The Problems of a Visually Impaired User in the Process of Buying Fashion Products

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Abstract. In today's society, sight is the most relevant sense, as we rely heavily on it to gather information from the external environment (Davidoff 2001). However, given the high rate of ageing of the population, we often speak of users with visual impairment (Baker et al. 2002). The world of fashion is critical for the visually impaired user, namely in his socialization process, however, since we live in a contemporary world that manifests itself in a predominantly visual way, there are some communicational barriers, which make the ability to guide the visually impaired user to the act of buying fashion products be impaired (Schneider et al. 2017). Thus, starting from this basic principle that the world of fashion is extremely important for the visually impaired user, it should be democratized and inclusive. All communicational changes to be developed must always be accompanied by accessibility and value. Therefore, this article seeks to disseminate and present what are the main problems faced by the user in the process of buying fashion products, to potentiate future research regarding the development of design strategies to overcome the problems presented.

Keywords: Visual Impairment · Fashion · Buying Process · Communication Design · Accessibility

1 Introduction

Today, we live in a society where, according to a report launched by the World Health Organization in 2019, there are about 75 million blind users and about 2.2 billion users with disabilities associated with visual perception (Anon 2019). In any case, despite the large number of users with visual impairment, we are still far from its peak, given the gradual increase in the world's ageing population (Baker et al. 2002).

As a society, we inhabit a world that expresses itself in a predominantly visual way, where there are very specific cultural constructions (Oliveira 2007). This way, when a visually impaired user tries to connect with the world of fashion in his daily life, he faces some communicational barriers, namely regarding color perception and the understanding of any message (Schneider et al. 2017; Costa and Prette 2012).

In contemporary times, a significant conceptual difference is interpreted between the interactions established with the world of fashion by users with and without disabilities,

with users with visual impairment being the most impaired concerning the culturally constructed communication system in the world of fashion.

Therefore, this communicational barrier between the two leads to the visually impaired user not being able to complete even the simplest tasks in the process of buying a fashion product (Kaufman-Scarborough 2001).

Having said that, inserted in this problematic scope between the fashion world and the visually impaired user, this article seeks to disseminate and present the problems faced by the user in the process of buying fashion products, with a view to potentialising future research, namely concerning the development of possible design strategies, to overcome some of the problems disseminated here.

2   Get Know the Visually Impaired Consumer

2.1   The "Incapacity"

According to Martín, Bueno and Pedro (2003), the visual impairment is defined by the total or partial absence of the visual sense.

In the vast sensory range vision is the most important remaining sense, as it interconnects the body with the world, thus creating constant information and immediate verification (Santin and Simmons 1977). In this way, it becomes inevitable to point out that visual impairment is irremediably correlated with a reduction in the quality of life of a human being (Allen 1989).

On reflection, it is important to consider how dependent we are on the visual sense, namely in contacting and obtaining information from the external environment (Davidoff 2001).

2.2   The "Sensory Vision"

The "sensory vision" allows us to understand that a visually impaired user depends on his remaining senses to help identify certain variables, which in general are designed for the visual sense (Cattaneo and Vecchi 2011).

As a whole, the remaining senses that make up "sensory vision" are tools of the highest level of detail for the visually impaired user, they also can take users to different states of mind (Snowden et al. 2012; Solomon et al. 2002).

However, it should be noted that in "sensory vision" the greatest dependence of the visually impaired user falls namely on the tactile sense, and there is a high probability of the user "seeing" through touch because in general, the tactile sense elaborates a very detailed appreciation forming images of what is touched (Kastrup 1997).

From the beginning of their disability, the visually impaired user is trained daily to use the tactile sense, both in the recognition process and in the learning process. Within the panorama of the fashion world, the tactile sense is a critical tool for the visually impaired user, as its characteristics allow the user to differentiate and evaluate different properties of products (Batista 2005).

