Measuring emotions in customer experiences in retail store environments.

Testing the applicability of three emotion measurement instruments.

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Abstract: Since economy and marketing are shifting from a goods to a service dominant logic, creating and directing memorable customer experiences in retail store environments has become a valuable differentiation strategy. While customer experiences continually receive more attention in literature, knowledge about how to induce these experiences often lacks definitions of central concepts and empirical support. Given that different authors have acknowledged an environment's ability to change consumer emotions and thereby affecting consumer responses, different attempts have been made to capture the mediating role of emotions on consumer responses in the retail store. The purpose of this paper is to contribute to this literature by investigating the applicability of two verbal and one visual self-report emotion measurement instrument for measuring emotions in customer experiences in retail stores.

Key words: Retail design, experience economy, customer experiences, emotions, measurement instruments

1. Introduction

Competing in today's global market is becoming increasingly difficult. Since customers nowadays often perceive products and services as homogeneous, retailers and manufacturers continuously need to look for differentiation strategies [16]. Differentiating oneself from the competitor by creating memorable customer experiences is therefore becoming one of the central objectives of many retail store environments [26].

In the current experience economy, customers ask and expect more than just being satisfied with the purchased brand or product and the delivered service level. Instead, they look for personal, intuitive relationships with brands and retailers [23,24]. Directing the store's retail design towards the creation of memorable customer

experiences by appealing to their senses, emotions and values can contribute to the creation of such company-client relationships. Since customer experiences in retail settings appear to immerse customers at a cognitive, emotional and intuitive level [8], they can be considered as a new source for value creation. A retail experience which succeeds in delivering value to the customer can become the key to long-term retailer success. While 'customer experiences' continually receive more attention, literature on how to create and direct these experiences often lacks definitions of central concepts and empirical support [2,26]. By testing the applicability of three existing methods for measuring emotions in customer experiences in retail store environments, the authors want to contribute to the existing need for empirical support. This contribution however will not expand on the discipline's need for definitions of central concepts.

Since retail design is an emerging discipline in the field of interior design, research in this discipline may well benefit from valuable input of other disciplines. Since design research in general needs to strive to build a testable body of knowledge by systematic exploration through observation and reasoning, Horvath recently has distinguished three framing methodologies which can help achieving this goal. The framing methodologies he sets apart are: (i) research in design context (ii) design inclusive research and (iii) practice-based design research [10]. While the third methodology extracts knowledge from concrete design objects and environments by promoting working in a reflexive manner, the second methodology presumes that design research should combine concrete design initiatives with foundational disciplinary research. For the purpose of the current study however, Horvath's 'Research In Design' context seemed highly valuable. This methodology, which supports analytical research aimed at creating an insight in and understanding of the studied phenomenon, relies mainly on the knowledge of background disciplines. It also uses the research methods of these disciplines, and strives to add to design knowledge. By working according to the principles of this methodic context, the purpose of this paper is to test the applicability of a selection of existing methodologies for measuring emotions from different disciplines. The instruments will be used to measure emotions, which are an intrinsic part of customer experiences in retail store environments.

2. Retail design, experience economy and customer experiences

2.1 Retail design

In today's experience economy, design has gained in status in retail management. Retail design specifically focuses on several aspects that need to be considered when creating retail stores. Firstly, retail design entails an understanding of what will work aesthetically in a retail environment. This involves a comprehension of the importance customers in general attribute to tangible (material) and intangible (atmospheric) design elements. Secondly, retail design also includes an understanding of how different store dimensions will perform functionally and commercially. Thirdly, retail designers evidently have to reflect on the question how the store's design can be build to budget. Finally, the design also has to meet regulations concerning the use of a public space [13]. When customers visit a retail store, they immediately make an association between the products sold in the store, their price, the store's 'tone of voice' and ambience and the retailer's presence and identity. As a result, retail design and retail branding can not be disconnected from each another (any more). Since design of retail store environments nowadays needs to provide inspiration to customers [2], retailers and designers need to be on the same wavelength as their target group. Knowing what customers value as important is necessary information for retailers, because in that way, they not only can understand what appeals emotionally to the

target group, but moreover, what functionalities they appreciate [12,22]. Retailers in turn can transfer this knowledge to designers, which can try to translate this knowledge into design practice. Thinking about how retailers and designers can understand what appeals functionally and emotionally to customers, brings us to concepts of 'customer experience' and 'experience economy'.

