

# Human factors in Service Design: valuation of consumption's experience aspects in supermarkets by the elderly population

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**Abstract:** The elderly and their longevity in several countries is increasing, and changes of this public and its potential as a consumer are observed. Therefore, there is a lag in the elderly purchasing behavior studies, as well as appropriate services for these users and appropriated methodologies for services development to guarantee the user's satisfaction. In order to contribute to the development of methods for the Service Design, it was questioned which is the given value by elderly users to the proposed aspects in this study (physical, aesthetic, sensory, emotional, motivational, social and engagement) that compose the use experience of a supermarket service. Moreover, if it is possible to appropriately quantify or qualify them for the best description of the experience. From these seven aspects, it has been shown, through interviews with 150 elderly supermarket users, it is possible to value these aspects statistically, assigning them values and correlating them with the aid of Exploratory Factorial Analysis (EFA). It was obtained the cluster of three factors: Tangible, Psychic and Relational; and proposed along this combination of factors, the basis for the creation and application of tools to assist in the designing and improvement of supermarkets' services that consider the perspective of the elderly people.

**Keywords:** methods, human factor, use experience (consumption), elder, supermarket.

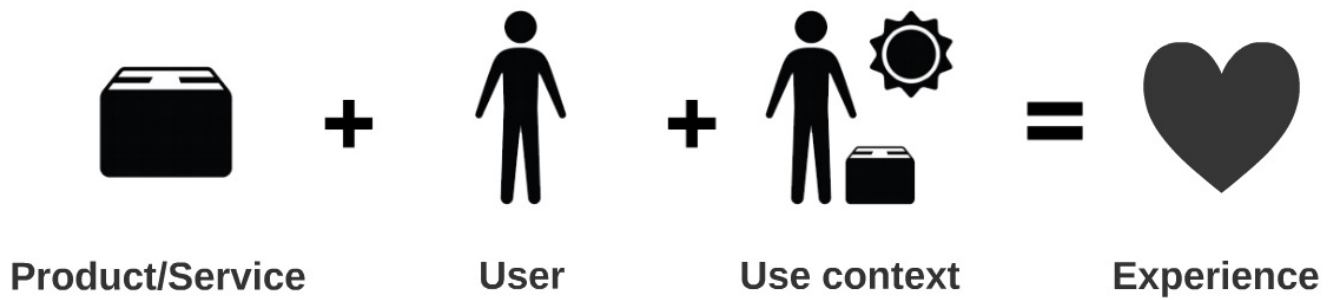
## 1. Initial considerations

The population is aging, the longevity has increased due to advances in medicine, as well as the development of the countries and technological advances (SOLOMON, 2002; YIN et al., 2013), and the reality in Brazil is no different. Today the elderly show a different lifestyle, healthier, instead of being at home, isolated, they seek out leisure, they travel, go to theaters, dances, bingo halls, clubs and universities open to seniors (BALLSTAEDT, 2007). However, currently we find a huge gap of specialized products and services that effectively meet the elder consumer. The real potential of this consumer public in Brazil, due to increased life expectancy and economic rise in the country, reveals the need to develop greater attention on this population. The third sector of the economy, the services' sector, has grown steadily in the global economy, with strong emphasis in developed and developing countries. Its participation in the Gross Domestic Product (PIB) in Brazil in relation to other sectors of the economy is over 60% (INSTITUTO..., 2015).

The design, since its origin, has always been related to the industrial production system. However, over the years, there have been changes, and because of the post-industrial reality, there has been discussions about the scope of the activity based on the services' economy and its role

in the processes of these ones (FREIRE, 2009). Mager (2009) makes a comparison between the logic of product and the one of the service, and proposes that the service, different from the product that provides the possession of a personal object, provides a benefit, one experience to the user, this being an actor for the service to happen. Thus, the designer needs a vision that goes beyond the tangible object (product), considering the user and the context in which these are inserted. The union of these three elements (Product, User and Context) results in the Experience (MERINO; MERINO, 2014), as outlined in Figure 1.

The dawn of the experience's discussion on the usage of the product led to question the role of Design in these experiments (FREIRE, 2009), this one starting to be seen as an activity used to design the processes and systems that underlie these experiences, from strategies and philosophies of the project to the final details of the results (MORITZ, 2005). The experience can be designed (HASSENZAHL, 2010), so to build the desired experience it is necessary to consider all aspects that compose it and how they are formed. Suri (2003) states that understanding the experiences of users and the possibilities of representation of the dimensions of this experience through modeling tools used in the Design, enables the projection of interactions



**Figure 1.** Information Pad. Source: Adapted from Merino and Merino (2014).

and dynamics integrated between object, spaces and services, helping companies in strategic decisions. With the current tendency of experience's valuation, consumers are looking for intuitive personal relationships with brands and retailers (PINE; GILMORE, 1999, 2008). It is possible to see that designers and supermarket retailers must strive to balance functional and experiential aspects in the design of commercial spaces, as in the current market logic, experiences are important in the design of retail environments (VAN AMERONGEN; CHRISTIAANS, 2004).

