

UNIVERSITY OF LODZ
FACULTY OF MANAGEMENT

Shuvam Chatterjee
Student Number – 6396

Doctoral dissertation

**Cross-cultural differences in shopper attitudes to
olfactory marketing: Poland vs. India**

Supervisor: prof. dr. hab. Paweł Bryła

LODZ 2025

TABLE OF CONTENTS

Introduction.....	4
1. Key concepts and theoretical background.....	4
1.1 Sensory marketing.....	5
1.2 Olfaction in retail.....	6
1.3 Culture.....	8
1.4 Companionship.....	8
1.5 Consumer purchase intentions & loyalty.....	9
2. Research Gap.....	9
3. Main goal and objective of the thesis.....	10
4. Research hypotheses.....	11
5. Research Methodology.....	12
6. Structure.....	15
Article 1. Chatterjee S., Bryła P., Innovation and trends in olfactory marketing: A review of the literature, <i>Journal of Economics and Management</i> , 2022, Vol. 44, pp. 210-235. https://doi.org/10.22367/jem.2022.44.09	210-235
Article 2. Chatterjee S., Bryła P., Mapping consumers' semi-conscious decisions with the use of ZMET in a retail market setup, <i>Decision</i> , 2023, Vol. 50, No. 2, pp. 221-232. https://doi.org/10.1007/s40622-023-00350-3	1-12
Article 3. Chatterjee S., Bryła P., Saleh M.I., Cross-cultural differences in the Effects of the ambient scent on in-store behavior: the role of companionship, <i>Decision</i> , 2024, Vol. 51, No. 3, pp. 339-354. https://doi.org/10.1007/s40622-024-00400-4	1-16
Article 4. Chatterjee S., Bryła P., Effects of in-store fragrance as a cognitive innovation on loyalty building behaviour, <i>International Journal of Business Innovation and Research</i> , in press, http://dx.doi.org/10.1504/IJBIR.2023.10058386	1-20
Article 5. Chatterjee S., Bryła P., Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India, <i>International Journal of Indian Culture and Business Management</i> , 2024, Vol. 31, No. 3, pp. 261-273. https://doi.org/10.1504/IJICBM.2024.137276	261-273
Conclusion.....	19
Theoretical & managerial Implications.....	21
Theoretical Contributions to Cognitive Learning Theory.....	21
The advancement of the Theory of Planned Behavior (TPB).....	22

Contributions to Schwartz’s Theory of Cultural Values.....	23
Advancing Stimulus-Organism-Response (SOR) Theory.....	23
Cross-Theoretical Integration and Practical Implications.....	24
Managerial implications.....	24
Limitations & Future Research Directions.....	25
APPENDIX 1. SURVEY QUESTIONNAIRE (in English) – article 3.....	27
APPENDIX 2. SURVEY QUESTIONNAIRE (in Polish) – Article 3.....	32
APPENDIX 3. Qualitative Interview Open-Ended Question For The ZMET (Zaltman Metaphor Elicitation Technique) Study – Article 2.....	37
APPENDIX 4 – Article 4.....	38
APPENDIX 5. SURVEY QUESTIONNAIRE (in English) – Article 5.....	40
References.....	41
List of Tables.....	52
List of Figures.....	54

‘You are only here for a short visit. Don’t hurry, don’t worry. And be sure to smell the flowers along the way’ -----Walter Hagen

INTRODUCTION

1. Key concepts and theoretical background

Consumer purchasing behavior reflects various processes demonstrating how people interact with their environment, from trend adoption to cultural effects (Zaman & Kusi-Sarpong, 2024). Retail consumers inside retail stores are often influenced by store attributes ranging from product variety to store ambiance, which eventually leads to actual purchases (Mouri et al., 2015). Hence, observing and understanding the consumer buying experience is important. It reflects the processes that precede and follow (Otieno et al., 2005) and the overall retail shopping experience.

Customers increasingly consider products as experiences ingrained in their memories rather than material possessions. All experiences, according to Pine and Gilmore (1999), are remembered and stay in the minds of consumers, where they function as active agents reacting to stimuli (Caru & Cova, 2003). These experiences and product engagement frequently elicit emotional reactions (Quartier et al., 2009). Verhoef et al. (2009) highlight the experiential component of consuming and point out that consumer experiences involve cognitive and affective processes, eliciting emotional, social, and physical reactions. The importance of different retail cues in influencing consumer experiences is emphasized by Roschk et al. (2017). The importance of customer experience at various touchpoints during the purchasing path is supported by a multitude of evidence (e.g., Lemon & Verhoef, 2016). To improve the overall experience and influence both behavioral and emotional consequences, Roggeveen et al. (2020) emphasize the necessity of incorporating sensory signals at these touchpoints. To stand out from the competition and obtain a competitive advantage, top retailers are putting more and more effort into developing distinctive,

memorable, and creative in-store experiences (Petermans et al., 2013). According to Bäckström and Johansson (2006) and Verhoef et al. (2009), experiential shopping environments are made to engage customers on both a cognitive and sensory level, encouraging interaction and a deeper level of involvement. Sight, sound, touch, and smell are examples of environmental stimuli that are important in determining customer satisfaction (Jones, 1999), encouraging active customer engagement (Spena et al., 2012), improving immersion (Wang & Hsiao, 2012), and fostering creative shopping experiences (Arnold & Reynolds, 2003).

1.1. Sensory marketing

Human senses are essential for learning about and investigating the outside world, according to research in psychology (e.g., Connell & Lynott, 2016; Lashkova et al., 2019). Engaging customers' sensations, emotions, ideas, and behaviors while connecting these experiences to businesses and their brands has become more important with experiential marketing (Schmitt, 1999) and service experience (Hightower et al., 2002). "Sensory marketing," defined by Krishna (2011), is marketing that appeals to consumers' senses and shapes their opinions, perceptions, and actions. Using all five senses—sight, sound, smell, touch, and taste—sensory marketing lays the foundation for a multisensory experience (Krishna, 2012). Mehrabian and Russell (1974), Schmitt (1999), Pine and Gilmore (1999), Kranzbühler et al. (2018), and many more researchers have studied multisensory consumer experiences. According to Gilmore and Pine (2002) and Verhoef et al. (2009), experiential marketing has brought this strategy into the retail industry by influencing consumer behavior. Using sensory stimuli in retail environments aims to give customers a premium experience and create an inviting environment. Beyond the influence of conventional retail strategies, businesses can

leverage sensory cues to boost brand emotion and foster good consumer perceptions by appealing to the senses (Brakus et al., 2009).

1.2. Olfaction in retail

Retail stores have consistently deployed artificial fragrances as part of their sensory marketing strategies. The scent is a sensory stimulus that has become increasingly popular in providing unique shopping experiences (Orvis, 2016). According to the American Marketing Association (AMA), "an attractive scent can entice customers to stay up to 44% longer in a business". According to additional AMA research, adding fragrances to retail spaces can improve consumer satisfaction, encourage impulsive purchases, and create favorable impressions of the store's ambiance. The scent alone can change consumer behavior, possibly raising response rates by 3% to 15% (Roschk & Hosseinpour, 2020). Retailers can, therefore, strategically use smell as a potent tool to foster shop and brand loyalty, which could also be a crucial factor in determining the caliber of services (Brady & Cronin, 2001). Scent is also thought to affect 70% of our emotions and 90% of our sense of taste (Krishna et al., 2010a, b). According to research, olfactory cues have the most substantial recall power of any sense and can evoke emotionally charged memories (Schab & Crowder, 1995). Strong emotional responses like laughter, tears, contempt, or ecstasy can be triggered by a transient fragrance or perfume (Ravn, 2007). According to earlier research, pleasant ambient scents improve brand recall and recognition (Morrin & Ratneshwar, 2003), reinforce memory associations (Krishna et al., 2010b), and result in positive evaluations of products and store environments through emotion-based semantic connections (Bosmans, 2006).

According to Krishna et al. (2014), fragrance marketing is positively poised to influence consumer emotions, human memories, and motivation since the human olfactory bulb, the tract, and the brain are interconnected (Orth & Bourrain, 2008). This leads to a congruency of

olfactory and human behavioral effects along the paths of semantic associations

(Spangenberg et al., 2006; Leenders et al., 2019).

The existence and pleasantness of a fragrance are important determinants of its influence on consumer behavior; the mere presence of a scent can elicit behavioral reactions (Phillips et al., 2024; Spangenberg et al., 1996; Morrin & Ratneshwar, 2000).

