



Online Atmospheric - An Evaluation of the Current State of the Art and Future Research Directions

Eva Maria González Hernández¹, Jan-Hinrich Meyer²(✉), and Andrea Trujillo¹

¹ Tecnológico de Monterrey, Escuela de Negocios, Monterrey, Mexico
{emgonzal, andrea.trujillo}@tec.mx

² IQS School of Management, Universitat Ramon Llull, Barcelona, Spain
jan.meyer@iqs.edu

Abstract. Previous research has demonstrated that atmospheric (lighting, scent, music, temperature, store layout, product display, etc.) impact consumers' emotional and behavioral responses, and marketers have applied them to in-store strategies to stimulate purchases. However, in the last decades retailers are confronting a significant technological transformation and face the challenges to attract a digital consumer in an online setting. This work focuses on new insights provided by marketing researchers about the role of atmospheric in the context of online stores. We contribute to this debate by providing a systematic literature review of articles published in the last decade on atmospheric in the main journals of marketing. The present study has two main objectives: first, identify theoretical keys about the role of atmospheric in online stores. And second, recognize areas for future research.

Keywords: Atmospheric · Online stores · E-commerce

1 Introduction

Over decades, the retailing industry has followed similar strategies for growth and profitability mainly focusing on opening additional outlets. Yet, the digitalization has put an end to this development, and demands companies to choose and integrate a wide array of innovations to remain competitive in today's hyperconnected world (Grewal 2017). The integration of digital technology in all aspects of consumer's daily lives has shaped and increased consumer expectations with regards to product and service quality, as well as the customer experience. The enhanced connectivity of customers has led to strong changes in purchase behavior. The current Covid 19 pandemic has further accelerated this development by speeding up the adoption of digital technologies on the consumer side at an unprecedented rate, and opening up the digital world to previously reluctant segments (Van Belleghem 2020). In order to keep up with these developments, retailers need to allow their business models to evolve and create experiences that allow for seamless purchases in an omnichannel environment.

Especially virtual stores still face the challenge of incorporating tangibility, realism, immediacy, closeness and enjoyment. The lack of touch and feel has been a major drawback for online retailers since the early days (Weathers and Makienko 2006) and keeps being a major impediment to purchase until today (González et al. 2021). Yet, the digitalization is a reality, as demonstrated by solid double-digit growth rates around the world over the last decade and further advanced by the pandemic which accelerated the online shift by nearly two years to an estimated 30% of total retailing in the US (Van Belleghem 2020). Generating superior online experiences has therefore been a major goal for online retailers, in order to overcome the previously described barriers and facilitate a better online experience (González et al. 2021). Research has facilitated several insights, regarding product displays, design elements, technological implementation and social interaction. Yet, the integration of the different elements, and the creation of a generalizable framework towards better online experiences still remains a challenge for researchers and practitioners (Roggeveen et al. 2020).

A major research gap is the identification of the relevant factors for the Customer Experience design of online retailing experiences and the subsequent classification in how far the different elements add value for the customer. We posit that this requires a rethinking of the traditional framework for purchase experiences (e.g. Bitner 1992), by including new dimensions and variables for the digital environment. In this study, we aim to revise the academic advances from the last decade in order to identify innovative and relevant factors. Finally, our study proposes an adapted framework for the design of online retailing experiences and lines out fruitful areas of future research. Our study is based on a systematic literature review of academic publications from the last decade and a descriptive analysis the relevance of different factors and variables, to conclude with our proposed framework.

2 Understanding the (Online) Customer Experience

According to Holbrook and Hirschman (1982), customer experience is constructed from symbolic, esthetic and hedonic consumption elements. Verhoef et al. (2009) define the experience as a holistic construct which evokes cognitive, affective, social and physical consumer responses to a store. Both definitions coincide in the complex nature of experience based on the interaction between the environment set by the retailer and the customer. Our study focuses on those design elements that are most likely to evoke positive customer responses (Verhoef et al. 2009). Traditional research in retailing and marketing has highlighted repeatedly the importance of physical design elements such as lighting, store design or product display, which can evoke positive emotions and in turn increase the likelihood of purchase (e.g. Bitner 1992). The strategic importance of the physical environment has been long recognized in academic literature in order to influence consumer perceptions, evaluations and behavior (Grewal et al. 2009).