By value is understood as qualitative and quantitative aspects, subjective and objective, which comprises the complete shopping experience (ZEITHAML, 1988). It is linked to the emotional bond established between a client and a producer after the client having used a product or service produced by this supplier and find that the product provides a value (BUTZ JUNIOR; GOODSTEIN, 1996). The value to the customer is in the difference of the benefits that a consumer sees in a market's offer and the costs of obtaining the benefits. This will probably be more satisfied when the benefits outweigh the costs by a large margin (PERREAULT JUNIOR; MCCARTHY, 2002).

Thus, it was proposed in the development of the research that the experience of using the service is consisted by seven aspects: physical, aesthetic, sensorial, emotional, motivational, social and by engagement. They are important components for the formation of the consumer's experience and proved fundamental to the problematics of the work.

Based on these perceptions, it was aimed at the developed research, to determine, within the scope of organizational ergonomics, through the Service's Design, the value given by the elderly users to the physical, aesthetic, sensorial, emotional, motivational, social and by engagement aspects in the experience of using the grocery service. Thus, to put in evidence parameters for design of supermarket's service that provides the elderly user a good user's experience.

## 2. Theoretical foundation

### 2.1. Experience

Before designing an experience, it is necessary to understand what it is. Experience, in general, is deeply related to the five senses - touch, smell, sight, taste and hearing -, which in turn react to some form of stimulus. Dewey (1959) states that this concept goes further, collaborating with the establishment or the maintenance of habits. In addition, he argues that it is a continuous thing, which has no beginning or end, presenting itself as a whole, a flow apprehended by our senses in a movement to establish and expand certain patterns in the actions. Under the bias of the consumption's experience, Schmitt (2000) defines experience as individual events that occur in response to some stimulus, not being spontaneous but induced. Experiences are personal, existing only in the minds of people who participate in it, thus, hardly two people have the same experience, because each experience derives from the interaction established between the event and the mental state of the individual (PINTO; LARA, 2009). According to the author, the consumption's experience is not limited only to finding different feelings as pleasure, **excitement**, joy, anger, frustration, recognition, boredom, among many others, who build them, but is also the result of the sum with the socialization promoted in the activity and that influence in the degree of **engagement and interaction** of the individual to the system.

Another aspect that should be considered within the use's experience is the user's interaction with the system also known as *User Experience* (UX). It is the set of interactions between user-product, considering all the aspects of this trial with an interactive product - **physical, sensorial, emotional, social and aesthetic** (FADEL; ULBRICHT; CASTRO NETO, 2013). It includes emotions, beliefs, preferences, perceptions, physical and psychological reactions, behaviors and user's achievements that occur before, during and after the use. According Hassenzahl (2010), UX is related to creating a meaningful experience by means of a device.

A good user's experience is directly linked to the fact of storytelling. It is considered a factor of subjective nature, because it is mustered to feelings, aesthetic perception and thoughts of an individual over the system, however, it also includes the perception of the practical aspects, such as usefulness, easiness of use and system efficiency, i.e. its usability.

However, besides the elements that build the experience, one must also consider the quality of the experience, and that is where the Experience Design (XD) is supported on, through a process of development of products, methods, services, events and environments (AARTS; MARZANO, 2003). For the experience design, it is not the emotions felt in the first few seconds of use of a product that are stored on the user's unconscious, but his experience as a whole, it is the sum of the emotions experienced in a given situation. The experience designer must think how to make a wide range of positive emotions such as joy, satisfaction,

pride, and most likely raise the projectable promoters of these emotions (HASSENZAHN, 2007). Thus, the XD aims to create meaning, **engagement**, generate memories of experiences that the user has, focusing on the history of use created in the individual's memory, which is what this will remember and communicate to others, to tell or retell a story (HASSENZAHN, 2010). That is, it is used the design facing towards the projection of a specific experience to be lived, which may be the experience provided by a service.

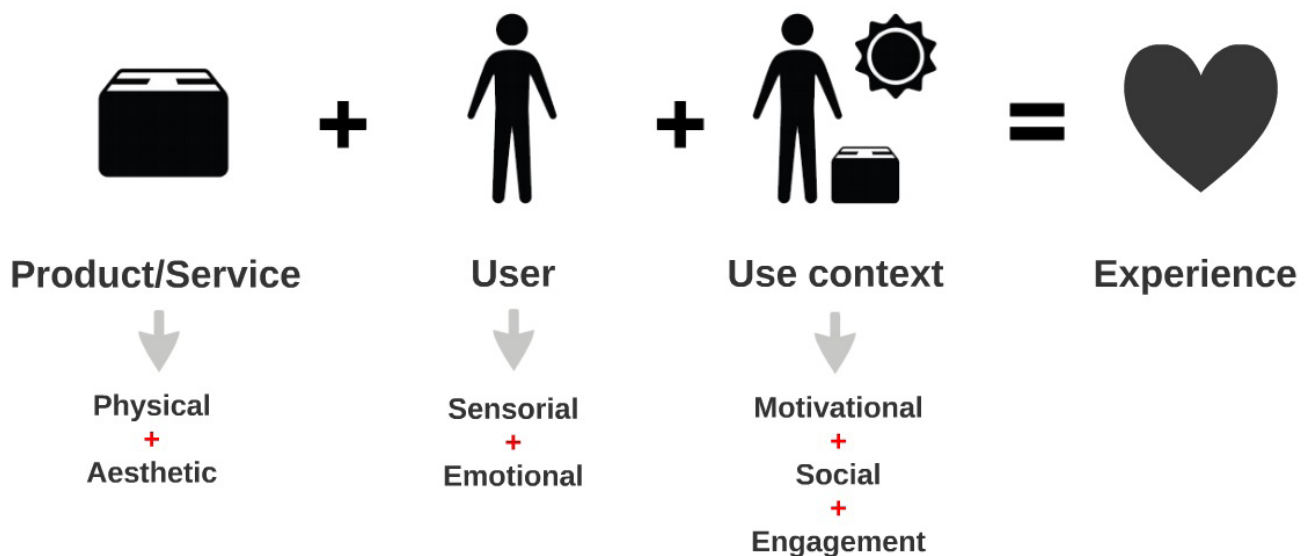
Thus, from the authors raised and as the concept of experience is approached on different perspectives, there was obtained the Table 1.