Past research discussed how different fragrance diffusion in a Brooklyn supermarket, in the form of grapefruit in the production section and chocolate in the confectionery unit, positively impacts retail consumers' spending, decision-making, and product choice behavior (Johnson, 2011; Errajaa et al., 2020; Esteky, 2021). Leenders et al. (2019) discussed that high fragrance intensity inside a retail store induces an optimistic shopper's store evaluation along with positive mood enhancement.

Elmashhara and Soares (2022) noted that scents, digital signage (Dennis et al., 2010), music (Morrison et al., 2011; Wen et al., 2020), and new technologies like augmented reality glasses (Pfeifer et al., 2023) all promote a positive shopping attitude and a greater propensity to stay in retail establishments (Chatterjee et al., 2024). On the other hand, Doucé and Adams (2020) contended that shoppers may react negatively to too many sensory inputs.

Accordingly, improving the customer experience requires a sophisticated grasp of retail touchpoints (Roggeveen et al., 2020). Because experiential shopping frequently happens at a semiconscious level (Chatterjee & Kundu, 2020), insights from qualitative studies on consumers' subjective shopping experiences (Kauppinen-Räsänen et al., 2020) can guide retail marketers more precisely. The qualitative ZMET (Zaltman Metaphor Elicitation Technique) method helps marketers understand the underlying feelings and thoughts of respondents, providing an objective perspective on consumer preferences and creating distinctive shopping experiences (Chatterjee & Pandey, 2019; Ji & King, 2018).

1.3. Culture

Zhang and Spence (2023) suggest that cultural traits play a significant role in consumer sensitivity and perception. Culture significantly impacts many aspects of human behavior, including how members of a particular society interact (Melnik et al., 2022). Cross-cultural psychology looks at individual-level characteristics like motivation, personality, and demography to understand how culture shapes personal differences, as Minkov et al. (2024) point out. Their culture determines the characteristics that define people's unique needs and desires (Ge et al., 2024). Hofstede (2001) asserts that although Asian countries like India and Hong Kong gravitate towards collectivism, Western countries like the USA, Germany, and the UK prefer to embrace individualistic principles. One fascinating feature of cross-cultural consumer buying patterns is the interaction between individualism and collectivism and consumer behavior (Gupta et al., 2024). Cross-cultural academics have long acknowledged culture as a significant factor influencing consumer behavior (Ur Rahman et al., 2023). Additionally, according to Baskentli et al. (2023), the cultural backgrounds of customers have a considerable impact on the formulation of marketing strategies that try to address market behaviors, attitudes, and preferences in addition to shaping their needs and aspirations.

1.4. Companionship

Merrilees and Miller (2019) investigate how companionship can improve store shopping experiences across cultural boundaries. They contend that customer interactions enhance the shopping experience, with shopping partners actively creating a more satisfying retail environment (Chatterjee & Bryla, 2024), motivating customers to spend more time and money in stores. Additionally, emotionally linked couples are more likely than single buyers to make wise purchasing choices, according to Wilken et al. (2022). Furthermore, Lucia-Palacios et al. (2018) note that going shopping with friends boosts overall happiness with the

retail experience (Cachero-Martínez et al., 2024), fosters positive behavioral purchasing intentions (Chatterjee et al., 2024), and lowers stress.

1.5. Consumer purchase intentions & loyalty

Chebat and Michon (2003) proposed that ambient fragrance is a store atmosphere tool that directly affects consumers' perceptions by promoting mood, influencing their approach-avoidance behavior (Krey et al., 2022). A study by Vilnai-Yavetz et al. (2021) indicates that in-store retail atmospherics affect consumer spending and foster loyalty intentions.

Muhammad et al. (2014) emphasized the importance of retailers dedicating more time to enhancing the emotional well-being of shoppers, as this supports the development of positive brand associations. Hwang et al. (2021) showed that consumers' perceived quality of service and satisfaction are vital for brand loyalty. Paramita et al. (2021) further highlight how consumers' desire to comprehend a brand's perceived benefits helps nurture long-term relationships. This notion is reinforced by Cheung et al. (2021), whose research suggests that increased consumer-to-consumer engagement enhances behavioral engagement with the brand, thereby boosting repurchase intentions and fostering a stronger brand attachment (Li et al., 2020). This ultimately aids in building a consistent brand loyalty.

2. Research gap

Even though researchers have long recognized the importance of scent in retail settings (Fong et al., 2024; Leenders et al., 2019; Ardelet et al., 2022), there are still few empirical studies that look at this phenomenon using behavioral and attitudinal measurement tools in a cross-cultural setting. Several factors may cause this gap in the literature. First, fragrance effects are a complicated variable to research due to the inherent difficulties in anticipating and managing them. Second, scent's influence is very individualized and can change depending

on factors like gender (Chatterjee & Bryla, 2022; Tyagi et al., 2024), personal motives (Srivastava, 2023), or associations with particular individuals or occasions (D'Andrea et al., 2022), along with age (Correia et al., 2016). Third, consumers may react to fragrances subconsciously and without conscious knowledge because they are frequently processed pre-attentively (Brianza et al., 2021). This is important as a distinct differentiation in the research methodology is of prime importance to propagate new avenues and insights to confront distorted findings (Miles, 2017). Finally, Schwartz's theory of cultural values is highly pertinent to this current research since it emphasizes how different societies place different amounts of value on cultural aspects like individuality and collectivism. In addition to influencing personal attitudes and actions, these cultural orientations are the foundation for more general social standards. Schwartz's theory offers a strong basis for investigating cultural differences, especially when contrasting collectivistic Asian cultures with individualistic Western cultures (Schwartz, 2012). For instance, the theory claims that in collectivistic settings like India, the effects of ambient scents are probably tempered by social dynamics, such as the emotional states of shopping companions. In contrast, ambient scents may have a more autonomous influence in individualistic settings like Poland.

3. Main goals and objectives of the Ph.D. thesis

Hence, the main goal of this study is to understand the impact of fragrance on retail consumers' shopping outcomes, considering their purchase behavior across two distinct cultures (India and Poland) having an individualistic versus collective approach through the impact of companionship (Hofstede, 2001; Barros et al., 2019).

The study documented several objectives as follows:

Primary Objectives

- i) To understand the retail store attributes that affect consumers' thoughts and emotions, thus playing a crucial role in purchasing decisions.
- ii) To examine how, from a cross-cultural standpoint, companionship, ambient fragrances, and purchase intentions interact in retail settings.
- iii) To determine whether consumers develop store loyalty due to the influence of fragrance.

Secondary Objectives

- i) To examine how ambient fragrances affect customers' intentions to buy in retail settings.
- ii) To investigate how the association between ambient fragrances and purchase intentions is influenced by companionship (shopping alone versus with others).
- iii) To compare how consumers in two culturally different markets—Poland and India—respond to companionship and ambient fragrances.

The study had the following research questions:

- Do retail store attributes that affect consumer thoughts and emotions play an important role in their purchase decisions across two distinct cultures?
- Does companionship influence consumer behaviors in a scented retail environment, depending on culture (regarding time spent, money spent, and impulse purchases)?
- Does companionship influence consumers' cognitive, behavioral, and attitudinal responses in a scented retail environment, depending on culture?
- How does fragrance affect the retail market's cognitive, behavioral, and attitudinal loyalty?

4. Research hypotheses

Based on the research goal and the set objectives, the following hypotheses were constructed to understand the influence of olfaction on retail consumers' purchasing decisions.

1. Companionship influences Indian consumers more positively than Polish consumers, considering the time and money spent and impulse buying in a scented retail environment.
2. Companionship influences Indian consumers' cognitive, behavioral, and attitudinal responses more positively than Polish consumers in a scented retail environment.
3. Consumer ratings of environmental scent quality in a retail store are positively associated with the amount of money spent in India and Poland.
4. Fragrance within the retail store helps foster cognitive, behavioral, and attitudinal loyalty in a retail environment.

5. Research methodology

The study adopted a mixed-method approach. ZMET, a qualitative research method, was executed to understand and identify the retail attributes, followed by an anonymous self-administered survey-based questionnaire (Truong et al., 2020). The study collected data from two prominent shopping malls across Poland and India to maintain the consistency of the results. After carefully considering the ease of usage and maintaining safety protocols, the researcher tried incorporating more universally accepted fragrances that are readily available as part of the implementation policy of specific retail brands.

