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Negative Perception of a Store Environment: Design and Validation of a Measurement Scale

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Abstract- *This paper describes the process of designing and validating a scale to measure negative perception of a store environment (NSE) using Churchill's approach (1979). The importance and relevance of this concept are first examined. Then, we present our methodology in terms of the individual and group interviews and the critical incident method which allowed us to generate a series of items related to environmental factors that are negatively perceived. Finally, exploratory and confirmatory procedures indicate that the scale is structured around four dimensions and has good validity estimates.*

General Terms- *Consumer behavior, Retail distribution*

Keywords- *Scale development; Negative perception; Store environment*

1. INTRODUCTION

Since the seminal article of Kotler in 1974 on the importance of atmosphere of a retail store as a management tool for a retailer, research has multiplied attempting to analyze the influence of the retail environment on customer reaction. In parallel, many measures have been proposed. These measures reflect definitions, categorizations, different conceptual analyzes. Therefore, the notion of contextualisation appears crucial in the definition and measurement of a retail environment.

However, despite the growing importance of stores and recently service companies, interest in environmental stimuli that elicit negative reactions from customers during their shopping experience is still in its infancy. Even if practitioners today are aware of the importance of the impact of atmospheric factors on the affective, cognitive and connotative reactions of their customers and they adopt as a consequence appropriate strategies to create enjoyable shopping experiences, authors like D'Astous (2000) pointed to the importance of considering the "dark side" of this shopping experience. Thus, this paper aims at contributing to a better understanding of the negative perception of a retail environment. To this end, a multidimensional measurement scale applied to mass distribution is proposed. The theoretical background of the study is presented first. The process of designing and validating the measurement scale of the negative perception of a retail environment is then detailed. Limitations, implications and future research directions are discussed at the conclusion section.

2. REVIEW OF LITERATURE

2.1 Retail Store Environment: conceptual specifications

Whether physical, ecological, sociological, or psychological, environment takes a different meaning. In general, environment is defined as "*The set of natural conditions (physical, chemical, biological) and cultural (sociological) that act on living organisms and human activities*" (Le Petit Robert, 1979). Within environmental psychology, environment is "*all set physical locations, configured spaces that offer constructed stimuli. The physical is what is constructed*." (Fisher,1996). Physical environment of a retail store refers to any element, whether physical (music, smells, colours, architectural elements) of a store that can be controlled in order to enhance or limit behaviour of its occupants, both consumers and employees (Eroglu and Machleit, 1993). However, in marketing there are different terminologies to describe this environment. Thus, to identify environment researchers use concepts like "environment design", "atmosphere", "atmospherics", "physical surroundings", "environment cues," "designed space", "servicescape" "physical setting", "physical facilities" and "physical evidence". Although there are several concepts that describe physical environment, there are conceptual differences between some concepts commonly used to describe environment, in particular environment, situation and atmosphere

The concept of situation has been defined in two approaches respectively, objective and subjective. Belk (1975), who was one of the first to focus on the concept of situation, defines situation as "*all factors specific to a place and a period of observation that does not derive from personal knowledge (intra-individual) or reactions to a stimulus and has a systematic and demonstrable effect on the normal behaviour of the consumer*." On the other hand, Lutz and Kakkar (1975) define the situation as: "*all internal responses of individuals or their interpretations of factors specific to a place or a period of observation that are not stable individual characteristics or stable*

environmental features and which have a demonstrable and systematic effect on the psychological processes of the individual or his/her observable behaviour."

These two approaches are not mutually exclusive, because as Dubois (1994) explains*"…. it all depends on the objective. If you are primarily interested in predicting the expected outcome in a particular situation, the objective approach is probably sufficient. If one seeks to explain the impact process, the perception of the situation may matter more than the situation itself".*

Atmosphere was defined by Kotler (1974) as "*the conscious design of space to create certain effects in buyers. More specifically, the atmosphere is the effort to design purchasing environments in order for the buyer to produce specific emotional effects that enhance his/her purchase probability*". Therefore, atmosphere is the result of the different perceived elements of the environment.