Based on Table 1, and adapted from Merino and Merino (2014), the following conclusions were adopted, which define the experience and the seven aspects that compose it to be considered in the proposed project and that involve steps form before, during and after using the service (Figure 2).

**Table 1.** Experience indicators.

EXPERIENCE	DEFINITION	INDICATORS
CONSUMPTION'S EXPERIENCE	Individual events that occur in response to some stimulus, not being spontaneous but induced (SCHMITT, 2000).	<b>Pre-consumer expectation</b> ; First contact perception; Consumption's satisfaction; Post-consumption remembrance; Degree of socialization.
USER EXPERIENCE	It is the set of interactions between user-product, considering all the aspects of this trial with an interactive product (FADEL; ULBRICHT; CASTRO NETO, 2013).	<b>Physical, sensorial, emotional, social and aesthetical</b> perception, before, during and after the use.
EXPERIENCE DESIGN	It aims to create meaning, engagement; it generates memories of the experiences that the user has, focusing on the history of use created in the individual's memory (HASSENZAHN, 2010).	Generated meaning; Quality of experience; <b>Engagement</b> .

Source: Prepared by the author.



**Figure 2.** Experience. Source: Adapted from Merino and Merino (2014).

## 2.2. Aspects of experience

The seven aspects approached by the research to render the experience are based here as follows:

**Physical:** This aspect concerns tangible issues of the product such as size, durability, color, style, weight, packaging, labeling, cleaning, selection, customization, design, etc. As it is about a service, in this research, the approached physical aspects were related to the supermarket's environment, usability and accessibility of the service. In this case, it is understood by usability a quality attribute related to the ease of use of something (NIELSEN, 2007).

**Aesthetic:** The aesthetic value is characterized by the importance given by the consumer to the aesthetic product's attributes, such as colors, shapes, textures among other attributes perceived by the senses. Seven aspects are considered aesthetic principles: balance, emphasis, movement, pattern, proportion, harmony and variety (COATES, 2003).

**Sensorial:** Many designers project even today just for the sense of sight. The design must take into account all the senses of the observer, as when he is facing the object or experiencing it, he feels it with every sense. Therefore, when designing something, it is necessary to be noted that humans have yet every sense (MUNARI, 2008).

**Emotional:** Understanding the link between the emotional response and the design is particularly important due the key role that emotions often have of influencing the consumers' decision-making (ELIAS, 2000). Thus, in reverse, the emotions are related to the way the products affect people's mood.

**Motivational:** The expectation arises in cases of uncertainty, when it is not confirmed yet what will happen. It is what is considered most likely to come to happen: it is, therefore, a more or less realistic assumption. If the expectation is not fulfilled, the person will have a disappointment, will feel unmotivated. In general, designers hold on assumptions about the potential users and their expectations, trying to motivate and predict the interaction between the final product and the ordinary users (HASDOGAN, 1996).

**Social:** Social integration is the result of contacts that enhances the individual's feeling in belonging to a society (DURKHEIM, 2000). Turning to the act of consuming, the goal to purchase, it is not so much to buy what people want, but continuing to relate to the people who want these things (MILLER,

2002). Douglas and Isherwood (2006) point out that material possession in the same time provide food and shelter also have another important use: to establish and maintain social relationships. Thus, instead of assuming that the goods are first required to subsistence and competitive display, they are also required to give visibility and stability to the categories of culture.

**Engagement:** The symbolic qualities of a product, such as corporate branding and interests of users, are critical in the assessment of a product, involving culture and personal experiences. These elements end up representing and carrying the personal and social identity of the user. With them, the human reconstructs at every moment his reading of the world, and facing it, he situates, locate himself, and he faces the world. This guidance is essential for him to know himself, to be recognized, to feel part of something, to be integrated. It is therefore of great importance to know how the interactions happen between these factors and the specific attributes of the product (DAMÁZIO; MONTALVÃO, 2008). The interactivity between the company and the consumer, as well as the experiences generated at the contact points (*touch points*) between them, can generate value to the user (PAYNE et al., 2008), creating engagement between the user and the enterprise.

Thus, there are the seven aspects of the experience based on this rationale listed in the Table 2 below, and which serves as the foundation for the construction of the experiment.