For the qualitative part of the research (article 2), the study adopted ZMET (Zaltman Metaphor Elicitation Technique, Zaltman (2008)), which is a combination of photo elicitation and means-end theory that assists in identifying hidden metaphors for retail consumers that would enhance their actual shopping experience by describing and linking their thoughts and feelings. The consumers went through laddering interviews by describing the images they provided through structured steps of ZMET that triggered their unconscious thoughts and feelings. Qualitative data analysis (QDA) tool Taguette was performed for coding the data.

The qualitative investigations had two phases. First, the selected participants received an instruction kit a week before the interview. They were instructed to select eight to ten images that best reflected and encapsulated their thoughts and emotions on their most recent in-store shopping experience. Second, interviewers who have received ZMET technique training and have prior expertise with the ZMET approach conduct in-depth interviews with respondents (Chatterjee & Kundu, 2020; Chatterjee & Bryla, 2023). Thirty volunteers were selected for the two experiments, which were carried out in Poland and India, with fifteen volunteers in each nation. Every participant finished the ZMET procedure in its entirety. These activities provided an alternative opportunity to understand retail customers' perceptions comprehensively. Applying multiple phases enhanced the likelihood of finding an important concept that more narrowly focused approaches would miss. Every ZMET interview lasted approximately one and a half hours and involved a one-on-one conversation.

The quantitative part of the study (article 3) involved conducting survey interviews across Poland and India to collect data from two prominent shopping malls. The researcher ensured consistency in the fragrance diffused from the chosen retail outlets. Customers who had experience visiting these retail outlets (fragrance-influenced) were chosen to answer the survey questionnaire.

In two large shopping malls in Poland and India, 635 mall-intercept questionnaires were distributed to respondents. Retail malls were selected as the research context because they are the quintessential "third places" where customers participate in social interactions and purchasing activities (Rosenbaum et al., 2017). Clothing retailers were chosen as the key research locations based on Carman's (1970) criteria, which frequently impact customer attitudes and purchasing behavior. Surveys were performed during high-traffic periods, such as weekends and late evenings, to reduce bias related to shopping patterns. A pre-test (n = 50) demonstrated that retail shoppers could accurately perceive and evaluate in-store fragrances

while shopping. Respondents were asked if they detected any scents in the store and then scored their pleasantness, strength, distinctiveness, and novelty on a 5-point Likert scale. Prior studies have yielded important insights into shopping companionship and customer approach behaviors in retail settings (Gui et al., 2021; Leenders et al., 2019). The study used a 5-point Likert scale to measure shopping companionship, with one denoting "strongly disagree" and five denoting "strongly agree." According to Gui et al. (2021), this scale recorded factors including impulsive purchases and the amount of time and money spent shopping with friends. The study also drew on Leenders et al.'s (2019) examination of consumer approach behaviors in retail to create tools for measuring shopping time, spending, and impulsive buying. Additionally, existing scales from previous studies were used to measure consumer reactions in terms of cognition, attitude, and behavior (Dick & Basu, 1994; Watson et al., 2015). Agreement with statements about positive brand evaluations, likelihood of brand promotion, and favorable dispositions was used to operationalize the attitude responses. Measures of willingness to pay price premiums and sustained patronage were used to record behavioral intentions. Additionally, cognitive aspects such as brand knowledge and top-of-mind awareness were evaluated. The standardized 5-point Likert scale was used to assess these constructs to ensure methodological consistency.

After removing invalid responses, the final dataset consisted of 579 valid surveys: 300 from India and 279 from Poland, all of which passed the pretest. Data collection took three months (March to May 2023) in Poland and two months (mid-June to mid-August 2023) in India, with experienced research assistants proficient in local languages administering the surveys. SPSS statistical software was later used to analyze the data. Apart from crosstab analysis, separate regression models for India and Poland were used with money spending in the retail outlet as the dependent variable, and environment in terms of ambient scent as the independent variable.

The second quantitative study detailed in (article 4) entailed executing a survey interview in Kolkata, India. The sample comprised residents of the city of Kolkata. A questionnaire was distributed to 300 respondents, out of which 283 responses were received. However, 33 responses were incomplete and had to be discarded. Consequently, the final sample consisted of 250 valid responses. We performed Confirmatory Factor Analysis for brand loyalty characterization.

The quantitative study (article 5) involved administering a survey questionnaire at a Shopper's Stop Shopping Mall in Kolkata, India. Out of the 228 survey responses collected, 38 were required to be discarded due to incomplete submissions. Consequently, a final sample of 190 respondents was established for the study. The survey employed a closed-ended research questionnaire utilizing a 5-point Likert scale. We applied regression analyses for expenditure and time spent in the store, with fragrance and retail environmental cues as independent variables, and age and sex as control variables.

6. Structure

List of papers included in this PhD thesis set:

1. Chatterjee S., Bryła P., Innovation and trends in olfactory marketing: A review of the literature, *Journal of Economics and Management*, 2022, Vol. 44, pp. 210-235. <https://doi.org/10.22367/jem.2022.44.09>. 40 points.
2. Chatterjee S., Bryła P., Mapping consumers' semi-conscious decisions with the use of ZMET in a retail market setup, *Decision*, 2023, Vol. 50, No. 2, pp. 221-232. <https://doi.org/10.1007/s40622-023-00350-3>. IF=1.5 according to 2023 JCR. 100 points.
3. Chatterjee S., Bryła P., Saleh M.I., Cross-cultural differences in the effects of the ambient scent on in-store behavior: the role of companionship, *Decision*, 2024, Vol. 51, No. 3, pp. 339-354. <https://doi.org/10.1007/s40622-024-00400-4>. IF=1.5 according to 2023 JCR. 100 points.
4. Chatterjee S., Bryła P., Effects of in-store fragrance as a cognitive innovation on loyalty building behaviour, *International Journal of Business Innovation and Research*, in press, <http://dx.doi.org/10.1504/IJBIR.2023.10058386>. 40 points.
5. Chatterjee S., Bryła P., Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India, *International Journal of Indian Culture and Business Management*, 2024, Vol. 31, No. 3, pp. 261-273. <https://doi.org/10.1504/IJCBM.2024.137276>. IF=0.7 according to 2023 JCR. 20 points.

The entire research work has been presented in five articles. The first paper contains the background, rationale, conceptual framework, and theoretical dimensions of olfactory marketing related to the study in the form of a published work. The second paper discusses the qualitative findings by identifying the constructs as part of the retail store attributes. The third, fourth, and fifth papers scrutinize the quantitative findings related to the impact of fragrance across cultures on consumer purchase behavior intentions.

The first article integrates the concepts of sensory marketing and olfaction in retail with an extensive literature review binding together the idea of the influence of fragrance on consumer responses. It highlights the strategic significance of fragrances in influencing consumer behavior, which is a valuable contribution for retail marketers. First of all, it supports earlier research by Doucé et al. (2013) and Morrison et al. (2011) by showing that the thoughtful application of ambient fragrance enhances the amount of time customers spend in retail establishments. Second, it supports Herrmann et al. (2013) study by demonstrating that perfumes increase consumer purchasing and brand attachment by creating a "feel-good" element. Last but not least, the study emphasizes how crucial it is to use fragrance to make a good first impression, promote happy emotions, create memorable experiences, and foster enduring brand loyalty (Koay & Tey, 2024; Shahid et al., 2022).

The second article captures how various retail touchpoints, such as retail store attributes, enhance consumers' decision-making from a semi-conscious mindset.

Consumer perceptions of store qualities in the retail marketplaces are examined in this qualitative study using the ZMET. The study reveals the emotional and symbolic aspects of shopping by arousing deeply embedded metaphors and subconscious associations. Important characteristics identified as crucial in determining consumer happiness and loyalty include store layout, sensory aspects, olfactory cues, product assortments, customer convenience, and

employee behavior. By using ZMET in a retail setting, the study provides a fresh methodological contribution that opens the door to more in-depth consumer-centric retail strategies.

The third article further demonstrates the role of companionship in influencing retail consumers' in-store behavior under the influence of fragrance. This cross-cultural study examines how ambient fragrance and social context—such as shopping alone versus with companions—affect customer choices in Poland and India. Results show that the influence of fragrance on decision-making is moderated by companionship, and cultural differences shape these dynamics. For example, Polish customers show more independence, whereas Indian consumers depend more on social cues. In order to increase the relevance and impact of scent-based interventions, the study emphasizes the need to customize fragrance marketing methods to particular cultural and social situations.