Therefore, while situation corresponds to a point in time and in space (Belk, 1975), atmosphere (from Greek atmos "vapour" and sphaira "sphere") is "*the place in terms of impressions it produces on us, the influence it has on us*" (Webster, 1979). Thus, the conception of Belk, it is about describing a state to explain consumer behaviour, but Kotler's approach is to develop this state to encourage certain behaviours.

Finally, contrary to environment which may have tangible characteristics (natural or artificial) atmosphere is mostly intangible since it evokes the "*quality of what surrounds us*" (Kotler, 1974). Likewise, "*... situation and environment (...) represent sources of a distinct influence on consumer behaviour and they should not be used as synonyms. Environment corresponds to a larger conception and represents a general behavioural environment, while situation is more like a momentary concept*." (Belk, 1974).

Thus, like situation, atmosphere is apprehended by the researchers (Chebat and Michon, 2003) as a subset of environment research current.

2.2 Retail Store Environment: a Multi-Faceted Concept

Different typologies have been used in the study of the influence of environment on consumer behaviour. Kotler (1974) and Baker's (1986) typologies are the most used. According to Kotler's typology (1974), atmosphere is apprehended through the senses and described in terms of sensory elements (e.g. the typical atmosphere of a nightclub is bright and noisy). Indeed, atmosphere is seen, heard, felt, touched but not tasted. Although Kotler's classification (1974) has not been used as a general framework for the construction of the theory, it nevertheless stimulated and guided research on the impact of environmental factors on consumer behaviour (Areni and Kim 1994; Donovan and al, 1994). The Baker's typology (1986) differs from that proposed by Kotler (1974), as it takes into consideration the social factor as an element in itself of physical environment. Indeed, taking into account the social factor seems very important to be ignored in understanding the influence of environment because of its crucial role in creating emotions such as excitement or frustration among customers (like in queues). Thus, the author divides environment into three components: ambient factors, design factors and social factors. This review of the literature, that we do not claim exhaustive, highlights the importance of considering contextualisation of a retailing environment for each retailer, which makes it an elusive concept as shown in table 2.

2.3 Negative Perception of a Retail Store Environment: Definition and Relevance

Little research has focused on the environmental elements that are perceived negatively in a shopping experience. Only a few studies, like those of D'Astous and al (1996, 2000) on irritating environment and Aylott and Mitchell (1998) on shopping stressors brought some insights into this topic. Moreover, D'Astous and al (1996, 2000) proposed a typology of these irritants. This typology is the result of a study on the irritating factors of a store environment. Categorization of the 18 identified factors was performed on the basis of Baker's typology (1986). This typology is different from previous classifications as it positions environmental factors from a negative side. D'Astous (2000) therefore insists on retailers' priority efforts to be geared towards aspects negatively evaluated by customers. In view of what has been discussed above, we propose the following definition: A retail store environment, negatively perceived, consists of a set of physical and social attributes perceived negatively, which can be controlled wholly or partly by both retailers and customers, and which generate negative emotional, physiological, cognitive reactions and avoidance behaviour among individuals present in this space. Despite the lack of attention to the negative perception of a store environment, this concept is relevant for distributors for three reasons:

2.3.1. Disproportionate influence of negative information

As of the 1950s, research started investigating the role of negative information on customers' decision processes. Thus, Menzel and Katz (1955) or Rogers (1962) noted that negative information may delay the adoption process for new products. Other researchers (Arndt, 1967; Darden and Reynolds, 1972) show that consumers are significantly more sensitive to negative information and therefore decline from purchasing the product. Moreover, it seems that the influence of unfavourable information is greater in evaluating services (Weinberger and al, 1980), in forming impressions of individuals (Anderson, 1965) and in generating more strong emotional reactions (Mizerski, 1982). However, this influence is moderated by information source (Weinberger and al, 1980). This disproportionate influence can be explained by the concept of surprise. In fact, according to information theory, negative information is by definition more shocking and

surprising. Consequently, it would have more influence on forming evaluations (Mizerski, 1982).

In our case, environment is a source of information during an evaluation, made by the customer, of a product quality or price, (Bitner, 1992). Indeed, the type of equipment used, the intensity of the light, and the design are elements that provide information about the store and its members and therefore they contribute to environment interpretation (Davis, 1984). Because these elements are subject to multiple interpretations and perceptions, therefore it is important to know about negative perceptions. Indeed, taking into account any negative information is important as it plays a more important role than positive information in forming judgments because of higher cognitive processing (Mizerski, 1982) and that *"the impact of negative reactions on overall satisfaction is strongly more negative than the positive impact of positive reactions* "(Mano and Oliver, 1993).