## 3. Methodology

The method used to achieve the objectives of this research was implemented in three stages (Table 3).

### 3.1. Supermarket

To perform the data collection with the elderly, it was used a supermarket in the metropolitan area of Florianópolis, Santa Catarina. Therefore, the elderly users of this supermarket's service were treated as a model to represent the elderly population of Florianópolis. The establishment had 4,100 square meters of sales area and 10,000 square meters in size, it has been operating since April 2012, offering retail sale to the final consumer, given to the date of the survey, an audience of 4,300 (daily average). It did not have a specific strategy for senior care, but offered preferential treatment in cashiers, exclusive parking spaces and electric motorized carts for users with mobility problems.

**Table 2.** Experience's aspects.

EXPERIENCE'S ASPECTS	OBSERVED AND MEASURED ASPECTS
PHYSICAL (ENVIRONMENT)	Environment, accessibility, usability (NIELSEN, 2007).
AESTHETIC	Aesthetic attributes - colors, shapes, textures (COATES, 2003).
SENSORIAL	Senses - smell, taste, sight, touch and hearing (MUNARI, 2008).
EMOTIONAL	Perceived emotions, mood influence (ELIAS, 2000).
MOTIVATIONAL	Expectations, prediction of interaction (HASDOGAN, 1996).
SOCIAL	Socialization level (DOUGLAS; ISHERWOOD, 2006).
ENGAGEMENT	Interaction, fidelity, personal experiences (connection) and product's attributes (DAMÁZIO; MONTALVÃO, 2008).

Source: Prepared by the author.

**Table 3.** Methodology.

<b>I</b>	The first is a survey of theoretical foundation, which was guided by defining the problem, hypothesis, general and specific objectives. This was an exploratory research, in which it was possible to investigate concepts and methodologies for the measurement of objectives.
<b>II</b>	With the theoretical reference held, the second step was the collection of data through a direct structured interview, approaching the old user (person aged 60 or more) in a supermarket or out of this environment, and applying a structured questionnaire, through interviews, for the evaluation, by Likert scale (1 to 5), of the listed aspects of the experience.
<b>III</b>	The third step consisted in, based on the questions, analyzing the results of the first and second stage, evaluating aspects of the experience, and determining through statistical analysis (Factorial Analysis) the relationship between aspects, order of relevance and priority for the user and the use's experience of the service, as well as discussions on the corroboration or refutation of the hypothesis.

Source: Prepared by the author.

### 3.2. Data analysis

For categorizing and organizing, the tabulation of the data was carried out and divided into four categories: registration information (name, contact, sex and age), data referring the use of the supermarket (how often it was used, transport used, motivation to the use), data relating to aspects of experience (Likert scale questions) and open questions regarding opinions and observations.

After finishing the tabulation, data were recorded according to the methodology used for data analysis in Likert scale, relating to aspects of the experience, generating scores for each issue and aspect: average scores, scores for individual as well as median and average rating for each aspect so that this way could be compared the seven aspects of the experience with each other and compare each question to each other, and thus, generate directions for the application of statistical tests.

For the comparison and appreciation of the aspects of experience, statistical tests of Exploratory Factorial Analysis (AFE) were performed for determining the correlations between the aspects that were carried out, the KMO test (Kaiser-Meyer-Olkin) and Bartlett to determine the reliability of factors and level significance. The Factorial Analysis consists of a set of statistical techniques used in situations where many variables are considered simultaneously, resulting in multiple measurements on each individual or object under investigation. The higher the number of variables treated in the study, the more complex

becomes the analysis by standard univariate methods, as advocated by Mingoti (2005). This technique addresses the problem of analyzing the structure of the interrelationships between a wide number of variables, defining a set of latent dimensions, called factors. Through this technique, it is possible to identify the size and determine the degree into which each variable is explained by each dimension (HAIR JUNIOR et al., 2005). For all tests, the significance level used was 5% ( $\alpha = 0.05$ ), looking for a reliability level of the data of 95%. The AFE was performed in IBM SPSS Statistics 20.0 software and adjusted using as extraction method the analysis of principal components and how rotation method varimax.