2.2 Customer experiences

The concept 'customer experience' was formulated in 1982 by Holbrook and Hirschman as a new experiential approach to consumer behavior. Until then, the customer was considered to be a rational decision-taker, who tried to purchase the best product from an available selection of products at a reasonable price [6]. Holbrook and Hirschman [9], however, stated that in contrast to this rational and utilitarian approach, some consumption activities were better explained by an experiential approach. A customer's interaction with a product, service (and / or shopping environment) can be intrinsically satisfying, without thinking about a product or service's utilitarian functionality [9]. The publications of Holbrook and Hirschman brought attention to the importance of certain variables (more specifically, emotions) which were largely neglected until then.

2.3 Experience economy

The 'experience' concept came to the fore in the management discipline with the publication in 1999 of Pine & Gilmore's book on the Experience Economy [17]. Pine & Gilmore present experiences as a new economic offering, which emerges as the next phase after an economy of commodities, goods and services. According to their viewpoint, managers from now on need to focus on creating and directing memorable customer experiences. Therefore, they describe six different features of an experience. First of all, experiences need to be worth remembering. Secondly, experiences need to be focused on an appropriate theme, which characterizes the company and appeals to customers. Thirdly, negative elements which can divert customers' attention from the experience, need to be removed. Fourthly, experiences need to appeal to as many customers' senses as possible. Fifthly, since every experience is the consequence of an interaction between an organized 'event' and the (emotional, mental, physical, …) condition of the customer at the time of the interaction, every experience is personal. Finally, Pine & Gilmore [17] state that customers need to pay for experiences. According to their viewpoint, as long as a company does not ask a price for an experience, the experience cannot be considered as a proper economic offering. In the years after Pine & Gilmore's publication, several other authors focused their attention on customer experiences as a new lever for value creation [7]. At the beginning of the 21st century however, the original conceptualization of the experience economy was criticized. One of the main points of criticism in literature which stresses the potential significance of creating customer experiences is the lack of empirical support [2,26]. Until today, a lot of existing experience design has come forth from conventional wisdom. Empirical support, and scholarly verification and research in general, however, is indispensable for guiding the design of a retail store environment. Given that different authors agree on the importance of emotions in customer experiences [7,26], this paper focuses on a related question: are the methodologies used by different scientific disciplines for measuring emotions applicable for measuring emotions in customer experiences in retail store environments?
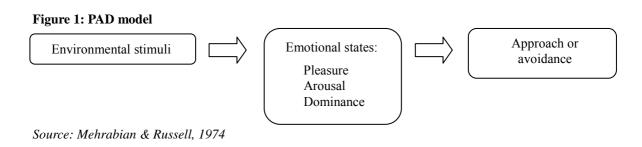
3. Measuring emotions in customer experiences in retail store environments

Trying to measure emotions, triggered by consumption activities in general, has proven not to be an easy task. Authors who tried to measure emotional states that occurred during consumption have most frequently used emotion measurement instruments developed by emotion theorists. However, the question which is the appropriate way to measure these kinds of emotional states is still a matter of debate [20].

By working according to the principles of 'Research In Design' [10,11], the authors studied emotion measurement methods from background disciplines such as marketing, psychology and design sciences. The last decades, authors in these disciplines have tried to capture the mediating role of emotions on consumer responses in general (eg. [4,7]). For that reason, they can deliver valuable input for studying human behavior in a retail context. Given the multitude of existing emotion measurement instruments, it was necessary to set up criteria for selecting three research methods. First of all, the measurement instrument should have demonstrated an ability to yield plausible results. Second, the selected instrument needed to measure emotions in a format consistent with research practice, since the goal of the pilot study was to combine different emotion measurement methods. Third, the selected instrument needed to be applicable in a holistic retail setting. Consequently, the authors selected (i) the PAD framework[1], frequently used in marketing [17] (ii) the Product Emotion Measurement Instrument (PrEmo), developed in the product design discipline [4] and (iii) a free report task, which consists of asking customers to describe in their own words the emotions they experienced while visiting a store. Before presenting the selected methods and the results of the pilot study, the authors already want to acknowledge here that next to the selected methods, various other emotion measurement instruments exist (for an overview: see [18,20]).