2.3.2. Environment overload and avoidance behaviour

Milgram (1970) defines overload as "*a situation in which the amount of environment stimuli exceeds the capacity that can be supported*". In marketing, authors like Jacoby and al (1974) have highlighted the notion of "*information overload*." According to these researchers when the consumer receives an amount of information that exceeds his/her analysis ability, the quality of his/her decision weakens (Sibéril, 1994). Therefore, it is important to consider the negative characteristics of the store atmosphere because the resulting information overload has an adverse effect on the customer by encouraging avoidance behaviour (Sibéril, 1994). In the context of a study on density, Harrell and Hutt (1976) highlighted that customers under crowd effects, considered an "*information overload*", tend to reduce the time dedicated to shopping and limit conversations with employees and engage in a shorter and less evaluative decision-making process.

2.3.3. Contribution of asymmetric theory of satisfaction

Satisfaction can be defined as "*an immediate post-purchase evaluative judgment or an emotional response to the transaction with the most recent firm*" (Garbarino and Johnson, 1999). Despite the numerous studies on satisfaction given retailers' objectives (loyalty ...) dissatisfaction is even more important to "treat" as it generates two unequally important responses from individuals (Hirshman, 1970). Either customers develop complaining behaviours or they decide to leave (defection). This second strategy is the dominant response in a dissatisfaction response and is the most serious for the company as customers switch to competitors.

The three-class model

Llosa (1996) became interested in the weight of the factors contributing to satisfaction. Her model incorporates two logical components that contribute to satisfaction; factors whose weight is fluctuating (asymmetric or nonlinear) and factors that remain stable (symmetric or linear). Therefore, she highlighted four elements:

- Basic Elements which poorly contribute to satisfaction when evaluated favourably by consumers and strongly when assessed unfavourably.
- Additional Elements which highly contribute to satisfaction when evaluated favourably by consumers and marginally when evaluated unfavourably.
- Key elements which strongly contribute to satisfaction regardless of their assessment by the consumer.
- Secondary elements which whatever their evaluation have no crucial role in satisfaction.

In sum, retailers should focus their efforts on improving the basic elements and maintaining key elements. On the other hand, it seems that minimizing dissatisfaction attitudes is more important than maximizing satisfaction due to their uneven effects on their image and market share.

3. METHODOLOGY AND RESULTS

3.1 Specifying Construct Domain

The first stage of Churchill's paradigm (1979) has already been exposed. As a reminder we defined the negative perception of a store environment as a set of physical and social attributes perceived negatively, which can be controlled wholly or partly by both retailers and customers, and which generate negative emotional, physiological, cognitive reactions and avoidance behaviour among individuals present in this space.

We present in what follows the exploratory and validation phases.

3.2 The Exploratory Phase

3.2.1. Generation of a set of items: process, results and qualitative purification

The literature review points to a lack of a measure of a negative perception of an environment in marketing. Existing scales on the perception of environment does not often measure the phenomenon subject of this study. Only some studies (Llosa 1996, D'Astous, 2000 Lichtlé and al 2002, Helme-Guizon, 2002 Machleit and al, 2005; Arnold and al, 2005), most often qualitative in nature, stopped at identifying negatively perceived environmental factors. Therefore, in addition to the review of the literature, a qualitative study has been judged as crucial. We used three data collection methods: semi-structured individual interviews, focus group and critical incidents.