### 4. Results: value of the experience's aspects

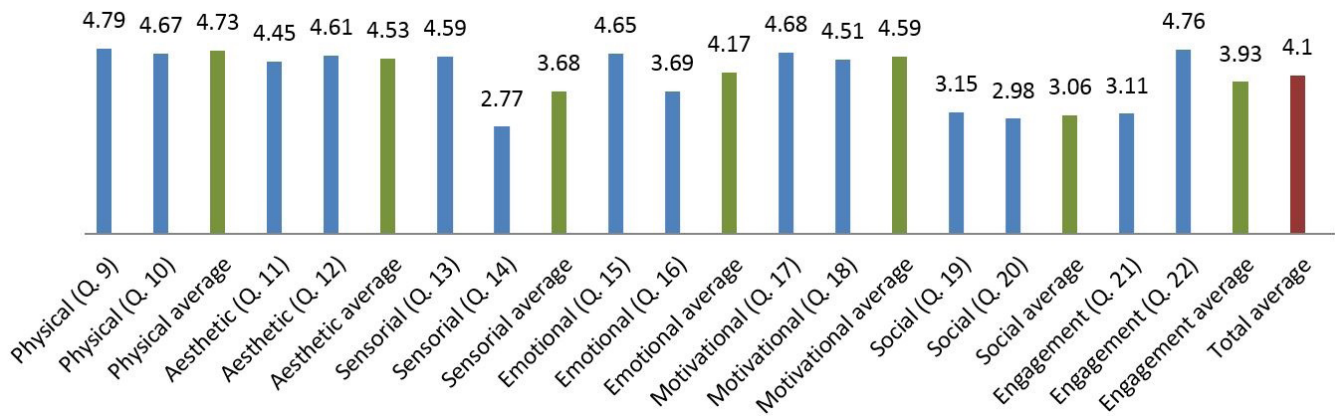
The survey was conducted with a total of 150 elderly respondents in a survey of fourteen questions in Likert scale divided in seven variables, it means the seven aspects of the experience (physical, aesthetic, sensorial, emotional, motivational, social and engagement). The questions involving aspects of the experience and measures in Likert scale were enumerated from 9 to 22, which means the questions 9 and 10 concerned the physical, 11 and 12 to aesthetic, 13 and 14 to sensorial, 15 and 16 to emotional, 17 and 18 to motivational, 19 and 20 to social, and 21 and 22 to engagement. The following Graphic 1 shows the averages obtained for each question, the averages per aspect and the total average.

The total average for the grades given by respondents was 4.1. The aspects that obtained the average scores below 4 points were the sensorial (3.68), social (3.06) and engagement (3.93) aspects. The aspects that obtained the highest averages were the physical (4.73) and motivational (4.59) ones.

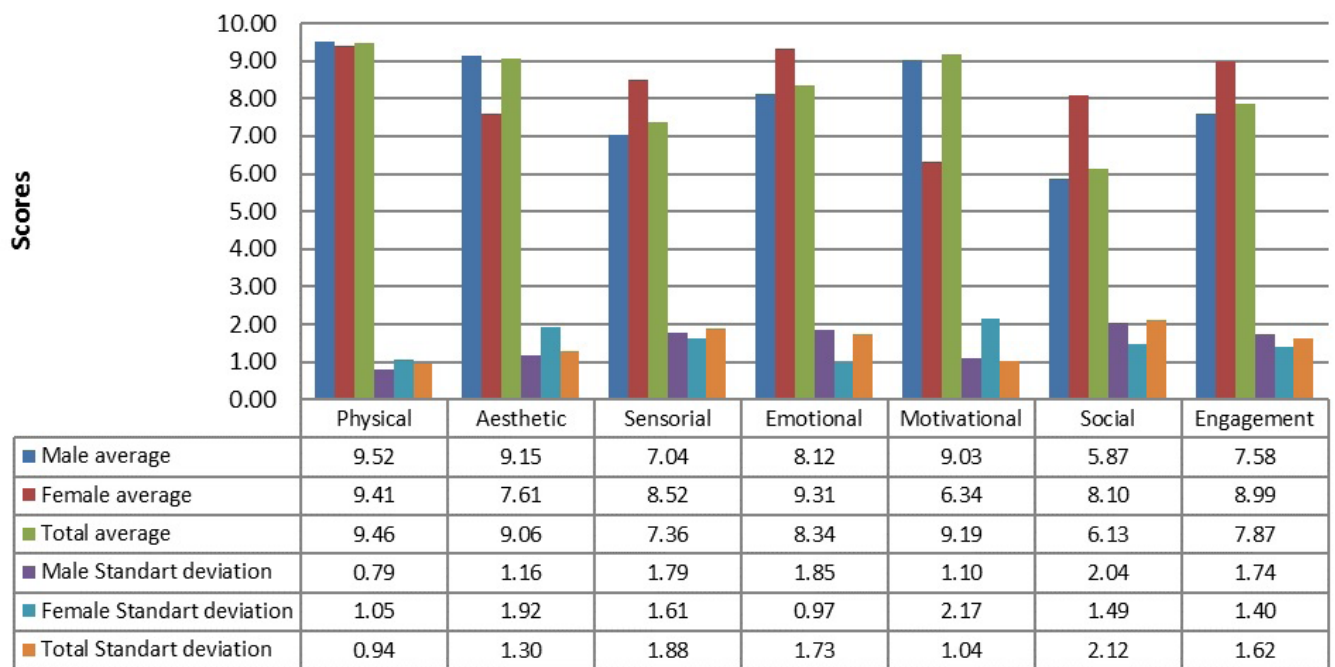
For the implementation of the statistical tests, first were calculated the obtained scores for each individual interviewed by every aspect of the experience (values at least 2 and maximum 10), through the sum of the values assigned to each question related to every aspect. Therefore, the values of questions 9 and questions 10 (physical aspects), 11 and 12 (aesthetics), 13 and 14 (sensorial aspects) and

so on were summed, so it was obtained the scores for each aspect per individual and the average the scores for each aspect in the total, by sex and their standard deviations as shown in Graphic 2.