3.1 PAD model (Pleasure, Arousal, Dominance)

During the last decennia, research on 'atmospherics' [14] has made clear that isolated environmental cues in retail store environments can evoke emotional responses in customers, and that such emotional responses can, in turn, influence customer's retail patronage and store loyalty [21]. Hence, marketing researchers adopted different methodologies for measuring emotions from the discipline of psychology. This section focuses on the 'Pleasure-Arousal-Dominance' paradigm of Mehrabian & Russell (1974), since this framework has been frequently employed in the study of effects of environmental cues in retail stores on emotions. Based on the Stimulus (S) – Organism (O) – Response (R) model, Mehrabian & Russell [15] proposed a model which relates features of the environment (S) to behavioral responses within the environment (R), which are mediated by the individual's (O) emotional states induced by the environment.
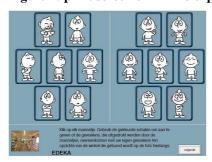
Figure 1: PAD model

Source: Mehrabian & Russell, 1974

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[1] PAD stands for Pleasure, Arousal, Dominance [15].

Mehrabian & Russell [15] stated that three basic emotional dimensions (Pleasure, Arousal and Dominance) provide a general description of emotions, generated by (stimuli in) an environment. 'Pleasure' is considered as the degree to which a person feels good, joyful or happy, whereas 'arousal' is defined as the degree to which a person feels excited, stimulated, alert or active. 'Dominance' is described as the degree to which the person feels unrestricted or in control of the situation [6]. Mehrabian & Russell [15] hypothesize that these emotional states mediate a person's approach or avoidance responses to the environment, whereby 'approach responses' imply that individuals react positively to the environment (eg. desire to stay longer in the retail store). 'Avoidance responses' on the other hand are characterized by an aversion to the environment (eg. desire to leave the store) [3]. The PAD scale was designed to capture information concerning the pleasure, arousal and dominance dimensions, underlying emotional states. Therefore, it does not allow a researcher to identify specific emotional states, as experienced by research participants [19]. In 1982, Donovan & Rossiter implemented Mehrabian & Russell's framework into retailing and service settings [5]. Since then, the PAD framework has been widely used in marketing and consumer research. In practice, the PAD measure consists of three separate dimensions (pleasure, arousal and dominance), which are assessed using six semantic differential items. Every item from the different dimensions is measured on a 7-point scale [15]. For the purpose of this study, the authors used the translated version of the PAD questionnaire, developed by Brengman [3].

3.2 The Product Emotion Measurement Instrument (PrEmo)

The Product Emotion Measurement Instrument (or 'PrEmo') was specifically designed to measure emotions, elicited by the appearance of a product. It is a visual self-report emotion measurement instrument, which uses animated puppets to portray a well-considered selection of 14 emotions. PrEmo was developed '*to combine the advantages of existing verbal and non-verbal self-report instruments*' [4,p.43]. Different from the dimensional PAD scale, PrEmo measures respondents' distinct and mixed emotions without obliging respondents to verbalize their emotions. Next to this requirement for the instrument, Desmet [4] also stipulated that PrEmo needed to be intuitive, fast and pleasurable.

Figure 2: print screen of PrEmo experiment

Source: Desmet, 2002

In figure 2, the left side of the interface groups unpleasant animations (indignation, contempt, disgust, unpleasant surprise, dissatisfaction, disappointment and boredom), whereas the right side groups the pleasant animations (desire, pleasant surprise, inspiration, amusement, admiration, satisfaction and fascination). By clicking on a certain animation, the animation is activated and portrays an emotion by facial, vocal and postural expressions. Respondents have to report the degree to which they have experienced a particular emotion by rating the

animation on a three-point scale (I feel …/ To some extent, I feel … / I do not feel …). Since respondents are forced to rate all animations, they are obliged to report also on emotions they do not experience. As yet, this method was not used in the context of measuring emotions in interior spaces.

3.3 Open-ended questionnaire

The third measurement instrument which the authors selected for the present study consisted of asking customers to describe in their own words the emotions they experienced while visiting the selected stores. Similar to the PAD scale, an open-ended questionnaire can be classified as a verbal self-report instrument for measuring emotions [18]. In contrast to the PAD questionnaire, however, this measurement instrument allows participants to formulate an answer in their own terminology.