Among the pioneering frameworks to explain the impact of the retail environment on consumer purchase behavior are the models from Baker (1986) and Bitner (1992). Baker proposes three core dimensions which are atmospherics (e.g. lighting, music, temperature), design (architecture, layout, distribution) and social factors. Bitner (1992) on the other hand proposes a combination of environmental factors, which impact consumers

in a cognitive, affective and in a physical way. The three key dimensions are ambient conditions, the spatial layout and symbols. In a later revision, Turley and Milliman (2000) propose a combined version of the prior models by enhancing Bitner's work by the additional dimensions of exterior design and a social factor.

In recent years, academics have devoted and increased amount of attention to the design of online experiences, which has brought along a richness of different theoretical frameworks. These frameworks can be classified into three groups. The first group focuses on the transfer and adaptation of existing offline-based knowledge on atmospherics to the new digital reality (e.g. Roggeveen 2020). The second group of studies has a more technological orientation and take predominantly a human-technology interaction focus (e.g. Wolfinger and Gilly 2003). Finally, the third group of studies aims on a holistic digital point of view by purely focusing on the online customer experience (e.g. Trevinal and Stenger 2014).

Considering these recent theoretical advances, our work tries to thoroughly revise the existing research in order to 1) deliver an overview of the current state of academic research with regard to online atmospherics in online retailing, 2) identify those variables and dimensions that matter most in consumer decision making and proposing an updated theoretical framework based on recent research advances, and 3) to reflect on areas and opportunities for future research in the field of online retailing, customer experience design and omnichannel.

3 Methodology

The first decision was to define the databases and journals which would enter our study, and we did so by applying the following criteria: a) the international scientific prestige of the database and b) the scientific rigor of the incorporated journals (Schibrowsky et al. 2007). Therefore, Scopus was chosen as the primary database for our study, and the search was complemented with results from Business Source Premier, ABI/INFORM, Emerald and ultimately Google Scholar. In total, we revised around 20 different academic Journals from the areas of Marketing, Retailing, E-commerce and Management and considered the years from 2000 until 2019 as the timeframe for the sample collection.

After identifying a list of relevant keywords (e.g. online environment, web atmospherics, e-commerce), we searched the titles, abstracts and article-adjunct keywords of the previously mentioned databases. The keywords were driven by the three theoretical dimensions defined in the last section. In total, we found 154 scientific publications in the searched databases over the relevant timeframe. In a second stage, we evaluated the suitability of each of the encountered publications for further analysis by thoroughly revising the abstract. This review allowed us to identify if the encountered studies really focused on online atmospherics, or if the search result was incidental. During this second stage, the overall sample was reduced to a final sample of 96 documents which were deemed suitable for further analysis (The full list of references is available upon request).

Following Schibrowsky et al. (2007), two expert reviewers conducted the content analysis of each document. First, reviewers identified the descriptive data for each article (e.g. Journal name, year of publication, keywords, citations). Then, they classified the theoretical framework for each article and recorded the methodological design, as well

as the key variables. Finally, experts cataloged the main results for each of the articles with special attention to significant effects.

4 Descriptive Results

Our results show, that out of the 96 studies under investigation, 30.2% were published in the first five years of our observation frame (2000–2004), 42.7% in the second 5-year period (2005–2009), and 27% were published in the remaining years (2010–2019). Furthermore, we were able to identify the research fields of our sample: 27% of the studies were published in the field of Business, Management and marketing, 40% pertain to the area of Technology, Internet & E-commerce, while 28% were published in the area of Retailing, and the remaining 5% belong to the field of Consumer Psychology.