The fourth article explores the connection between olfactory cues, consumer purchasing intentions, and loyalty. Findings indicate a link between olfactory cues and behavioral loyalty, showing that customers exposed to pleasant scents in retail environments are less likely to switch brands and prefer to remain loyal to the same store. Additionally, the study supports that olfactory cues enhance attitudinal loyalty, encouraging customers to recommend the store and choose it over competitors. Furthermore, a strong relationship exists between olfactory cues and cognitive loyalty, suggesting that careful fragrance selection helps create a lasting impression in customers' minds, promoting store preference even when prices fluctuate.

Article 5 delineates the results of the influence of fragrance on consumers' purchasing decisions within a retail market context, considering the time and financial resources expended. The study identifies essential variables while addressing the following objectives established for the research. First, to examine the independent effect of fragrance on

consumers' decision-making processes regarding time and financial expenditure. Second, to comprehend the effect of fragrance in conjunction with additional environmental cues, including music, temperature, and store layout, on consumers' decision-making processes within a retail environment, while considering time and monetary investments. Finally, this study investigates the impact of control variables, specifically "age" and "sex," on consumers' decision-making processes, factoring in time and financial resources spent within a retail establishment.

Article 1

Chatterjee S., Bryła P., Innovation and trends in olfactory marketing: A review of the literature, *Journal of Economics and Management*, 2022, Vol. 44, pp. 210-235.
<https://doi.org/10.22367/jem.2022.44.09>.

40 points.



Shuvam Chatterjee

 <https://orcid.org/0000-0003-0948-1923>

Doctoral School of Social Science
Faculty of Management
University of Lodz, Lodz, Poland
UL0270540@edu.uni.lodz.pl

Pawel Bryla

 <https://orcid.org/0000-0003-1535-5659>

Department of International Marketing
and Retailing
Faculty of International & Political Studies
University of Lodz, Lodz, Poland
pawel.bryla@uni.lodz.pl

Innovation and trends in olfactory marketing: A review of the literature

Accepted by Editor Ewa Ziemba | Received: February 8, 2022 | Revised: April 3, 2022;
May 8, 2022; May 21, 2022 | Accepted: May 24, 2022 | Published: June 28, 2022.

© 2022 Author(s). This article is licensed under the Creative Commons Attribution-NonCommercial 4.0 license
(<https://creativecommons.org/licenses/by-nc/4.0/>)

Abstract

Aim/purpose – Olfactory marketing is a phenomenon that is in the current trend of usage by marketing experts to ensure that consumers are more involved in the purchase decision-making process. This paper aims to review the studies involved in consumer purchase intentions influenced by fragrance and develop a framework for modeling consumer responses.

Design/methodology/approach – PRISMA technique was used as a methodological approach. First, the researchers made criteria for inclusion and exclusion of studies along with the application of a set of keyword research strings to identify the relevant research articles. Second, prominent scientific search databases like EBSCO Host, Scopus, and ScienceDirect were used to mainly search the relevant literature.

Findings – This article advances knowledge on the topic of fragrance marketing and proposes an integrative framework of consumer purchase responses considering the mutual relationship shared between fragrance, the influence of control variables, and response outcomes focusing on cognitive responses, intentions and behavior. The results of the conducted review also suggest that retail consumers tend to develop a positive attitude and behavior towards the place where the product and service are being sold.

Research implications/limitations – The paper would be particularly helpful for managers in designing the right strategy for creating loyalty for their retail outlets and thereby creating a niche for themselves.

Originality/value/contribution – The study assists marketers in understanding the impact of olfactory marketing in increasing short-term and long-term retail sales and determines future research directions to enrich the existence of these theories to fathom the essence behind consumers' interpretations of olfaction in retail outlets.

Keywords: olfactory marketing, consumer behavior, retail store, marketing innovation, fragrance, review.

JEL Classification: M00, M31.

1. Introduction

The sense of fragrance happens to be one of the ancient and remarkable senses as it directs us in our entire journey of life guiding us constantly on which objects to be approached and which ones to be avoided (Axel, 1995). It has not only supported humans to merely survive but made a constant effort to evoke emotions (Hertz, 1997). The fragrance has further paved the way to influence the sense of beauty and pleasantness. The ambient scent could also be defined as the fragrance infused not only from any specific object but for its sheer existence in the environment itself (Spangenberg, Crowley, & Henderson, 1996). The ambient scent is the fragrance emulating from the atmosphere of a particular place (Spangenberg et al., 1996). Bradford and Desrochers (2009) discussed how fragrance has become an integral part of retail store atmospherics as the competition amongst retailers to create a positive in-store experience for the consumers is extremely high.

However, the major concern was that for a considerable period, the power of smell was under-valued compared to other senses (Morrin, 2010) like sight, auditory cues, and cutaneous senses (Martin, Apena, Chaudry, Mulligan, & Nixon, 2001). Marketers started anticipating the power of scent, dug in revealing olfactory literature from different disciplines such as anthropology and psychology in the past last decade. Visual cues are widely known and are predominantly used in marketing. However, marketers slowly realized that the sense of scent could play a pivotal role in identifying and differentiating products and brands in retail places thus contributing to improved brand evaluation and recall (Morrin & Ratneshwar, 2000) and increased brand perception (Chebat & Michon, 2003) for end-users. This contributed to the utilization of fragrance as a marketing tool to create a mood (Vlahos, 2007), promoting products and services by optimum usage of scents (Morrin, 2010).

Emsenhuber (2011) discussed how fragrance can induce consumer decision-making by increasing their emotions, thus influencing their purchase decisions without drawing attention to the smell (Ward, Davies, & Kooijman, 2007).

Researchers in marketing have experimented with scents in and along with primary products sold such as beauty products, and room fresheners to build a positive attitude contributing to the prominent evaluation of the products (Chebat

& Michon, 2003). In such cases fragrance happens to be the main stimulating cue for the consumers' decision-making based on product recall (Morrin & Ratneshwar, 2003) in choosing the brand. However, most importantly fragrance could be enforced as an alternative product attribute in pushing the brand to get it differentiated from products or services and most importantly from competitors. Olfactory marketing is not just about getting associated with end-products manufactured for sale, but also it is gaining immense importance recently due to the infusion of scent in the place where the product is getting sold to uplift the overall store atmosphere and ultimate purchase experience of the consumers (Kotler, 1973). It was observed from the past studies that fragrance does create a positive impact for the consumers on the environment where the products and services are being consumed.

The objective of this review is to propose a framework for understanding the influence of fragrance on consumer responses under the influence of control variables. A careful review of the existing literature would assist in establishing a future research direction for the advancement of this field in marketing, both at the research level as well as at the application level in business.

The layout of the paper is organized as follows. The following section introduces the methodology followed by findings from the literature. Subsequently, a framework for Modeling Consumer Responses to Olfactory Marketing is presented followed by presenting a set of characteristics identified from the selected studies. Finally, section 6 contains the discussion, and the last section points out the future scope of studies of the research.

2. Methodology

2.1. Data collection

A literature review is a powerful instrument and has its prominence in almost all disciplines (Cassell, Denyer, & Tranfield, 2006). Bringing out a synthesis is the prime task involved in digging into the literature (McKibbin, 2006; Tranfield, Denyer, & Smart, 2003). Hence it is of utmost importance to have clarity in paper selection engagements and strictly follow a specific method of article selection (Pittaway, Robertson, Munir, Denyer, & Neely, 2004; Tranfield, Denyer, Marcos, & Burr, 2004).

The study maintained strict search criteria, inclusion, and exclusion results. Prominent scientific search databases like EBSCO Host, Scopus, and ScienceDirect were used to mainly search the relevant literature. "Olfactory marketing," "olfactory cues," "fragrance marketing," "scent marketing," "ambient scents," and "retail market" are the main keywords used for evaluating the literature on the concepts of olfactory marketing.

The researchers have not considered the concepts and application of olfactory marketing discussed in reports or newspaper articles and the focus of this review has been mainly restricted to journal articles (Ngai, 2005).