Given what has been previously mentioned, the tactile sense also can modify how the visually impaired user relates to the product, however, it is pertinent to recognize that the tactile sense does not directly replace the visual sense (Kastrup 1997).

In the wide range of the remaining senses that are incorporated into "sensory vision", the auditory sense is also very important for the visually impaired user, as it transmits information that changes both in space and time (Hirsh 1988).

The auditory sense is based on high threshold values for discriminating both frequency and intensity (Capelle et al. 1998). Thus, the auditory sense is capable of dealing with complex and rapidly changing sound patterns, thus providing information about the speed, location and interaction of objects in real time (Hirsh 1988).

The studies of Stevens and Weaver (2006), and of Wan et al. (2010), prove that visual impairment confers advantages on the auditory sense related to attention, memory and language. These advantages can provide a greater degree of independence to the visually impaired user in carrying out his daily (Wan et al. 2010).

In the fashion world, the visually impaired user can acquire, through the auditory sense, references that compensate for the lack of vision, thus improving his degree of autonomy in analyzing the properties of products.

The sense of taste, within "sensory vision", is recognized as working in conjunction with the other remaining senses, particularly the olfactory sense (Auvray and Spence 2008). However, in the fashion world, it is verified that both the sense of taste and the sense of smell are not directly related to the visually impaired user, though, they can be worked on in a way that positively contributes to the strengthening of a brand's image.

Finally, it is necessary to understand that the construction of "sensory vision" on the part of users with visual incapacity is related to the capacity of attention before the stimuli and not to the capacity for development of the sense itself (Hatwell 2003). According to Hatwell (2003), the loss of sight does not immediately result in the potentiation of the other senses, but by learning to redirect attention to them, the visually impaired user can take advantage of the senses that until then were not part of his cognitive domain.

2.3 His Relationship with the Fashion World

In contemporary times, there is a lack of knowledge in terms of the relationship between the visually impaired user and the world of fashion.

However, this lack of knowledge does not become a barrier for the visually impaired user, as he tries to achieve autonomy by overcoming any impact resulting from visual limitation, be it total or partial, as well as from socially conceived stigmas related to visual impairment.

The visually impaired user feels the need to be autonomous, which encourages personal independence and freedom, thus providing a concrete capacity to make choices and carry out actions, based on self-reflection. Still, within this panorama, communication assumes a relevant role because if there is minimally inclusive communication, the visually impaired user will have an easier time developing his degree of autonomy.

In the world of fashion, when the visually impaired wearer is making direct contact, his thinking will be that his disability is irrelevant, he cannot limit himself from doing anything he wants because if he is deprived of wearing the clothes, he would like he might lose part of his personality (Alcantara et al. 2017; Kaufman-Scarborough 2001). According to Pizzimenti and Roberts (2005), no matter how much the weakness of a visually impaired user is considered, he develops an inexhaustible list of adaptive strategies providing him with a greater degree of autonomy.

The communicational power of fashion is used by the visually impaired user as an ignition to his socialization process because inevitably there is a care in the way he presents himself to society. After all, the way he presents himself is also the way he communicates to others.

As a foundation to what was previously mentioned, in the world of fashion, the visually impaired user also searches for information related to trends and colors. This research arises from the importance for the visually impaired user to feel good about what he wears because for him buying something aesthetically appealing promotes well-being.

In short, the communicational power of fashion assumes a relevant daily role for the visually impaired user because through a good presentation, it can promote socialization, working in reciprocity, that is if the user is well with his presentation, he feels that people around him are also well.

2.4   His Consumer Profile

In society, consumption is a strategy regularly used by the most different social groups involving rights, identities and lifestyles (Campbell and Barbosa 2006). Apart from theoretical questions, in accordance with Cardoso (2007), there is a recognition of the importance of consumption in the routine of the visually impaired user, ending up having a direct influence on his personal life and the construction of his identity.