The choice of these data collection methods is justified on the one hand by their relevance to the aim of this study and on the other hand their advantages. Thus, we used semi-structured interviews because they allow for a good validity of the data collected, since they are generated by the respondents and are more likely to reflect reality. (Coutelle, 2005). In addition, given the nature of the

information sought, i.e. an experience easily verbalised away from taboos, the interview method is relevant given the wealth of information potentially collected. (Helme-Guizon, 2002). Data were collected from 21 individuals attending retail stores. The sample size was defined using the saturation criteria defined by Mucchielli (1991Rieunier in 2000), as "*The phenomenon that emerges after some time in qualitative research when collected data is no longer new. All efforts to collect new information are made useless. What we collect then and which falls within already known frameworks we can stop searching*". With regard to focus groups, their advantage is that "*the interplay and mutual influences widens thinking and increases production of information*" (Gavard Perret and al, 2008). Focus Group were held in a room equipped with audio recording equipments. The subject is the description of shopping experiences. We formed six focus groups consisting of 8 persons belonging to homogeneous age groups and social classes. The recommended size is 7 to 12 people (Coutelle, 2005). To generate the pool of items, we used a structured interview guide divided into four section according to recommendations of Hadly Rispal (2002) and Gavard Perret and al, (2008). The first introductory part aimed at establishing trust with the respondent and exploring shopping habits. In the second part, we focused respondents' attention on the heart of the research and asked them to describe the various emotions felt in a store. In the third part, we went deeper by asking respondents to identify the various environmental elements that they have perceived negatively. Finally, we ensured, thanks to the sequencing of questions, that respondents have nothing more to say. The third data collection method that we have used is critical incidents. Besides its inductive nature (Edvardsson, Bo., 1992, in Gremler, DD, 2004), the critical incident method is recommended when the purpose of the research is to probe knowledge of less known subject (Gremler, DD, 2004). Thus, the critical incident technique is "*a qualitative interview procedure which facilitates the investigation of occurrences (events, incidents, processes, issues) identified significant by the respondent and outcomes in terms of perceived effects*" (Chell, E., 1998, in Chell, E. and Pittaway, L., 1998) More specifically, it is "*a systematic process used to identify events or behaviors that lead to certain outcomes, such as success or failure in relation to specific tasks (Bitner and al., 1990), or satisfaction or dissatisfaction with a service" (Bitner and al., 1994), or as in our case "good or terrible shopping experiences*" (Arnold and al., 2005). Therefore, during the interview the respondent needed to remember a particular event. To this end, we asked a question about the description of a shopping experience in which they ill-perceived a physical and / or a social environment of a store. The researcher identifies incidents in the discourse. Like individual interviews, we proceeded with the saturation method to determine the sample size which totalled 17 individuals. Through this combination of methods, we were able to identify a list of 63 environmental factors that are perceived negatively. The different elements belong to the following categories: atmosphere, social factor, layout and exterior factors. To ensure content validity, we submitted all of these items to a group of three experts (marketing teachers working on store environment). Accordingly, we have used, like D'Astous, 2000, Baker's typology (1986) and asked judges to rate each item according to whether it belongs to one of these categories. To this end, we asked experts to rank the items in one of the four proposed dimensions (the 3 Dimensions proposed by Baker (1986) plus the category "none"). Each item must belong to a single dimension. The categories being mutually exclusive, items that belong to multiple categories or do not match the construct are placed in the "none" category and thus removed from the scale. After this step, 11 items were eliminated. To ensure reliability of the responses, we calculated an inter-code reliability indicator. To do this, we proceeded in two steps:

1. The measure of reliability for each pair of raters
2. The measurement of interrater reliability

To measure the reliability of each pair of raters, we used the reliability index Ir of Perreault and Leigh (1989). We did not used Kappa, which is widely used and as it has been subject to criticism. Indeed, it is based on the notion of chance since it compares agreement percentage between raters with that which would be randomly obtained (Evrard and al, 2000). Moreover, even in case of perfect agreement between raters, Cohen's kappa, may not reach the value 1 (Grayson and Rust, 2001). Against these findings, Perreault and Leigh (1989) propose a reliability index Ir for each pair of raters, which is calculated as follows.

$$Ir = \begin{cases} \{ [A - (1/K)] [K/ (K - 1)] \}^{0,5} & \text{if } A \geq 1/K \\ 0 & \text{if } A < 1/K \end{cases}$$

where

A= Fo/ TOT

Fo = the number of pairwise interjudge agreements

TOT = total number of pairwise judgments

K= the number of categories into wich the responses can be coded

Since index Ir, allows to calculate degree of agreement for each pair of raters, we then used the proportional reduction in loss (PRL) index proposed by Rust and Cooil (1994), considered by the authors as a general model of the index Ir. Indeed, besides the fact that it can be calculated for a number of items and / or for more than 3 raters, Rust and Cooil (1994) state the following advantages, "*it is applicable on both qualitative and quantitative data, it connects reliability to expected information loss, it facilitates the determination of an acceptable level of reliability and facilitates the determination of the necessary minimum number of raters*". To determine this index, it suffices to calculate A (the proportion of inter-raters agreement), then just to read the PRL index on a statistical table that intersects at column level the number of raters used in the purification phase of items and at lines level the value of A.