4. Pilot study on applicability of three measurement instruments for measuring emotions in customer experiences in retail store environments

This paragraph describes the results of a pilot study in which customers' emotions were measured in either a controlled environment or in one of two actual real-life experience stores in the city of Hasselt (Belgium).

4.1 Method

Data were collected from a total of 119 customers in three settings. First, a study was conducted in a lab setting (simulating a small supermarket) where data were obtained from 29 people, who just completed a shopping task in the context of an unrelated experiment. The sample consisted of customers with ages varying from 19 to 63, of whom the majority was female (76%). All participants, individually invited to participate in the study, completed the PAD questionnaire and the PrEmo test on a laptop. Second, two so-called 'experience stores' were selected in the city of Hasselt (Belgium), based on an operational description of an experience store, as derived from the features proposed by Pine and Gilmore: one food and one non food experience store. In both stores, 45 customers completed the PAD questionnaire, the PrEmo test and the open-ended questionnaire. All respondents were contacted randomly, directly after having visited the selected stores. If customers agreed to participate, they immediately completed the three instruments. The sample consisted of customers of both sexes (72% were female customers), with ages varying from 12 to 70.

4.2 Results

When the tested measurement instruments were able to discover predicted differences between the studied settings, they were considered valuable instruments for measuring emotions in customer experiences in retail store environments.

4.2.1 Results PAD model

The authors expected the experience stores to score higher than the lab setting on all three dimensions. Analyses of variance (ANOVA) pointed out that the mean scores of the three PAD dimensions over the three locations were only statistically significant ($\alpha = .05$) for the pleasure dimension (but the lab setting did not score the lowest on this dimension). Hence, the analyses revealed that none of the expectations was fulfilled.

Graph 1: ANOVA_Pleasure
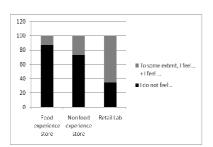

Graph 2: ANOVA_Arousal
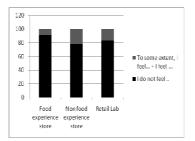

Graph 3: ANOVA_Dominance

4.2.2 PrEmo Results

Chi² analyses made it possible to test for significant differences in PrEmo emotions between the three locations. For the unpleasant emotions, analyses revealed that the emotions 'disgust', 'boredom', 'dissatisfaction' and 'disappointment' significantly differed between the three locations. For the emotions 'indignation', 'contempt' and 'unpleasant surprise', no significant differences between the locations could be discovered. In graph 4, we present the results of the PrEmo emotion 'boredom' which significantly differed between the three locations. Graph 5 shows the results of the emotion 'unpleasant surprise', which did not significantly differ between the three settings.
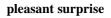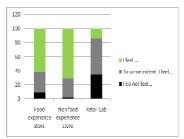
Graph 4: Chi² results_boredom

Graph 5: Chi² results_ unpleasant surprise

Graph 6: Chi² results_ pleasant surprise

For all unpleasant emotions (except dissatisfaction), the PrEmo scores 'to some extent, I feel…' and 'I feel…' needed to be matched in order to produce valid Chi² tests. For all pleasant emotions, significant differences between the three locations were discovered. Graph 6 presents the results of the emotion 'pleasant surprise'.

4.2.3 Results of open-ended questionnaires

68 research participants completed the free report task. The analysis of the open-ended questionnaire focused on comparing the emotions, which research participants described in their own terminology, with the emotions used in both other tested instruments. By using the respondents' own phrasing as the starting point, the authors could evaluate the applicability and validity of the PAD questionnaire and the PrEmo test for measuring emotions in customer experiences in retail store environments. If respondents' self-described emotions match with emotions, used in PAD and / or PrEmo, the possibility that these instruments are valid for measuring emotions in interior spaces, increases.