Strict inclusion and exclusion criteria were set for the study which are highlighted in Table 1. To execute the theory-based review, the study utilized 81 papers to form a review of literature from journals listed in ABDC comprising of the A & A* category. The choice seemed more eminent as the ABDC (Australian Business Deans Council) list is more inclusive than other journal lists for example ABS (Association of Business Studies) (Hao, Paul, Trott, Guo, & Wu, 2019; Lim, Yap, & Makkar, 2021).

First: The paper selection protocol is based on Emerald, Scopus, ScienceDirect, Wiley Online Library databases, and JSTOR. Additionally, alternative academic platforms such as Research Gate and Google Scholar have been used for articles that are difficult to reach.

Second: Key words of searching were set out as follows: “Olfactory marketing,*” “olfactory cues,*” “fragrance marketing,*” “scent marketing,” “ambient scents,*” “retail markets,” “scent congruence.*”

Third: This research used the PRISMA methodology to collect the data (Figure 1). The PRISMA is an important tool used for recording systematic reviews; it helps to precisely screen articles for eligibility to the scope of systematic review research (Liberati et al., 2009). After searching for the keywords, the search returned 1,946 documents containing any of these terms within the keywords. Then the study used an advanced search across all scholarly platforms to skip duplicated titles; the results reassembled 864 documents after removing duplicated articles.

Later, in the screening process with abstracts and/or keywords of the original works, only 237 records were screened according to identical titles. Then, 68 papers were excluded to assure accurate original work for the study. Then, the study adopted 103 articles for a full-text article assessed for eligibility to the main scope of the study; the study excluded any articles that do not include theoretical psychological background about the behavioral theories used in studies. Then, with journals’ ranking reasons to select only A* and A journals, 22 articles were excluded. Finally, the number of studies to build the literature review was 81, considering the ABDC list as mentioned above considering a time frame of 26 years from 1995 to 2021 (December).

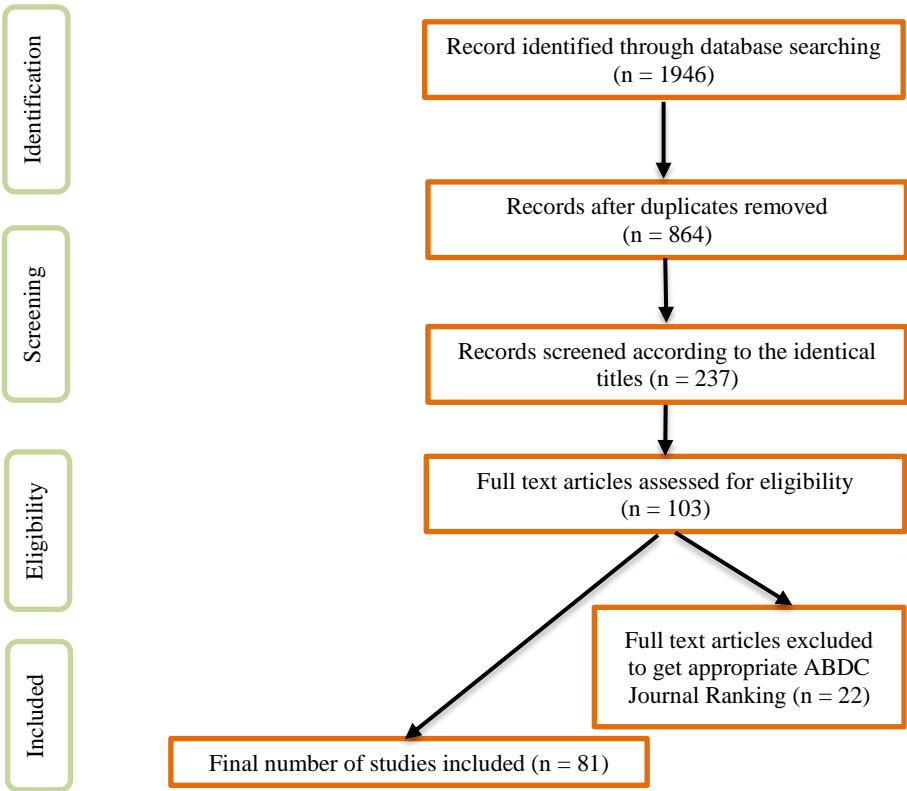
Fourth: The authors’ names, title, keywords, methodology, research dimensions, journal name, findings, and year of publication of the identified records were exported to an MS Excel spreadsheet to position the results (Table 3 in Appendix).

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Focus on purchase intentions of consumers considering the time spent and money spent, developing attachment towards the product categories inside retail outlets, and product-scent congruencies formed	Books
Published journal papers	Conference papers
Only full-text papers	Papers with no abstract availability
Peer-reviewed journals	Articles other than in the English language
Full reference availability	Other sensory attributes which are not related to olfactory cues
Selection criteria revolving around the keywords – “olfactory marketing,” “fragrance marketing,” “olfactory cues,” “scent marketing,” “retail market”	

Source: Authors’ own elaboration.

Figure 1. PRISMA flow diagram of data collection

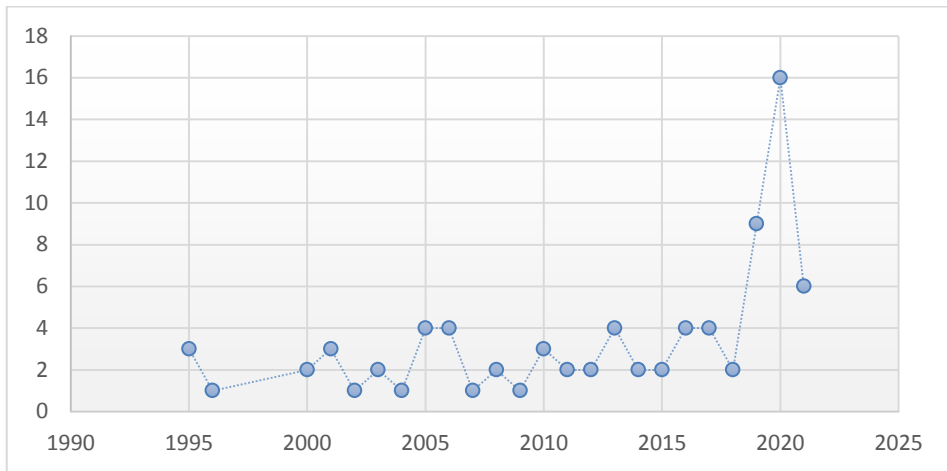


Source: Authors’ own elaboration.

2.2. General characteristics of the selected studies

Figure 2 summarizes the distribution of articles by year of publication. It shows that the rate of published articles on olfactory marketing has increased remarkably since 2010, reaching a peak in 2020 with sixteen published articles. The interest in marketing innovation took considerable interest after the big recession in 2008, and nowadays, with COVID-19, scholars are looking for innovation in marketing as a key strategy.

Figure 2. Distribution of articles by years of publication

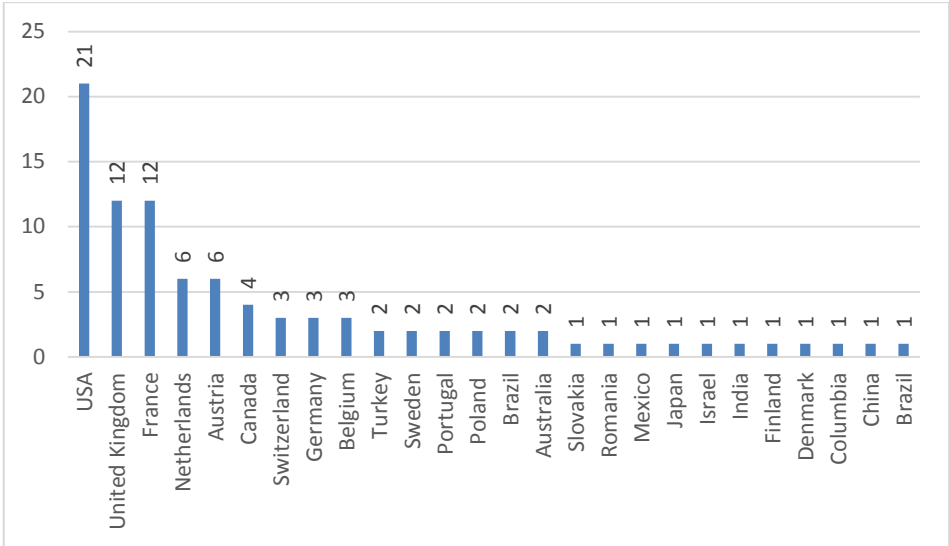


Source: Authors' own elaboration.