3.2.2. Item reduction and exploratory investigation of dimensionality

This phase allows us to discover the structure of our scale. To do this we administered our questionnaire in two stages:

The first pre-test phase conducted first on 20 individuals allowed us to verify the clarity and understanding of the questionnaire. Sample size was determined following the recommendations of Giannelloni and Vernette (1994, in Rieunier, 2000) "*who suggest, for investigations focusing on a large population, that the pre-test questionnaire be conducted on 15 to 30 customers of the final population* "(Rieunier, 2000). The results indicate that the items of this scale are well understood except for the item "There was a crowd" which was replaced by "there were a lot of people".The second pre-test conducted on a sample of 229 customers. The objective of this phase was to determine a first structure of our scale.To evaluate the psychometric properties of our scale, we made sure that the data is factorable (variables must be sufficiently correlated to allow for a "summary" of information, Jolibert and Jourdan, 2006). To this end, we used the Bartlett test "to check whether the correlation matrix is statistically different from an identity matrix". Thus a high value of this test will help the rejection of the null hypothesis which assumes that the variables are not correlated in the population (Malhotra, and Decaudin Bouguerra, 2004). Second, we used the KMO test to measure adequacy of the sample to a factor analysis (Malhotra, and Decaudin Bouguerra, 2004). Bartlett's test (1848.732, p = 0.000) and that of KMO (0.765) indicate that our data is factorable.Successive iterations were performed which allowed us to eliminate items whose communality is low (<0.5), the items found on several factors, and whose factor weight difference is <0.3, items whose contribution is <0.5 and the items that are in themselves a component. Finally, we obtain a four-dimensional structure which contains 19 items.The exploratory factor analysis reveals four dimensions factors: employee, ambient cues, design and crowding. The obtained scale explains 68.079% of the total variance and reliability analysis indicates a good internal consistency for the dimensions.

3.3 The Validation Phase

In this phase, it is about confirming the factorial structure obtained in the previous phase and measuring reliability using Cronbach's alpha and Jöreskog's rho. An examination of construct validity relies on two estimates: convergent validity and discriminant validity. Finally, we will consider the issue of predictive validity. These analyzes were conducted using the maximum likelihood method. To this end, we conducted a second data collection phase from a sample of 484 individuals.

Bartlett's test (5113.877, p = 0.000) and KMO (0.914), performed during the second data collection phase, allow us to perform a factor analysis.

3.3.1. Reliability

The exploratory factor analysis extract the structure of the scale NSE as identified during the pre-test. Reliability measured by Cronbach's alpha indicates good internal consistency (> 0.8).

3.3.2. Convergent validity

It ensures that the indicators supposed to measure the same phenomenon are correlated (Evrard and al, 2000). This validity is checked when: *T* test associated with each loading indicators is > 1.96 and where each item shares more variance with its construct and the measurement error associated to it. This shall be verified using rho convergent validity of Larker and Fornell (1981). This indicator should be greater than 0.5. The results indicate that the loadings of the various items are satisfactory. T-tests are significant (> 1.96). Finally, it seems that our scale has good convergent validity since ρ*vc* of Fornell & Larcker is > 0.5.

3.3.3. Discriminant validity

In contrast to the previous validity type, it seeks to ensure that the indicators assumed to measure different phenomena or aspects of the same construct are weakly correlated (Evrard and al, 2000). Therefore, this validity requires that "*the shared variance between the latent variables must be less than the variance shared between the latent variables and their indicators*" (Roussel and al, 2002). With shared variance being the square of the correlation between the latent variables, discriminating validity is checked when rho convergent validity is larger than the squared correlation coefficient between the two latent variables. The results indicate that discriminant validity of our scale is checked since variance shared between the latent variables is lower than the variances shared between the latent variables and their indicators. Indeed, the table (…) below reports the different values of rho that are superior to the squared correlation coefficients between the latent variables taken two by two.