Table 1: Comparison described emotions with PAD and PrEmo instruments

Location	Open-ended questionnaire	PAD dimension	PAD word	PrEmo word
F + NF exp store	Pleased	Pleasure	Pleased	Pleasant surprise
NF exp store	Happy	Pleasure	Happy	Disappointment
F exp store	Monotonous	Pleasure	Bored	Boredom
F + NF exp store	Relaxed	Pleasure	Relaxed	
F + NF exp store	Calm	Arousal	Calm	
NF exp store	Stimulated	Arousal	Stimulated	
NF exp store	Inspiring feeling	Arousal		Inspiration
F + NF exp store	Feeling free	Dominance	Influenced	
F exp store	Guided	Dominance	Guided	
F exp store	Unconstrained	Dominance	Controlled	
F exp store	Desire			Desire

For those respondents, who used one of the emotion words, described in column 2 of table 1, the matching PAD word scored high as well (score 6 or 7). Only for the emotions 'desire' and 'inspiring feeling', PAD did not offer a valuable equivalent. Comparing research participants' answers to the PrEmo test revealed that it was not possible to find matching animations for most described emotions. PrEmo also does not contain emotions referring to the dominance dimension. However, the emotion words which could be matched to PrEmo resulted in high PrEmo scores (almost always score 3).

After the comparison of the results of the free report task with both other measurement instruments, the analysis of the open-ended questionnaires revealed a short list of emotions, which were not described in PAD nor in PrEmo. These words, that appeared exclusively in the open-ended questionnaire for the food experience store, are: 'happy', 'moody' and 'positive'. For the non food experience store, the remaining emotions are 'feel secure', 'stimulated', 'cheerful' and 'inspiring feeling'.

5. Discussion

The pilot study results have made clear that the emotions, measured by different instruments on different settings, varied. Although the results presented here clearly are preliminary, analyses of variance on PAD data revealed that the pleasure dimension was able to discriminate between the three locations. However, the direction of the discovered difference on this dimension over the three locations differed from what was expected. In addition, the mean scores on the other dimensions (arousal and dominance) over the three locations were not statistically significant. On the other hand, comparing the emotions, described in the free report task, with the PAD emotions, revealed that for most descriptions, PAD offered a valuable equivalent. In addition, respondents' emotions, verbally expressed in their own terminology, tended to match with high scores of PAD emotions.

Analyses on PrEmo data made it possible to test for significant differences in PrEmo emotions between the three locations. The preliminary results indicated that eleven of the fourteen PrEmo emotions revealed significant differences between the three settings. Hence, the PrEmo test shows discriminative power for studying significant differences between locations. Comparing research participants' answers to the free report task with PrEmo data revealed that it was not an easy task to find matching PrEmo animations for most emotions, written

down in the free report task. Nonetheless, five emotions on a total of eleven could be matched to PrEmo emotions. This result indicates that PrEmo measures what it is supposed to measure. Although PrEmo has been developed to measure emotions, elicited by the appearance of a product, the results of the pilot study indicate that it seems a valuable instrument to use for measuring emotions in a retail context. A possible disadvantage of the instrument, as used in the pilot study, was that it did not contain emotions referring to the dominance dimension.

This pilot study suggests that both instruments have advantages and disadvantages for measuring emotions in different retail locations. However, much more rigorous testing is necessary to comprehend if these instruments truly are applicable for measuring emotions, which are an intrinsic part of customer experiences in a retail store environment. The results cannot be generalized yet to a larger population. In addition, the pilot study only tested three emotion measurement instruments, and only reported on the results of two verbal and one visual measurement instrument. Given the multitude of other emotion measurement instruments, each with its own advantages and disadvantages, the authors plan to test more emotion measurement instruments (eg. CES [19]) in the near future in order to try to find an instrument which seems most easy and best applicable for measuring emotions, which are an intrinsic part of customer experiences in experience stores. Furthermore, the pilot study focused on testing the measurement instruments in a (food) lab setting, and in one food and one non food experience store. The products sold in these kinds of stores however only involve customers on a relatively low level. Shopping in more 'high involvement' stores most likely triggers a higher customer involvement, which in all probability will be translated in the reported emotions. Thus, including these kinds of high-involvement experience stores in future experiments seems worthwhile. Finally, literature [eg. 2] already pointed to the difference between recreational and functional shoppers. While recreational shoppers in general seem to appreciate customer in-store experiences, functional shoppers generally may care less for in-store techniques that are pleasing to the senses but of little use when a shopper just wants to shop for what he needs and is not interested in anything else. Therefore, it seems valuable to include this criterion in future studies by asking customers if they classify themselves as functional or rather as recreational shoppers.

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