From a theoretical perspective, our analysis of the sample shows two dominant schools of thought underlying most studies. On the one hand, there is a cohort of studies applying a consumer psychology perspective, while on the other hand the next largest set of studies adopts a human-technology interaction perspective. For the former group, the most frequently applied background is the classic Stimulus-Organism-Response (SOR) model (Mehrabian and Russel 1974) which is strongly rooted in the field of physical retailing, and is used in 30% of the studies in the sample. For the latter group of studies, the Technology Acceptance Model (TAM), as well as the Human Computer Interaction (HCI) model make up a combined 10% of the studies in the sample. The remaining articles do not propose a clear reference to the underlying theoretical background, while most of them clearly apply variables pertaining either to the background of consumer psychology, communication or technology.

With regards to the methodology applied by the studies under investigation, our results show that a vast majority rely on quantitative approaches. While experimental designs make up 40% of the studies, survey methods represent 39% of the cases. Qualitative designs only make up for 4% of the studies under revision.

In order to revise and classify the variables under investigation, we follow the more recent advances from Turley and Milliman (2000) and Trevinal and Stenger (2014) as a frame of reference. The results show that 46% of the studies apply variables relating to physical aspects of the online store (site design). In more detail, 36% of the studies apply variables originating from research on physical stores (aesthetics), while another 10% of the studies use variables, which are unique to the digital environment, as grouped in the dimension of vividness. Secondly, there is a cohort of studies which centers on the functional aspects of online stores (usability), which can be grouped in two major dimensions, ease of use and transaction capability. In particular, results show that 24% of the studies apply variables facilitating the online experience, which are summarized in the ease-of-use dimension; while 14% of them focus rather on the process of facilitating the purchase, which are grouped in the transaction capability dimension. Finally, we identified a third group of variables, which can be recapped under the concept of social interaction. While 9% of the studies are centered around social presence variables, the remaining 8% of the studies focus on variables related to entertainment. These results show the scarcity of academic work on new concepts, including the online-exclusive vividness dimension in the site-design, as well as in the social interaction dimensions mentioned last.

For the dependent variables, we are able to see a much more homogeneous pattern. In line with attitudinal theory, most papers investigate the cognitive, affective and behavioral responses of the consumers with regards to the independent variables (Eroglu et al. 2001). Specifically, our results show that 43% of the studies measure behavioral variables, 38% include cognitive variables and 19% focus on the affective aspects. Finally, a large set of studies also relies on holistic assessments such as satisfaction or loyalty (8%).

4.1 Vividness, Transaction Capability and Social Interaction

We limit our analysis to those independent variables with the highest degree of novelty, being vividness, transaction capability, social presence and entertainment.

When looking at vividness, we observe that the results have been obtained by manipulating interactive elements, such 3D product representations or videos. In general, we observe significant results of vividness elements on different levels of consumer responses. For the cognitive dimension, we can see that vividness positively affects the attitude towards the store (e.g. Fiore and Jin 2003) and the product (Klein 2003), as well as for product selection and evaluation (Roggeveen et al. 2015). Similarly, for the affective responses, there are positive effects with regard to the emotional state of the consumer during the online shopping experience (e.g. Shen and Khalifa 2012) and an increase in enjoyment and entertainment, both on an individual as well as on a social level (e.g. Kim et al. 2007; Shen and Khalifa 2012). When turning to the behavioral responses the studies show positive effects of increased vividness on purchase intentions, time spent in the store, and the intention to come back to the store in the future (e.g. Fiore and Jin 2003; Kim et al. 2007)

Transactional capacity is often assessed via security and privacy concerns (e.g. Jaiswal et al. 2010; Wolfenbarger and Gilly 2003), trust (e.g. Goode and Harris 2007), payment processes or return policies (Dholakia and Zhao 2010). Positive effects are mainly shown over holistic assessments like store satisfaction (Park and Kim 2003) or loyalty towards the retailer (Wolfenbarger and Gilly, 2003), as well as for attitudinal measures such as brand attitude (e.g. Kim et al. 2015) such as purchase or store usage intention.