2.2.1. Investigated countries for publishing articles on olfactory marketing

Figure 3 shows the distribution of selected empirical studies by country, thus revealing that the most studied area is Europe with 60% of articles having a focus on understanding the impact of olfactory marketing followed by America with a 25% study implementation rate.

Figure 3. Distribution of the empirical publications by investigated countries

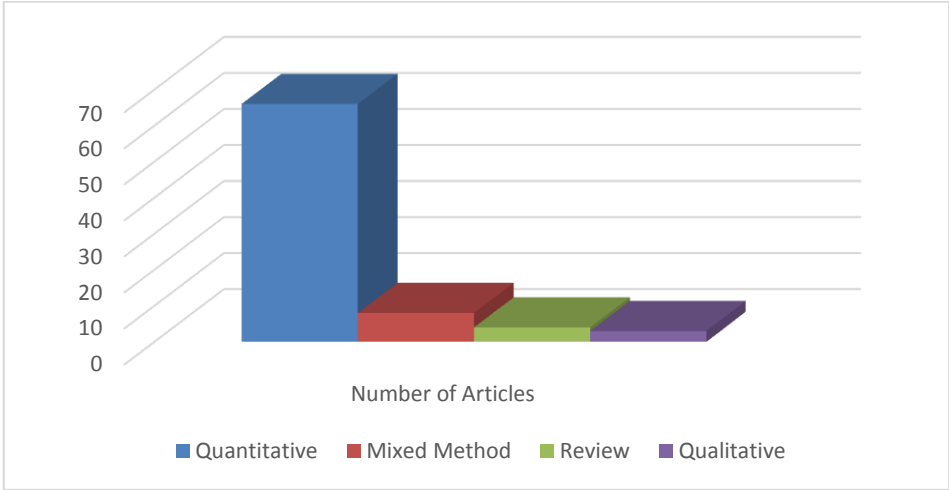


Source: Authors' own elaboration.

2.2.2. Distribution of articles by type of methodology

Figure 4 depicts the distribution of the selected studies through their research design verifying 81% are empirical studies, while 18% are conducted through qualitative, reviews, and mixed-method approaches, respectively.

Figure 4. Distribution of the research methodologies used in the articles



Source: Authors' own elaboration.

3. Findings from the literature

3.1. Ambient fragrance & consumer response

The ambient fragrance is discussed as the fragrance discovered as a part of the retail environment and its success is gauged by the consumer's response to an unscented vs scented situation (Douc   & Janssens 2013). The literature primarily discusses three main functions of ambient fragrance namely – cognitive responses, consumer purchase intentions, and consumer purchase behavior (Morrison, Gan, Dubelaar, & Oppewal, 2011) toward the store under the aromatic influence. Past literature suggests pleasant fragrance results in experiments on quite a substantial consumer response such as store recall and evaluation (Schifferstein, Talke, & Oudshoorn, 2011) and time elusiveness, purchase intentions, and further intentions to recommend along with expenditure and lingering at the retail store (Morris, 2010; Nibbe & Orth, 2017). Spence (2021) narrated how fragrance has been found to positively influence consumers inside a flight to help reduce stress and anxiety of travel and build an impression of hygiene and cleanliness inside the flight. Errajaa, Legoh  rel, Dauc  , and Bilgihan (2021) discussed how fragrance needs to be consistent with the brand image to build customer satisfaction along with increased intention for revisits. Castellanos, Hudson, Haviland-Jones, and Wilson (2010) investigated that fragrance helped individuals recall positive emotional incidents from their childhood. Douc   & Janssens (2013) further discussed how consumers having a strong effect intensity with the fragrance could contribute to stronger store re-visit intentions.

3.2. Constructs involved in consumer response

The literature review allowed us to indicate the following constructs involved in consumer responses (Table 2).

Table 2. Construct definition

Constructs	Definition	Adaptation
1	2	3
Cognitive responses	Information that is processed by consumers while the ambient fragrance was present or absent, thus, contributing to measuring consumers' ability to remember information and time during the shopping	Lwin, Morrin, & Krishna, 2010b; Morrin, Chebat, & Chebat, 2011
Purchase intentions	Is an individual's readiness to demonstrate a specific behavior which is measured as a self-report indicating a sense of willingness to behave in a certain manner	Motyka et al., 2014

Table 2 cont.

1	2	3
Purchase behavior	Acts performed by the customer that is often measured by observing customers during the shopping episode	Motyka et al., 2014
Isolated control variables	Demographic variables that significantly affect consumers' purchase intentions. The effect of age and gender was found to influence the buying behavior of the consumers	Helmefalk & Hulten 2017; Correia et al., 2016

Source: Authors' own elaboration.

3.2.1. Cognitive responses

The information which was fetched while fragrance was present or absent inside a retail setup did measure the cognitive exploitations of a consumer's ability to process information regarding the time spent shopping (Lwin, Morrin, & Krishna, 2010a; Morrin, Chebat, & Chebat, 2011). Silva, Sá, Escadas, and Carvalho (2021) investigated how a field experiment conducted in a public bus under the influence of fragrance does increase passengers' perceived travel experience and helps build memory recall with the brand as well. De Luca and Botelho (2020) discussed how fragrance deployed in retail settings could help consumers not only experience pleasure during their purchasing experience, but also promotes cognitive responses to brand recall.

Mitchell, Kahn, and Knasko (1995) explored how consumers remembered and recalled the various attributes of the store offerings under the influence of fragrance, the findings of which were also similar to the research conducted by Morrin and Ratneshwar (2003). Chebat and Michon (2003) spoke about how consumers' decision making not solely influenced by mood, but also by cognitive processing as well. The fragrance inside retail stores does build a favorable perception of the overall ambiance. However, these studies were challenged by Teller and Dennis (2012) who concluded that no concrete results could be found supporting the cognitive positive response of consumer's decision making inside a retail outlet under the influence of fragrance. Guillet, Kozak, and Kucukusta (2019) suggested how fragrance in a hospitality setup does influence consumers into developing higher brand recall. Dörtyol (2020) examined the importance of fragrance scale developments to help retailers understand how olfactory cues inside a retail store influence the human brain in fulfilling desires, satisfaction, and expectations. Errajaa et al. (2021) reflected how fragrance needs to have congruency with the brand to reap maximum visibility and association along

with building a positive brand image. Girard Lichters, Sarstedt, and Biswas (2019) study reflected the impact of fragrance on a long-term association building more conscious remembrance of the fragrance post its discontinuation.

3.2.2. Purchase intentions

Motyka et al. (2014) discussed purchase intentions as individual's inquisitiveness to perform a specific behavior or willingness to behave in a specific manner. Herrmann, Zidansek, Sprott, and Spangenberg (2013) defined purchase intention as certain purposes that reflect the willingness to engage in business transactions with an organization for the acquisition of a product against the price willing to pay. It is one of the widely used and explored topics in marketing and consumer behavior.

Doucé and Janssens (2013) revealed consumer purchase intentions to be the reflection of their willingness to engage in a business transaction in various ways like the acquisition of products or the price readiness to pay. It was also indicated by similar results from studies conducted by Herrmann et al. (2013); Spangenberg et al. (1996) that talked about consumers' intention to re-visit the store or pay a higher price for products. Consumer intentions also deal with the willingness to spread positive word of mouth and encourage others to perform business with the store Adams and Doucé (2016). Gvili, Levy, and Zwilling (2018) reflected on how the effects of scented cues along with color congruent advertisements build a positive impact on consumers' emotional and attitudinal responses.

3.2.3. Purchase behavior reflecting time and money spent

Solomon (1996) discussed consumer purchase behavior to be an extremely complex concept, usually resulting from an interaction between the consumer and its immediate environment (Hansen, Percy, & Hansen, 2004). According to Holbrook and Hirschman (1982), purchase behaviors are driven by a certain set of factors and motivations. Scholars have been interested to decode these factors contributing to consumers' purchase decision-making. Blackwell, Miniard, and Engel (2001) identified personality, culture, social class, and consumer attitude to be the contributing factors to decision making. However, Voss, Spangenberg, and Grohmann (2003) defined hedonic and utilitarian motivations to be prime contributors to purchase intentions.