Among men, the social aspect was the one with the worst average and the highest standard deviation (5.87 and 2.04). Among women, the motivational aspect had the worst average and higher standard deviation (6.34 and 2.17). In total, the sensorial and social aspects were the ones that received the worst average (7.36 and 6.13) and had the highest standard deviation (1.88 and 2.12). The motivational and social aspects were the ones that showed the biggest differences between the male and



Graphic 1. Average scores. Source: Prepared by the author.



Graphic 2. Average of Experience Aspects of scores. Source: Prepared by the author.

female populations (9.03 and 6.34 for the motivational and 5.87 and 8.10 for social).

Then the total data were compiled and put into the software to the test (AFE). One of the results obtained by performing a Factorial Analysis is communality. The greater the commonality, the greater the explanatory power of that variable. The minimum acceptable value is 0.5. If any value is found below that, the variable should be deleted and the Analysis should be performed again. In the first time that the Factorial Analysis was performed by the software, the aspect Engagement presented a value lower than 0.5 (Table 4), because it did not present expressive value of correlations to be explained by each factor extracted.

The Factorial Analysis was performed again excluding the Engagement aspect, thus obtaining the following results (Table 5). The KMO test and the sphericity and Bartlett's ones indicate the degree of adjustment of the data to the factorial analysis. The KMO test obtained the value 0.609 (satisfactory suitability) and exposed the adequacy of the factorial solution in applying the survey data, showing that the data matrix used was suitable for the analysis, because

**Table 4.** Communalities.

ASPECT	INITIAL	EXTRACTION
Physical	1.000	.654
Aesthetic	1.000	.589
Sensorial	1.000	.629
Emotional	1.000	.556
Motivational	1.000	.548
Social	1.000	.531
Engagement	1.000	.461

Source: Prepared by the author.

**Table 5.** Communalities second Factorial Analysis.

ASPECT	INITIAL	EXTRACTION
<b>Physical</b>	1.000	.646
<b>Aesthetic</b>	1.000	.585
<b>Sensorial</b>	1.000	.704
<b>Emotional</b>	1.000	.533
<b>Motivational</b>	1.000	.744
<b>Social</b>	1.000	.594

Source: Prepared by the author.

**Table 6.** Total variance explained.

COMPONENT	INITIAL EIGENVALUES			SUMS OF UPLOADING EXTRACTION IN SQUARE	
	Total	% of variance	% cumulative	Total	% of variance
<b>1</b>	<b>1.699</b>	<b>28.324</b>	<b>28.324</b>	<b>1.699</b>	<b>28.324</b>
<b>2</b>	<b>1.087</b>	<b>18.111</b>	<b>46.435</b>	<b>1.087</b>	<b>18.111</b>
<b>3</b>	<b>1.020</b>	<b>16.992</b>	<b>63.427</b>	<b>1.020</b>	<b>16.992</b>
4	.868	14.467	77.894		
5	.682	11.361	89.256		
6	.645	10.744	100.000		

Source: Prepared by the author.

values below 0.5 indicate the inadequacy of the method. Bartlett's test showed the correlation of equality of the variances at each level of the factors, yielding values less than 0.001, indicating, according Mingoti (2005), that there are significant evidences of linearity within these.

Factor analysis can be applied to create a new set of variables, which will be highly correlated with the original ones, making possible to work with a large number of variables, through the structural simplification of data and without compromising valuable information (LEE et al., 2005). It may generate a new set of variables, called factors, in which the most significant variables may be identified through the principal components' analysis (SINGH; MALIK; SINHA, 2005). The analysis of the principal components is linked to the explanation of the covariance structure by linear combinations of the original variables. It aims to reduce the original dimension of the variables and to facilitate the interpretation of the performed analyzes (JOHNSON; WICHERN, 1992).

Thus, after the AFE, the eigenvalues that represent the variability of each component and the percentage of variance explained through each one were determined, and thus the aspects of the experience may be reduced to three. As a criterion for decision on the number of factors to be selected to represent the latent structure of the data, it was initially considered the latent root criterion, which selects only the factors whose eigenvalues are greater than 1. Considering this criterion, it can be observed that three factors are selected, which corresponds to 63.4% of the total variability (Table 6). This result is also suitable for the percentage of variance criterion, which suggests that an explanation of at least 60% of the variability is sufficient.

Thus, from the eigenvalues it was possible to determine the items that form the basis for obtaining the factors. It is through them that gives rise to the factorial loadings. Table 7 shows the factorial loadings representing the contribution of each variable to the formation of the factor. It was proceeded to the Varimax rotation of the factors to facilitate the viewing of the representative factorial loadings on each factor. When taking into account the criterion of practical significance, which suggests that they are considered of practical significance the factorial loadings greater than

“0.50”, it was possible to highlight the significant variables in each factor. The variables with higher coefficients are more correlated with the factor (MINGOTI, 2005).

Thus, there are the following aspects for each factor (Table 8).

When performing factorial analysis separating the respondents by sex, the KMO tests showed mediocre adaptation (0.507 for men and 0.593 for women). The Bartlett test verified that the aspects did not present significant evidences of linearity only for the data of male respondents (values greater than 0.001). In both AFE, the tests had to be redone, because two aspects did not show commonalities below 0.5, aesthetic aspect for men and engagement aspect among women. Thus, analyzes were repeated without the respective aspects and both results were obtained from three factors, but with different groups of aspects on each one, as shown in Table 9.