In the practice of consumption, the vulnerability of a visually impaired user is felt when he feels a state of powerlessness arising from an imbalance in the interactions carried out with the fashion market (Baker et al. 2005). This vulnerability is increased by the enormous difficulty that the visually impaired user has in shopping independently, which consequently generates exclusion, isolation and stigma, directly affecting self-image and the perception of inclusion (Elms and Tinson 2012).

However, despite the various problems that visually impaired user still faces in the process of buying fashion products, their consumer profile is characterized by their willpower. As much as society may consider that a visually impaired user hides his weakness by avoiding challenging tasks, what happens is exactly the opposite, that is, the visually impaired user reinvents himself by conquering his autonomy.

In another aspect that characterizes the consumer profile of a visually impaired user, the lines of desire and pleasure play a very important role because a significant part of the time, the purchasing process of a visually impaired user is born from an aesthetic motivation (Baker 2006).

2.5   His Purchasing Process

The practice of consumption, as noted earlier, is a strategy regularly used by many different social groups, however, it can be a very challenging task for those with disabilities, including the visually impaired user (McCracken 1990).

In the purchasing process, the visually impaired consumer feels a state of powerlessness arising from the blocking of his independence by the lack of understanding of the most diverse communications (Kaufman-Scarborough 2001).

As can be seen in Table 1, the purchasing process of a visually impaired consumer is defined in seven different stages, five of which are common to all consumers (Ramatla and Mastamet-Mason 2013).

Table 1. Description of the Buying Processes by Ramatla and Mastamet-Mason 2013

NORMAL CONSUMER	VISUALLY IMPAIRED CONSUMER
PROBLEM RECOGNITION	PROBLEM RECOGNITION
INFORMATION SEARCH	INFORMATION SEARCH
EVALUATION OF ALTERNATIVES	POINT OF SALE BRIEFING
BUYING DECISION	PRE-PURCHASE EVALUATION
POST-PURCHASE EVALUATION	EVALUATION OF ALTERNATIVES
	BUYING DECISION
	POST-PURCHASE EVALUATION

The first stage of the buying process is recognizing the problem (Ramatla and Mastamet-Mason 2013). At the time of recognition, the problem can assume a double meaning, because it can be interpreted as a pleasurable problem of aesthetic motivation, and it can also be interpreted as a need, where the consumer with visual incapacity to recognize this problem in a fashion item will rely on his tactile sense, to feel for example a worn piece (Ramatla and Mastamet-Mason 2013).

Regarding the search for information on the product during the purchasing process, given the lack of inclusiveness of some information, such as color, type of print or type of pattern of fashion items, it is inevitable that the visually impaired consumer resorts to third parties, whether family members or friends (Ramatla and Mastamet-Mason 2013). Given this, the visually impaired consumer is denied a chance to obtain information about the product independently (Ramatla and Mastamet-Mason 2013).

In the third stage of the purchasing process, there is always the need for the visually impaired consumer to carry out a briefing on the point of sale, that is, the consumer should analyze the point of sale from his "sensory vision", looking for sensory clues which make him feel comfortable carrying out his purchasing processes, such as the comfortability of the floor, the music, the smell and the texture of the displays (Ramatla and Mastamet-Mason 2013). However, if the point of sale does not stimulate the "sensory vision" of the visually impaired consumer, he will rarely make a purchase (Ramatla and Mastamet-Mason 2013).

The pre-purchase evaluation, the fourth stage of the purchasing process, is in line with what was previously mentioned, that is, in the pre-purchase evaluation, the visually impaired consumer evaluates all the existing alternatives according to the pleasantness indexes to his tactile sense (Ramatla and Mastamet-Mason 2013).

After a pre-selection comes the detailed evaluation of all alternatives, in this evaluation the visually impaired consumer is forced to rely on third parties, given the lack of inclusiveness of some information on fashion items, such as size, price, composition and even maintenance care (Ramatla and Mastamet-Mason 2013).