Motyka et al. (2014) spoke about acts performed by the consumers which are judged by observing them making purchases inside the retail stores. Morrin and Chebat (2005) discussed how purchase behavior influenced by fragrance tends to make consumers intend to spend extra time inside the store willingly. Chebat, Morrin, and Chebat (2009) considered how consumers tend to underestimate the time spent inside a retail store under the influence of fragrance which was again in line with the research outcomes of Spangenberg et al. (1996). Similar observations were made by Morrison et al. (2011) and Herrmann et al. (2013) where consumer purchase behavior under the influence of fragrance was further supported by impulsive buying within the store as well along with increased time spent. Leenders, Smidts, and El Haji (2019) discussed how consumers tend to underestimate the time spent inside a retail store under the influence of high-intensity fragrance. Doucé, Poels, Janssens, & De Backer (2013) also observed that intentions to linger the time spent inside retail stores were another reflection of consumer behavior with the influence of fragrance. Jacob, Stefan, and Guéguen (2014) discussed how lavender fragrance infused in a flower shop increases consumer spending considerably. Helme Falk and Hulten (2017) discussed that a multi-sensory (auditory and olfactory) influence does increase consumers' time spent inside the retail store and builds positive purchasing behavior intentions. Jacob et al. (2014) discussed how fragrance induced in a flower shop made consumers spend more money in making their purchasing decisions similar to Guéguen and Petr (2006) research in a restaurant where fragrance did influence consumers inside the restaurant making them spend both more money and time under its influence.

3.2.4. Fragrance attribute in building store recall

Morrin and Ratneshwar (2003) discussed store recall as remembering the product and service attributes of the store. This plays an important role for consumers to have an association with the store as the recall is attributed to memory which the consumer experiences and registers during their purchasing process (Lwin, Morrin, & Krishna, 2010b).

Fragrance characteristics try to explain the morphological structures of a pleasant ambient fragrance including the quality, congruency, and structure. Fragrance quality symbolizes the scent perception and differentiates it from others (Dravnieks, 1982). While individuals could distinguish various fragrances, they have previous experience with, it would be difficult to provide a verbal description of the same and thus most of the time could be able to experience

a feeling of association and could recognize the scent, without being able to identify the same (Morrin, 2010) as fragrance acts as a memory cue without identification even as well (Herz & Engen, 1996), the fragrance is often pillared upon other scent characteristics as well. One such feature is congruency where the theorizing goes that people not only respond to discrete products or elements but to the total configuration of it (Bitner, 1992). Hence, Bosman (2006) and Herrmann et al. (2013) study talked about building a combined prior fit for the environment and the offerings. The effect size is influenced by congruence as people are positively predisposed to it (Herz, 2010) and incongruent fragrance deals with the processing of information (Mitchell, Kahn, & Knasko 1995). Considering structure, Herrmann et al. (2013) dealt with the condition where a pleasant ambient scent containing a single or a multi-aroma dimensional allows for a greater cross-study scope. His study found that ambient orange-basil scent with green tea (multi-dimensional) is less effective than orange (single) because it is more challenging to process.

3.2.5. Isolated control factors

Researchers distinguished gender and age as the most widely used control variables in past studies. It was observed that considering physiological evidence, women have a greater level of sensitivity and outperform men in fragrance detection and response (considering detection, identification, discrimination and memory) and more response to fragrance than men (Doty & Cameron, 2009; Herz & Engen 1996). Helme Falk & Hulten (2017) study discussed that fragrance results in women exhibiting a more positive mood than men. Further, it was observed that fragrance does affect a considerable portion of a women's brain (Yousem et al., 1999). However, not many tests are there discriminating gender differences in response to ambient fragrance (Baron. 1997; Lwin, & Morrin, Krishna, 2010b) which might be a result of lower power in aggregate analysis. Chebat, Morrin, and Chebat (2009) study spoke about how fragrance facilitates expenditure for young consumers less than 35 years of age and does not have a significant impact on older consumers. At the same time, considerable differences in respondents' susceptibility to ambient fragrance could be related to olfactory capacity which continues to change with age during an individual's lifespan, where significant loss of olfaction happens for older generations (Correia et al., 2016). Correia et al. (2016) study also determined that olfactory performance is best visible within the age group of 20 to 40 years and considerably declines afterward.

3.3. ZMET – a unique process orientation for building constructs

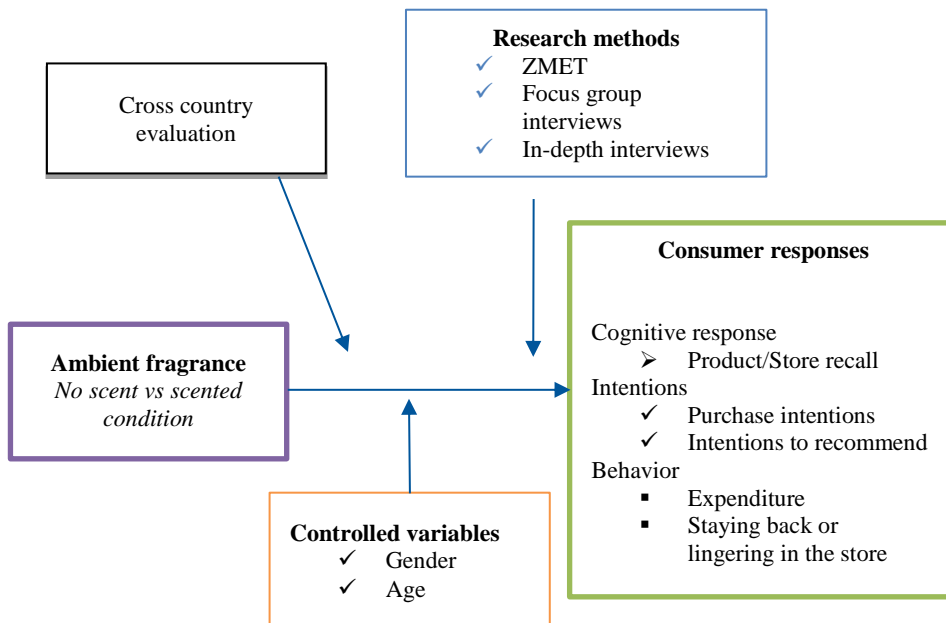
Zaltman Metaphor Elicitation Technique (Zaltman, 1997; Zaltman & Coulter, 1995) is a tested method discovered in the early 1990s basically to comprehend and understand consumers by evoking metaphors that disclose prominent aspects of the unexpressed mental models. The laddering interview technique which is a qualitative research tool is highly successful in understanding what and why people buy and use products and services. By using the power of eliciting metaphor, it could further move to illustrate in the respondent's tune the concepts and ideas that are there in the mental model (Ling, Yang, Liu, & Tsai, 2009).

The usage of metaphor as a research tool also helps consumers reveal and form a concrete mental structure of both their thoughts and feelings revolving around the object of inquiry, thus creating a deeper understanding of knowledge by probing out the concepts found through laddering channels. This in a way allows researchers to study the data thus retrieved in a deeper context than is possible through a traditional laddering research study. Warden and Chen (2009) discussed how the combination of in-depth interviews and photographs collected from the respondents helps build a connection between the respondent's deeply rooted thoughts and their external experiences, which further contributes to generating important questions comprising of "how" and "why" as part of the laddering techniques (Ling et al., 2009). This defines a well-built mental structure of the respondents (Christensen & Olson, 2002; Ji & King, 2018). ZMET would be the starting point for carrying out further research with a structured questionnaire that emerged from the hidden constructs identified in the study. Moreover, this mixed-method approach was prominent in research carried out by Yang and Chen (2015) where in-depth interviews were performed to understand that fragrance did play an important role in making a purchase intention for buying cosmetics. Additionally, Castellanos et al. (2010) introduced an in-depth interview through narrative analysis to understand how respondents, when introduced to fragrance, bring out positive childhood memories. Xiao, Tait, and Kang (2020) conducted in-depth interviews to understand how fragrance plays an important role in mapping people and places and building perceptual patterns influenced by fragrance.