Finally, when turning to the effects of social interactivity, the most studied variables include user-generated comments and recommendations (online reviews), which are shown to impact affective responses via emotional reactions (Ning Shen and Khalifa 2012) and behavioral responses by impacting product choice (Senecal and Nantel 2004). Entertainment is measured by enjoyment and fun, and yields affective responses measured by positive emotions such as pleasure (Fiore et al. 2005) as well as holistic variables such as loyalty or satisfaction (Gao and Bai 2014).

4.2 Towards a Theoretical Framework for Online Atmospheric

Considering the analysis results, we propose a conceptual model for the evaluation of online atmospheric, that in the line of thinking of Turley and Miliman (2000), or the revised framework by Roggeveen et al. (2020). As can be seen in Fig. 1, we propose three major dimensions for a holistic evaluation of online atmospheric. On the one hand, there is a strong need to provide a consumer experience that underscores the

realness and the closeness of both the online store, as well as the products. This physical dimension is based on design factors, which include the visual presentation and the vividness of the experience. Especially the latter, the creation of a vivid environment is crucial for such an experience, as virtual stores still lack means to create the realism of a physical experience. Secondly, we focus on the functional aspects of the store which are linked to the usability. Stores need to facilitate the life of the consumers as much as possible via seamless and easy-to-use interfaces, and by evoking trust and security via the transactional capacity. Last but not least, our model includes a social and interactive dimension focusing on social presence, as well as entertainment. Virtual entertainment and virtual social interactions have been on the rise for more than a decade, yet the current Covid-19 crises has increased consumer knowledge and expectations even more, and should make these elements even more useful for a good customer experience.

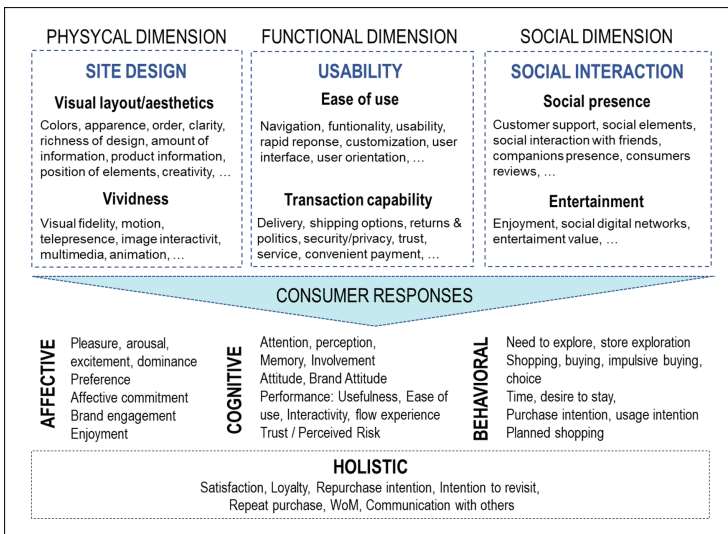


Fig. 1. Conceptual framework for online atmospherics

5 Discussion, Limitations and Ideas for Future Research

In this study, we have tried to obtain a state-of-the-art overview of the theoretical and the empirical work on online atmospherics. Our analysis yields three major dimensions, which allow the construction of a holistic proposal for a theoretical framework, focusing on the physical, functional and social aspects of the online store. Our conclusions highlight the importance of both, traditional retailing factors, such as design and layout, but also bring along unique online specific parts, such as vividness or social presence. Our model highlights the need for online retailers to build their stores in such a way that they are easy to use and secure for the customers while creating experiences, which are vivid, entertaining and social.

Our current study is subject to a several limitations, that could be addressed in future research. On the one hand, there is always the risk to have overlooked some relevant work due to different keywords or different areas of publication. On the other hand, our analysis for now could be enhanced with potential moderators for the different factors. For instance, the social and entertaining functions might have a stronger relevance for hedonic products, than for utilitarian products, while several studies hint that the design factors might be gender contingent (González et al. 2021). Furthermore, the overall importance of the three dimensions for now remains incomparable. A quantitative, meta-analytic approach might help to compare effect sizes and shed light on the relative importance. Finally, this study could be enhanced by the development of a holistic assessment tool for online store by developing a measurement instrument, based on the three major dimensions in this study.

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