The purchase decision is perhaps one of the most important steps in the purchasing process unfortunately for the visually impaired consumer, variables such as the display of the item at the point of sale, the shop environment and the shop assistants can create problems due to lack of vision (Ramatla and Mastamet-Mason 2013). The visually impaired consumer must be helped to interpret certain information, such as size, price, composition and color of fashion items, because these are important factors that can directly influence the purchasing decision (Ramatla and Mastamet-Mason 2013). It is also important to note that these problems will be disseminated and presented in detail below.

Finally, we have the post-purchase evaluation, in this last stage, the visually impaired consumer must evaluate all the parameters mentioned above and conclude whether or not their buying process was satisfactory (Ramatla and Mastamet-Mason 2013).

3 Qualitative Methodology

3.1 The Interviews

The research carried out in this article follows a qualitative methodology, thus allowing for a more complete and in-depth perception of the topic under study. It should also be noted that the methodology used involved a survey conducted through exploratory interviews.

The qualitative research method, based on exploratory interviewing, allows for the combination of life story interviews with interviews informed by assumptions drawn from phenomenology (Bertaux 1981). Consequently, exploratory interviews grant an understanding of the meaning that interviewees make of their experience on a particular subject (Seidman 1991).

That said, fourteen exploratory interviews with visually impaired users were conducted in this research. Of the fourteen interviewees, 30% belong to the male gender and 70% to the female gender. Overall, 58% of the interviewed users acquired a visual

impairment throughout their lives, on the other hand, 42% of the users were already born with a visual impairment. It is also possible to ascertain that 58% of the users interviewed suffer from total visual impairment, while 42% suffer from partial visual impairment.

The structuring of an exploratory interview is a very important procedure, Seidman (1991) argues that, an exploratory interview should always be divided into three different parts, with a different objective for each of the parts.

Therefore, the first part of an exploratory interview is concerned with the interviewee's life story, that is, here it is important that the interviewee tells as much as possible about himself in the light of the topic of the moment (Seidman 1991).

In the second part of the exploratory interview, the details of the experience are presented, where the interviewee should focus especially on the concrete details of the experience by reconstructing these details (Seidman 1991).

In the third and last part of the exploratory interview, the interviewee presents a reflection on the meaning of his experience, in this case, his process of buying fashion products (Seidman 1991).

Finally, the main purpose of using this qualitative methodology is to understand the experience lived by users with visual impairment in the process of buying fashion products in order to conclude what the real problems are that they face in this process.

3.2 The Content Analysis

With the maximum purpose of analyzing all the content coming from the fourteen interviews carried out, in this research, we opted for a method of analysis called categorical analysis. Bardin (2011) points out that, in the conjunctural range of content analysis techniques, categorical analysis, in practice, is the most widely used in research.

After defining the analysis method to be used, we proceeded to the process of creating categories according to the formula advocated by Bardin (2011). Within the scope of the construction of the categories, it is also relevant to point out that the whole construction process was carried out in articulation with the data collected in the fourteen exploratory interviews carried out, that is, a progressive categorization was carried out as a floating reading of the data was undertaken.

In the fullness of the research, given the density of the data collected, it was felt necessary to create nine categories in the categorical segmentation. Given this, as it is possible to verify in Table 2, the nine categories that are essential to the organization of information are presented in a summarized way, four of them being essential in the identification of the main problems faced by the visually impaired user in the process of buying fashion products.

Table 2. Representation of Categories for Content Analysis

CATEGORIES
"FEEL THE FASHION"
"IMPORTANCE OF FASHION"
"THE DAILY LIFE OF VISUALLY IMPAIRED IN FASHION"
"THE REASON FOR PURCHASING"
"THE PERCEPTION OF THE BRANDS' POSITION"
"THE PURCHASING PROCESS"
"PROBLEMS IN THE PURCHASING PROCESS"
"PURCHASING EXPERIENCES"
"IMPROVEMENT POINTS"

After defining the categories, we proceeded to fragment the interviewees' statements in the fourteen interviews in order to categorise the most diverse fragments.