## 5. Discussion

The analysis of the measured aspects of experience and the Factorial Analyses performed allowed assessing the importance given by each user for each one of the seven aspects of the experience. Some aspects showed consistency in the results, presenting average and higher

scores: physical, aesthetic and motivational aspect. Other aspects presented low averages and inconsistencies in the results, being more relevant now among the elder women, now among elder men, now in its entirety.

The aspects that presented the greatest differences between elder men and women, the motivational and the social ones, can be related to the questions that concern the frequency of use of the supermarket and appreciation for conversation, respectively. Women presented a score to the motivational aspect (6.34). In contrast we have that men showed the 9.03 score for this aspect. That is, elderly men are more motivated to use the supermarket’s service. However, analyzing the social aspect, the situation is reversed. Women present score 8.10, while men have a score of 5.87.

Analyses of factors showed distinct results, AFE results for men were the most dissonant. Among men, the eliminated aspect was the aesthetic one, while among women the eliminated one was the aspect of engagement, as well as in the final analysis. Thus, distinct groups of factors for each population studied were originated, assuming groups of different aspects for men and women. However, this division by gender ends up reducing the number of the samples, what turns AFE use not fully adequate for the groups distinguished by sex. Thus, it is suggested that in future studies, for an analysis by gender, that the sample is extended and the number equated. Therefore, in this study, it was chosen to explore only the AFE results of the sample in general.

The elimination of the engagement aspect in the Factorial Analysis can be linked to economic and behavioral factors of the elderly. Throughout the interviews, several seniors said enjoy visiting several different supermarkets and do price research. In addition, many older people mentioned not being happy with the high prices of the products, the possible negative economic situation in Brazil, preventing the use of just one grocery store. However, supermarkets are still attractive facilities for the elderly consumers and susceptible for loyalty for being this the opportunity that these individuals have for social engagement, promoted by functional and social improvements, which corroborates Ramos (2002), Ann and Koenraad (2010).

The three factors obtained in this Factorial Analysis, in being observed separately, make it possible to realize common characteristics between each aspect of the factor, and that assists in labeling this factor. The first factor includes tangible aspects of the service, which can be seen and touched. The second factor relates to the individual’s psyche, how they feel and perceive things around them. The third factor relates to relational aspects between the user and the service provider, how he gets involved with the service and why. Thus, the aspects investigated in this study were divided in three factors: tangible, psychological and relational (Table 10).

**Table 7.** Component score coefficient’s matrix.

ASPECT	COMPONENT		
	1	2	3
Physical	.595	-.050	-.047
Aesthetic	.550	-.016	-.014
Sensorial	.078	.638	-.254
Emotional	-.090	.537	.144
Motivational	.176	-.247	.707
Social	-.250	.269	.554

Extraction method: Main Component Analysis; Rotation Method: Varimax with Kaiser normalization. Source: Prepared by the author.

**Table 8.** Factors and aspects.

FACTOR 1	FACTOR 2	FACTOR 3
Physical	Sensorial	Motivational
Aesthetic	Emotional	Social

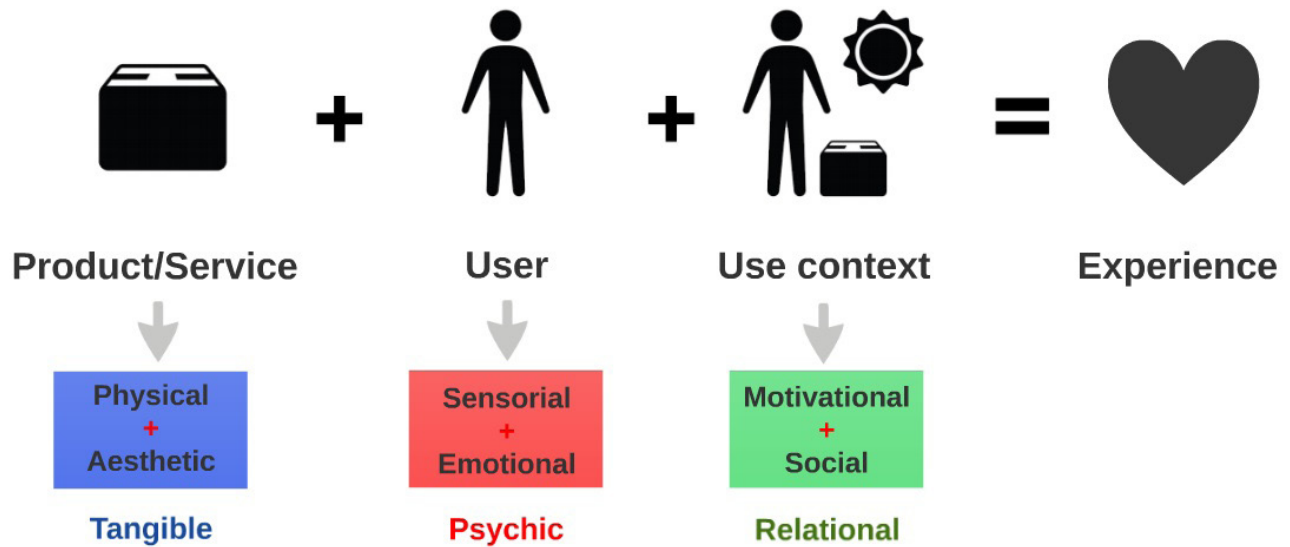
Source: Prepared by the author.