3.3.4. Goodness of fit of the measurement model NSE

The results of the confirmatory factor analysis are satisfactory. Indeed, absolute, incremental and parsimony indices meet the evaluation criteria.

3.3.5. Nomological or predictive validity

It aims at seeing "*whether or not the relationships between measures of a concept and those of other concepts are consistent with the predictions issued from theory*" (Evrard and al, 2000). Predictive validity was tested using as a criterion emotions felt during a shopping experience. Indeed, most of the research in sensorial marketing is based on the model of Mehrabian and Russell (1974), which states that environment acts directly on emotions. Therefore the negative perception of a retailing environment is integrated into a structural model that will allow us to verify this validity. Respecting the thinking of Mehrabian and Russell (1974), we test the hypothesis that the negative emotional state of individuals within a retail

store is influenced by their negative perception of its environment. To test these hypotheses, we used the PAD scale of Mehrabian and Russell (1974) and we tested a structural model. The results of the *T* test and the obtained R^2: 0.4, 0.416 and 0.441 respective links between NSE and displeasure NSE and submission, NSE and dominance confirm the predictive validity of the NSE scale.

4. DISCUSSION AND CONCLUSION

4.1 Contributions

In our pursuit for a better understanding of the negative perception of a retail environment, this paper enabled to: 1) show the usefulness of this less studied marketing concept 2) develop and validate a measurement scale. The analysis of the literature brings out two key points. Firstly, the need to consider the negative perception of a store environment as the dimensions of environment as well as the packaging of a product are able to convey a comprehensive picture and to suggest the potential use and quality of service (Solomon, 1985, cited by Kim and Moon, 2009). As a reminder, all this interest in atmosphere is justified by the fact that a store atmosphere is, in some situations, more influential than the product itself of the purchase decision, if not the main product in some cases (Kotler, 1974).Consequently, if we focus on the question: how to improve the perception of our products? Improving music style, eliminate odours, improving staff competence are recommendations proposed to improve the perception of product quality. On the other hand, adopting a measuring instrument for each study context is necessary given the multitude of definitions and categorizations developed in the literature.Measuring negative perception of a retailing environment has never received a rigorous modeling. Therefore, the results on its influence on customer reactions remain mixed. Our measurement procedure is a first necessary step to a better understanding of this concept. The design of a scale enables having a synthetic view of negative perception of a store environment.The design process of this scale followed the approach advocated by Churchill (1979). Semi-structured interviews, focus groups and critical incident method helped develop a scale consisting of 19 items grouped into four dimensions: employee, crowding, ambient cues and design, and which meets commonly accepted criteria of reliability and validity.The scale also helps to clarify the concept of negative perceptions of a retail environment and is a starting point for a more general conception of the influence of negative perception of a store environment on cognitive, emotional and behavioral responses of customers.

4.2 Managerial implications

As noted by Bitner (1992): "*One of the challenges in defining environment rests on the fact of developing the engaging behaviour of individuals and encouraging positive social interactions while taking into account the fact that a design optimal for an individual or a group may not be optimal for others*" (cited by Rieunier, 2000). This supports the idea that the notion of perception is crucial. Therefore, even if a retailer intuitively thinks to manage the store atmosphere by diffusing an odour or music, it remains that this atmosphere can be negatively perceived by customers. Instead of getting an approach behaviour, customers adopt avoidance behaviour.Then, for retailers constantly trying to find new strategies to challenge competition by developing a competitive advantage and by increasing and maintaining the maximum number of customers, the development of this scale may be a diagnostic tool. Indeed, identifying environmental attributes which are able to generate negative reactions, retailers have two options: either reduce or eliminate sources of negative reactions.The ideal scenario would be to eliminate, however it is important to remember that environment consists of partially controllable elements. Thus, retailers do not have absolute control over mainly the social factor; both staff and customers. Therefore, at this level, strategies to reduce their negative impact are possible. (i.e. provide training (for competence), to motivate staff, better manage funds (train cashiers to be faster, open all cashiers at peak hours). However, for the other elements, the retailer may either reduce or eliminate them (light the store with a strong light, eliminate bad smells (regular cleaning of floor, improving ventilation and diffusing an ambient odour).