Bardin (2011) argues that, in content analysis, the last phase is born from the relationships between the most diverse categorical themes. Therefore, in order to discover the themes most frequently addressed by the interviewees in this research, for each fragment of speech extracted from the interview, it was necessary to create keywords. Together, the keywords obtained gave rise to word clouds, where the main objective is to ascertain the themes most addressed by the interviewees.

At the core, the word clouds developed became very important, as they not only contributed to the realization of the most diverse thematic relationships but also collaborated in the definition of some critical points that became quite important in the course of the whole research.

4 Results

After the achievement of the analysis of all the content from the fourteen exploratory interviews carried out, we proceed to the presentation of the other results obtained, namely concerning the problems faced by the visually impaired user in the process of buying fashion products.

4.1 The Main Problems in the Purchasing Process

There is a lack of autonomy, on the part of the visually impaired user, in the process of buying fashion products (Hopkins 2000). Therefore, it can be seen that this lack of autonomy is fueled by some problems mentioned by the user, namely concerning the labelling of the articles, the identification of the color of the articles, the online purchasing process, the payment process and mobility in the physical store.

Complementing, there is an urgent need to develop design strategies that emphasize accessibility, to combat these critical problems.

The Labelling
How does a visually impaired user independently know the size of a fashion item or even a simple price?

The answer is simple, you don't know the difficulty in reading the written information on a label is undoubtedly the main obstacle faced by visually impaired users during the process of buying fashion products.

This problem, related to the reading of labels, makes the visually impaired user dependent during the purchasing process, as he needs a second person to verbalize the information.

However, even in the face of this problem, the visually impaired user, in a sense of self-education in the conquest of autonomy, tries to create by himself all the possible conditions to know information about the product.

With the technological advance experienced nowadays, some applications such as OrCam Read and Wizo have appeared which make it possible to audio-read written information, however these applications, apart from their high cost, work better in a digital scenario and not in a physical one, thus continuing to persist with the problem.

Faced with this problem, the visually impaired user can identify some possible points of improvement to be developed to provide them with a greater degree of autonomy during the process of buying fashion products.

Therefore, one point for improvement could be the use of Braille language in the development of labels to enable the user to read some written information, such as size and price.

According to research conducted by Okazaki et al. (2012), Qr Codes are increasingly integrated into products all over the world, so Qr Codes can be a design strategy target of a study, becoming a possible point of improvement to provide a higher degree of autonomy to the user with visual impairment in the process of buying fashion products.

The Colour Identification

In their daily lives, visually impaired users encounter some barriers in the process of identifying the color of their clothes. Although there is a concern for the user to search for color combinations autonomously, the user cannot identify the color of a garment.

In contemporary times, we witness a remarkable technological advance with the development of technological applications that help the visually impaired user to identify colour. However, after conducting qualitative research, it is possible to conclude that technological applications for colour identification are hardly feasible and expensive.

As a point of improvement, faced with the problem of colour identification, visually impaired user tries to get around the problem by developing their identification strategies. At this particular point, the interior labels of fashion garments take on a critical role, as they help the user to develop their identification strategies, namely through cutting and writing.

At its juncture, the colour identification problem leaves three gaps to be addressed. Firstly, despite the existence of technological applications to aid the identification of colour, they still do not present full viability in the representation of its function.

Secondly, as a consequence of the lack of inclusiveness, there is an enormous dependence of the visually impaired user on colour identification, namely in the course of their fashion product purchasing process.

Finally, even if there is someone to verbalise the colour of a fashion product to the visually impaired user, it has to start from their self-taught sense, the creation of a strategy, so that they will never forget that a certain garment has a certain colour.

The Online Purchasing Process

Concerning the online purchasing process, one of the questions we wanted to reflect on from the interviews conducted was: Is the degree of autonomy of a visually impaired user greater in the online shopping process?