**Table 9.** Factors and aspects by gender.

MEN		
FACTOR 1	FACTOR 2	FACTOR 3
Engagement	Sensorial	Motivational
Social	Emotional	Physical
WOMEN		
FACTOR 1	FACTOR 2	FACTOR 3
Aesthetic	Emotional	Motivational
Physical	Sensorial	Social

Source: Prepared by the author.





**Figure 3.** Factors of the experience. Source: Adapted from Merino and Merino (2014).

**Table 10.** Factors and aspects.

TANGIBLE	PSYCHIC	RELATIONAL
Physical	Sensorial	Motivational
Aesthetic	Emotional	Social

Source: Prepared by the author.

The Tangible factor concerns the tactile and visual aspects, which make tangible the service to the user. The Psychic factor is related to the elderly's psyche, that is, the individual's feeling, reasoning, reflecting. Finally, the Relational factor is linked to the relationship that the elderly establishes with supermarket's service. It was chosen not to distinguish between men and women and not to name the groups of factors obtained for each sex, because the size of the men's sample did not seem sufficient for more meaningful conclusions, so it is suggested the expansion and equalization of men and women's samples.

On observing the three measured factors, the relations between them and the denominated nomenclatures, one can make a correlation with Figure 2, confirming the structure of the experience with the groups of obtained factors (Tangible, Psychic and Relational), as outlined in Figure 3. The Tangential factor relates to the Product, the Psychic one relates to the User and the Relational one relates to the Context of use.

Therefore, from these groups of factors obtained as a final result, it is suggested the refinement of the used collection instrument, dividing it according to the three obtained factors and including more questions for each aspect. Another proposal is to develop a new collection tool, which is based on the obtained factors and its respective listed aspects of the experience.

## 6. Conclusion

The population aging, the increase of older consumers and the need to create products, services and environments consistent with the reality of this population motivated this research. It was sought to determine the value given by elderly users to the physical, aesthetic, sensorial, emotional, motivational, social and engagement aspects in the experience of use of the service in this type of establishment, so therefore seek to contribute to the design of supermarkets' service.

In relation to the current supermarket's project and based on the analysis conducted for this study, it is possible to perceive that is necessary to give emphasis on the retail space functionality and how the shopping environment is organized. However, the rise of the experience economy (PINE; GILMORE, 1999, 2008) makes it clear that, despite the obvious benefits of functionality, accessibility and aesthetics pleasantness of commercial interiors, older customers tend to value the social environment of a store and the experiences that it can offer.

Aspects related to the use of experience of supermarkets' service, within the scope of services, organizational ergonomics, services' design, were risen. Through a structured instrument (questionnaire used in interviews), behavior patterns related to the aspects of the consumption's experience of the Brazilian elderly supermarket's user were investigated, having as a model the elderly population of Florianópolis and a supermarket in the metropolitan area of the city. However, it is relevant the use of other forms of data collection, such as map of the elderly journey at the supermarket, direct and indirect observation, *focus groups*, *think aloud*, among other instruments to confront the

information collected in this study and refine directions and parameters for projecting of use experiences in services.

As a result of the statistical tests, it is possible to have an overview of the valuation given by the elderly in the sample to the aspects of the experience listed on the theoretical basis (physical, aesthetic, sensorial, emotional, motivational, social and engagement) and thus to compare them with each other (Factorial Analysis), to determine relations, level of importance, which ones were relevant and the order of priority.

The appreciation of the aspects of the experience proved to be rich, selecting the aspects that emerged the most important to the use's experience of the supermarket service. From the AFE, the engagement aspect was eliminated, for this does not present a significant value of correlations to be explained by each factor extracted, and the remaining aspects were grouped on three factors: Tangible, Psychic and Relational.

It is proposed with this combination the basis for the creation and application of tools to assist in the planning and improvement of supermarkets' services that consider the perspective of the elderly. It is indicated for the improvement of the obtained results, the increase and equalization of the sample's population between male and female, in order to enable the creation and comparison of factorial combinations specific for each sex. The applied methodology may prove to be a model for other services and can be replicated with some refinements, and thus generate benefits for the improvement of the collection tool and the basis for the creation of tools for the services' design that consider aspects of the experience they wish to project.

Finally, designers and other developers of services should strive to counterbalance and understand the user's experience, as well as the elements that compose it, for the conception of services consistent to the particularities of the desired public, such as the elderly. Therefore, we see with this work that researches involving older consumers as well as the scientific production involving the use of service's experience and services' design are still small, and are even smaller when turned to the Brazilian reality. So it is noticeable the opportunity to proposals for future studies, conducting thematic approach using other perspectives of data collection, the development of tools that tangent the aspects of the experience, and the creation of a case study involving the application of the aspects of the experience in the development of a service.

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