to be very important, 4% considered it to be important, 45% considered it to be neither important/nor unimportant, 27% considered it to be unimportant, and 23% considered it to be ineffective. Also, In terms of solving the problem of ventilation, 4% of the participants considered it to be very important, 19% considered it to be important, 49% considered it to be neither important/nor unimportant, 23% considered it to be unimportant, and 5% considered it to be ineffective. The next problem was the weight, 2% of the participants considered it to be very important, 6% considered it to be important, 36% considered it to be neither important/nor unimportant, 28% considered it to be unimportant, and 28% considered it to be ineffective. In terms of solving the problem of immobility, 4% of the participants considered it to be very important, 23% considered it to be

important, 36% considered it to be neither important/nor unimportant, 31% considered it to be unimportant, and 6% considered it to be ineffective. And finally, in terms of solving the problem of the ability to assemble the wedding dress, 5% of the participants considered it to be very important, 24%

considered it to be important, 40% considered it to be neither important/nor unimportant, 21% considered it to be unimportant, and 10% considered it to be ineffective. These results are separately presented in Table (2).

Table 2: Frequency and ranking of the existing problems in the wedding dresses from the customers' perspective

| Item | Volume | Height | Ventilation | Weight | Mobility | Assembly |
|--|--------|--------|-------------|--------|----------|----------|
| Very important | 2 | 1 | 4 | 2 | 4 | 5 |
| Important | 33 | 4 | 19 | 6 | 23 | 24 |
| Neither important nor unimportant | 38 | 45 | 49 | 36 | 36 | 40 |
| Unimportant | 24 | 27 | 23 | 28 | 31 | 21 |
| Ineffective | 3 | 23 | 5 | 28 | 6 | 10 |
| Preference rate | 35 | 5 | 23 | 8 | 37 | 29 |

Regarding the data gathered in this section, the preferences of the customers have been ranked. The results indicated that the first preference of customers in solving the problem of wedding dress volume (35%), followed by the ability to assemble the wedding dress (29%), higher mobility (27%), ventilation (23%), and weight (8%). The height ranked last with a 5% frequency.

According to the results, mobility ranked first with a 35% complaint rate, and ventilation ranked last with a 6% complaint rate. The personal activities restriction with 29%, dress volume with 23%, and weight with 7% ranked among these two items. The relevant results are presented in Table (3).

Table 3: Problems' rank based on the frequency of complaints

| Item | Complaint percentage |
|---------------------------------|----------------------|
| Weight | 7 |
| Volume | 23 |
| Mobility | 35 |
| Personal activities restriction | 29 |
| Ventilation | 6 |

According to the customers, the cover-up was the most important item with 42%, followed by the coolness with 23%. Also, the high mobility with 21%, lightness with 8%, and low volume with 6% were placed in the next ranks. The results are presented in Table (4).

followed by lightness and freshness with 29 and 12%, respectively. The cost and coolness ranked last with 7%. The overall results are presented in Table (5).

Table 4: Rank of elements according to Customers

| Item | Importance percentage |
|---------------|-----------------------|
| Lightness | 8 |
| Coolness | 23 |
| Cover-up | 42 |
| Hugh mobility | 21 |
| Low volume | 6 |

Table 4: Rank of elements according to Customers

| Item | Importance percentage |
|---------------|-----------------------|
| Lightness | 8 |
| Coolness | 23 |
| Cover-up | 42 |
| Hugh mobility | 21 |
| Low volume | 6 |

Based on the data obtained from the questionnaire, beauty ranked first in terms of the customers' preferences with 45%,

Conclusion:

The current study aimed to identify and rank the problems and preferences of wedding dress customers. The results indicated that ranking the existing problems of wedding dresses from

customers' perspective, the sitting/standing restrictions, heavyweight, lack of ventilation, disruption in daily activities, and immobility were the problems reported by order of priority. The wedding dress, like a cloth that is only worn once and specific to a special ceremony, is a flexible cloth for those who wear it because they never repeat it. Although complaints have been made in this regard, it seems they are not serious and will not affect this industry even if they are not responded to. The study results by Ariatum et al. (2015) indicated that the current strategy of placement of a wide range of electronic functions in an item of clothing is not an appropriate one. First, it is due to incompatibility with the users' needs, purchase criteria, and lifestyle. The results indicate that the respondents prefer personal health care and exercise programs that are aesthetically attractive and provide a practical function proportionate to their lifestyle.

Then, the customers' preferences for improving the wedding dress were investigated. The results indicated that the first preference of the customers is to solve the problem of wedding dress volume, followed by the ability to assemble the wedding dress, higher mobility, ventilation, and weight in the next ranks. The height ranked last. Most problems related to the wedding dress are due to its high volume that causes high heat, lack of proper mobility, and sitting/standing restrictions which subsequently lead to an individual's inability to do her daily activities. According to the customers, the cover-up is the most important factor in the final ranking, followed by the coolness in the second rank. Also, high mobility, lightness, and low volume ranked as the next preferences. The study results by Hassanzadeh, Zolfaghari, and Shariati Ivori (2015) indicated that the placement of non-absorbent polyester fabric in the layer close to the skin reduces the moisture in this area. Also, the use of polyester on the outer layer can help preserve desirable thermal conditions.

Moreover, the results indicated that using a dense fabric in the middle layer of the dress reduces water accumulation in the center. Therefore, the polyester-viscose-polyester arrangement has the lowest value for the water accumulation index at the inner border (0.02) and the highest values for the inner boundary temperature (33 °C) and the average clothing temperature (16.1 °C). It can repel the mass of transpiration water from the skin to the environment well, despite creating suitable thermal and temperature conditions. As the results showed, mobility is the first complaint, and ventilation is the last complaint of customers, with personal activities restrictions, clothing volume, and weight placed between these two items, respectively. For this purpose and as a solution, Ashrafi Azari et al. (2003) showed that NBC protective clothing without a mask (in group C) could affect the element of cardiorespiratory endurance and speed. Still, it was not effective on agility, abdominal muscle endurance, and

flexibility. NBC clothing with a mask in group B was also effective on cardiorespiratory endurance and speed, but it was ineffective on other elements. Nylon clothing could only affect the element of speed, but other elements did not change. Also, the experimental results of Lou et al. (2020) study show that this smart clothing monitoring system can effectively measure skin temperature and relative humidity data and report the frequency, duration, and intensity of information on different parts of the body.

Regarding the results obtained from the current study, it is suggested to use a viscous fabric in the middle layer of the dress to adjust the body's temperature. Also, it is suggested to increase the wearer's agility by using NBC technology in the smart wedding dress.

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Conflict of interest

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Ethics statement

None

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