4.3 Future research

Having a better understanding of how the consumer perceives a store's environment is key for researchers and for practitioners because its design enables better exploration of retail environments and equally the development of approach behaviour of customers towards the store. To this end, it seems as main line of research to reinstate the concept of negative perceptions of a retail environment within an integrative framework to measure its influence on internal mediating variables (emotion, cognition), and behavioral moderators like age, gender and learn from them in the future. Moreover, it also seems important, given the problem of environment contextualisation, to develop instruments that measure the negative perception of a store environment in other settings (stores, restaurants, banks).

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APPENDIX

Table 1: The Baker's Typology: Components of the Physical Environment. Source : Baker (1986)

Category	Definition	Features	
Ambient factors	Background conditions that exist below the level of our immediate awareness	Air quality (temperature, humidity, circulation/ventilation) Noise (level, pitch) Scent Cleanliness	
Design factors	Stimuli that exist at the forefront of our awareness	Aesthetic (Architecture, Color Scale) Materials Texture, pattern Accessories Functional Layout Comfort Signage	
Social factors	People in the environment	*Other customers* Number Appearance Behavior	*Service personnel* Number Appearance Behavior

Table 2: The different conceptualizations of the physical environment

Terminology	Atmospherics	Servqual	Servicescape	Atmospherics	Dineserv	Atmospherics	Dinescape

Dimensions	– Ambients cues –Social cues –Design cues (Aesthetic-design cues and Functional-design cues)	-Reliability -Assurance -Tangibles -Empathy - Responsiveness	– Ambient conditions – Space / Function – Signs, Symbols and Artifacts	-External variables -General interior variables -Layout and design variables -Point of purchase and decoration variables	-Reliability - Responsiveness -Empathy -Assurance -Tangibles	-External variables -General interior variables -Layout and design variables -Point of purchase and decoration variables -Human variables	-Facility aesthetic -Ambient conditions -Layout -Lighting -Table setting -Service staff
Author	**Baker (1987)**	**Parasuraman, Zeithaml, & Berry (1988)**	**Bitner (1992)**	**Berman & Evans (1995)**	**Stevens, Knutson, & Patton (1995)**	**Turley & Milliman (2000)**	**Ryu and Jang, 2007**

Table 3: D'Astous typology of the Shopping Irritants

Source: D'Astous (2000)

Ambient	Bad smell in the store
	Store is not clean
	Too hot inside the store or the shopping center
	Music inside the store is too loud
Design	Unable to find what one needs
	Arrangement of store items has been changed
	Store is too small
	Directions within the store are inadequate
	No mirror in the dressing room
	Finding his/her way in a large shopping center
Social	Crowding
	Turbulent kids around
	Being deceived by a salesperson
	Indifference of sales personnel
	High-pressure selling
	Negative attitude of sales personnel
	Sales personnel not listening to client's needs
	Unavailability of sales personnel

Table 4: Reliability of qualitative judgments

		Judge 1	**Judge 2**	**Judge 3**
		Ir	**Ir**	**Ir**
Judge 1	**Ir**	**1**	**0,79**	**0,79**
Judge 2	**Ir**	**0,79**	**1**	**0,75**
Judge 3	**Ir**	**0,79**	**0,75**	**1**
Observed proportion of inerjudge agreement (A)		**0,7**		
PRL		**0,92**		

Table 5: Results of the exploratory factor analysis of NSE scale

DIMENSIONS Items	**Factor loading**	**Cronbach's Alpha Reliability Coefficient**	**Percentage of variance extracted by the scale**
EMPLOYEE			

The cashier did not work his work	,794	,926	
I had the feeling of being watched	,800		
Employees were not friendly	,801		
I have not found a seller when I needed one	,814		
The staff were disinterested	,865		
Sales people were not competent	,809		
The staff was unrecognizable	,786		
AMBIENT CUES			
The light of the store was not adequate	,783	,841	68,079
There was a bad smell in the store	,807		
The style of background music did appeal to me	,785		
Some places were dirty	,791		
DESIGN			
The decor of the store did not appeal to me	,755	,809	
Shelves were ill-placed	,721		
Products were not properly arranged	,771		
Some prices were not displayed	,784		
CROWDING			
There were a lot of people	,816	,824	
The checkout line was long	,822		
People jostled	,808		
The kids were restless	,769		