The answer is no, however, it should be noted that the purchasing process does not always have to take place at the physical store.

In the online purchasing process, the visually impaired user is confronted with descriptions that are not very detailed and not at all representative, thus questioning to what extent the user can even imagine the product.

Apart from this descriptive problematic, it is significant to highlight that the visually impaired user does not use the online store only to buy most of the time the user navigates through websites that allow it because not all websites provide a good accessibility in navigation, working as a pre-process purchasing strategy.

In a future panorama, as a point of improvement, it is necessary to work on the development of design strategies, where the focus has to be directed towards accessibility in the navigation of fashion brands' websites.

The Payment Process

The payment process belongs to the last step of the purchase process of a visually impaired user (Karg et al. 2022).

However, despite being the last stage of the purchasing process, in the payment process, the visually impaired user faces some problems, in particular in payments using the ATM, where they have great difficulty in identifying the numbers on the terminal.

Previously, in the "sensory vision", the importance of the auditory sense in the relationship of the user with visual impairment with the fashion world was already referenced, so the auditory sense can be used to assist an improvement point to the payment process within a design strategy.

The Mobility

At the level of mobility, the following was reflected upon after the interviews were conducted: To what extent can the visually impaired user be autonomous in their mobility within a physical store?

At present, visually impaired users are classified as a small niche of consumers, thus, there is not a high degree of concern on the part of brands regarding the organization of physical stores. That said, this possible carelessness triggers some mobility problems for the visually impaired user.

Therefore, during the purchasing process, the visually impaired user is faced with the inexistence of an inclusive identification for example, the user does not know where the fitting rooms are located, which means he is always dependent on third parties.

Sometimes it may go unnoticed by the eye, but another problem faced by the visually impaired user is identifying obstacles, such as mirrors, irons and decorative elements.

Given these problems, some points for improvement have been identified. The first of these is related to the development of inclusive signage strategies, thus identifying the most diverse obstacles within the physical store.

As another potential point for improvement, we may have the development of identification plates in Braille for several different areas of the physical store to respond to the dependence of the visually impaired user on their location.

To conclude the potential points for improvement, there is just one nuance regarding the increase of the circulation space within the physical store. Nowadays, with the covid-19 pandemic, physical stores have a larger circulation space as a consequence of the pandemic restrictions, however, it will be essential to maintain this larger circulation space, giving greater comfort to the visually impaired user in his mobility inside the physical store.

5   Conclusions

The existing disability makes the visually impaired user unable to understand visual elements, which inevitably makes it difficult to understand any message. Therefore, nowadays, in the world of fashion, the user faces some difficulties when buying (Oliveira et al. 2017).

There is a vulnerability felt by the visually impaired user in interacting with the fashion world (Baker et al. 2005). However, being a visually impaired user doesn't mean you can't be fashionable.

After carrying out the whole methodological process through qualitative research, it is possible to conclude that there is a communicational barrier between the visually impaired user and the fashion world, which consequently is reflected in the following problems faced by the user: the process of reading labels, identifying the color of articles, navigating and understanding descriptions at the online store, the payment process and mobility within the physical store.

With an emerging purpose, the response to these problems starts from the principle of inclusion. According to Sassaki (1997), inclusion is a system by which society adapts to be able to include, in general, people with special needs. Inclusion advocates a new stance adopted by society, where there is a change in thinking, respecting all differences equally, thus making society as a whole (Filho 2000).

It is extremely necessary to associate inclusion with the world of fashion, inevitably, fashion is something we identify with daily (Pereira 2016).

Therefore, all this research becomes effectively relevant because, faced with the urgent need to look at these problems, this article has the purpose of potentiating future research, regarding the development of design strategies in order to respond effectively to all the problems raised.

Finally, it is also important to highlight that the research presented in this article also contributes to fashion brands having more knowledge and information about the visually impaired user, thus being able to develop possible design strategies, to confer a greater degree of autonomy to the user, during the process of purchasing fashion products.

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