Table 6: Exploratory factor analysis of NSE scale

DIMENSIONS Items	Factor loading	Cronbach's Alpha Reliability Coefficient	Percentage of variance extracted by the scale
EMPLOYEE			
The cashier did not work his work	,810	,930	68,708
I had the feeling of being watched	,807		
Employees were not friendly	,808		
I have not found a seller when I needed one	,851		
The staff were disinterested	,891		
Sales people were not competent	,872		
The staff was unrecognizable	,841		
AMBIENT CUES			
The light of the store was not adequate	,768	,816	
There was a bad smell in the store	,849		
The style of background music did appeal to me	,725		
Some places were dirty	,865		
DESIGN			
The decor of the store did not appeal to me	,793	,832	
Shelves were ill-placed	,833		
Products were not properly arranged	,805		
Some prices were not displayed	,836		
CROWDING			
There were a lot of people	,809	,843	
The checkout line was long	,857		
People jostled	,860		
The kids were restless	,775		

Similarly, reliability measured by rho Jöreskog indicates that the scale and dimensions show good internal consistency (> 0.8).

Table 7: Confirmatory factor analysis of NSE scale

DIMENSIONS Items	Student's t-Test	Coefficient T of Student	Jöreskog's ρ	ρvc of Fornell & Larcker
NSE			**0,966**	**0,598**
EMPLOYEE				
The cashier did not work his work		0,751	,931	0,660
I had the feeling of being watched	16,770	0,741		
Employees were not friendly	17,356	0,763		
I have not found a seller when I needed one	19,471	0,844		
The staff were disinterested	20,572	0,885		
Sales people were not competent	20,195	0,871		
The staff was unrecognizable	18,875	0,821		
AMBIENT CUES				
The light of the store was not adequate		0,625	,822	0,542
There was a bad smell in the store	13,700	0,799		
The style of background music did appeal to me	11,110	0,601		
Some places were dirty	14,217	0,882		
DESIGN				
The decor of the store did not appeal to me		0,692	,837	0,563
Shelves were ill-placed	15,029	0,799		
Products were not properly arranged	13,735	0,790		
Some prices were not displayed	14,917	0,714		
CROWDING				
There were a lot of people		0,734	,847	0,582
The checkout line was long	16,250	0,810		
People jostled	16,401	0,821		
The kids were restless	13,808	0,677		

Table 8: Discriminant validity of NSE scale

	Employee	Crowding	Ambient cues	Design		ρvc
Employee	*1*	0,057	0,104	0,204	<	0,660
Crowding	0,057	*1*	0,050	0,057	<	0,582
Ambient cues	0,104	0,050	*1*	0,170	<	0,542
Design	0,204	0,057	0,170	*1*	<	0,563

Table 9: Goodness of fit of the measurement model NSE

Indexes		Recommended level
Absolute Fit Index		
GFI **AGFI**	0,955 0,942	> 0,9
RMSEA	0,033	<0,08
Incremental Fit Index		
IFI	0,985	> 0,9
CFI	0,985	> 0,9
Parsimony Fit Index		

Normed χ^2	1,525	1< normed χ^2 <5
PNFI	0,817	The highest possible

Table 10: Predictive validity

Hypothesis	*T* Test	Coefficient T of Student
Crowding → Displeasure	5,174	0,258
Employee → Displeasure	4,728	0,262
Design → Displeasure	1,656	0,100
Ambient Cues → Displeasure	4,247	0,236
R^2 = 0,400		
Crowding → Dominance	**8,135**	**0,400**
Employee→ Dominance	1,363	0,069
Design → Dominance	**5,273**	**0,312**
Ambient cues → Dominance	1,161	0,059
R^2 = 0,416		
Crowding → Arousal	**5,549**	**0,256**
Employee → Arousal	**3,925**	**0,200**
Design → Arousal	**6,211**	**0,376**
Ambient cues → Arousal	0,598	0,030
R^2 = 0,441		