4. Integrative framework based on the findings

As the main result of the literature review, an integrated framework (Figure 5) has been developed which maps insights within fragrance impact on consumer responses on the 81 articles reviewed. The model below brings the determinants driving or hampering consumer responses, the set of control variables that influence such consumer responses, outcomes, and consequences of measured fragrance in retail stores. It is also emphasized that ZMET would play a crucial role to bring out the hidden metaphors amongst consumers which would play a significant role in decision making under fragrance in a retail setup and it would be interesting to understand the impact of fragrance on consumer responses on a cross-country setup (India and Poland) as it is already established that culture plays a significant role in consumer's decision making (Fleck & Maille, 2010; Gilbert, 2008). Möller and Herm (2013) discussed the difficulties of presenting the appropriateness of fragrance considering culture and other personal attributes. Helmefalk and Hultén (2017) spoke about how more attention should be devoted to studies on the impact of fragrance on consumers' emotions and purchase behavior across different cultures.

Figure 5. An integrative framework for modeling consumer responses to olfactory marketing



Source: Authors' own elaboration.

5. Discussion

The study is an attempt to present the research framework which can be useful for the retailer in developing their strategies aiming at evaluating olfactory marketing.

Turley and Milliman (2000) investigated the impact of fragrance on consumers under an artificial laboratory setup. This review also witnesses several studies conducted in real commercial retail spaces and the results from both environments seem to comply with each other.

Fragrance marketing is an integral part of today's contemporary marketing approaches, but from the literature review, it could not be concluded that the organizations implementing fragrance marketing fully comply with the completeness and accuracy of the information of the results fetched from scientific studies while applying fragrance in their retail environment as it is a highly expensive affair for these firms to extensively conduct independent research. Studies have also witnessed fragrance having no impact on consumer perceptions and emotions (Teller & Dennis, 2012). Moreover, Parodi et al. (2010) discussed how some potentially harmful chemical fragrances in cosmetics could lead to leukemia along with severe skin inflammation, and certain nanoparticles used with fragrance in anti-aging creams and perfumes also induce cancer (Vijaya et al., 2020). Further investigation by Bagasra et al. (2013) disclosed how synthetic perfumes are used extensively in a variety of products such as cosmetic soaps, detergents, and other daily used products contribute to autism spectrum disorder amongst individuals, mostly kids. Hence retail marketers need to be cautious about the ill effects of fragrance and its consequences on retail consumers as well.

It is recommended that firms that are planning to adopt fragrance marketing as a part of their customized marketing approach or retail marketers who are already incorporating fragrance in their retail spaces, need to be fully aware of the applications and effects used in scientific studies and at the same time fine-tune their fragrance marketing research considering their strategy so that they could best utilize the same.

It is also important to note that fragrance is one of the elements of sensory expression to have a long-lasting impression on a retail consumer and it could be best exploited if goes together with other sensory cues like temperature, music, layout. Considering the relationship between fragrance and retail store to yield optimum results, the former needs to build congruency with the product or service, with the retail space, and most importantly the profile of the consumers to receive the set results (Lin, 2004). Hence, consumer demographics, especially gender, plays a crucial role in successful fragrance implementation. Knasko

(1995) administered a chocolate fragrance as the respondents' observed a series of images considering babies, chocolates, and trees which induced a level of excitement, while Vinitzky and Mazursky (2011) using the same fragrance identified an increase in footfall to the online store along with an increase in exploration of products. This sets the basis for investigating the impact of fragrance on demographics, especially gender.

Finally, retail firms are desperately trying to full-proof their in-store innovations with pleasant ambient fragrances, an unpleasant fragrance could yield more serious detrimental effects, with severe impact than a pleasant fragrance yielding positive effects (Herz, 2011). Hence an extensive exploration and understanding of the impact of unpleasant fragrances on sources like kitchen areas displayed inside retail spaces need to be explored given the lack of studies conducted. Furthermore, Gaby and Tepper (2020) discussed how fragrance when presented in different ways creates a difference in intensity and pleasantness and reflects differences in subsequent brand recall as well. Hence, fragrance intensity and its impact on retail setup could also be a possible research area that needs attention.

6. Conclusions

There are several contributions this study has made, especially for retail marketers. First, retail managers would have a clear understanding that controlled input of fragrance would positively impact the time spent by consumers in a retail store. This finding is in line with the studies of Doucé et al. (2013) and Morrison et al. (2011) who have similar results on the influence of fragrance on consumers' decision-making regarding time spent inside the retail store.

Second, the fragrance would create a "feel-good" factor and thereby a positive brand attachment for consumers inside retail destinations, thus contributing to spending more money. This is in line with Herrmann et al. (2013) study which discussed how consumers influenced by fragrance ends up spending more during their shopping encounters.

The study contributed to the existing body of literature establishing why it is more important to create that first impression with the right fragrance, creating a long-lasting positive emotional state of mind that helps create experiences (Schmitt, 1999) and form brand loyalty (Pullman & Gross, 2004; Anguera-Torrell, Álvarez León, Cappai, and Sanmartín Antolín (2021) toward the store.

7. Limitations & future work

This review like all other research work has limitations. First, the proposed framework is a summary of the most studied variables. Data constraints are also reflected on pleasant fragrance and its geographic focus on Europe and America. In most cases, fragrance perceptual properties are learned and carry culture-bound meanings. Hence, for this study, generalizations would be difficult which accounts for the main effects of scent pleasantness and activation and the review may not be extended to other cultures.

The researchers suggest scope for future work. The authors identified studies on the interaction between fragrance and music (Mattila & Wirtz, 2001; Morrison et al., 2011). Thus, there is scope to consider the influence of fragrance clubbed with other atmospheric variables (color, lighting, temperature, and crowding). Moreover, a lack of studies has been identified on the influence of ambient scent on the service environment, especially in restaurants (Guéguen & Petr, 2006). A significant number of studies have investigated the influence of fragrance on consumer behavior. However, little to very less has explored the impact of fragrance on employee behavior understanding the factors that moderate this relationship.

Disclosure statement

No potential conflict of interest was reported by the author(s).

References

- Adams, C., & Doucé, L. (2017). The effect of crossmodal congruency between ambient scent and the store environment on consumer reactions: An abstract. In M. Stieler (Ed.), *Creating marketing magic and innovative future marketing trends* (pp. 913-914). Cham: Springer. https://doi.org/10.1007/978-3-319-45596-9_169
- Anguera-Torrell, O., Álvarez León, I., Cappai, A., & Sanmartín Antolín, G. (2021). Do ambient scents in hotel guest rooms affect customers' emotions? *European Journal of Tourism Research*, 27, 2701-2716. <https://doi.org/10.54055/ejtr.v27i.2120>
- Axel, R. (1995). The molecular logic of smell. *Scientific American*, 273(4), 154-159. <https://doi.org/10.1038/scientificamerican1095-154>
- Bagasra, O., Golkar, Z., Garcia, M., Rice, L. N., & Pace, D. G. (2013). Role of perfumes in pathogenesis of autism. *Medical Hypotheses*, 80(6), 795-803. <https://doi.org/10.1016/j.mehy.2013.03.014>

- Baron, R. A. (1997). The sweet smell of... helping: Effects of pleasant ambient fragrance on prosocial behavior in shopping malls. *Personality and Social Psychology Bulletin*, 23(5), 498-503. <https://doi.org/10.1177/0146167297235005>
- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(2), 57-71. <https://doi.org/10.1177/0022224299205600205>
- Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2001). *Consumer behavior* (9th ed.). Mason, OH: South-Western Thomas Learning.
- Bosmans, A. (2006). Scents and sensibility: When do (in) congruent ambient scents influence product evaluations? *Journal of Marketing*, 70(3), 32-43. <https://doi.org/10.1509/jmkg.70.3.032>
- Bradford, K. D., & Desrochers, D. M. (2009). The use of scents to influence consumers: The sense of using scents to make cents. *Journal of Business Ethics*, 90(2), 141-153. <https://doi.org/10.1007/s10551-010-0377-5>
- Castellanos, K. M., Hudson, J. A., Haviland-Jones, J., & Wilson, P. J. (2010). Does exposure to ambient odors influence the emotional content of memories? *The American Journal of Psychology*, 123(3), 269-279. <https://doi.org/10.5406/amerjpsyc.123.3.0269>
- Correia, C., Lopez, K. J., Wroblewski, K. E., Huisinigh-Scheetz, M., Kern, D. W., Chen, R. C., Schumm, L. P., Dale, W., McClintock, M. K., & Pinto, J. M. (2016). Global sensory impairment in older adults in the United States. *Journal of the American Geriatrics Society*, 64(2), 306-313. <https://doi.org/10.1111/jgs.13955>
- Cassell, C., Denyer, D., & Tranfield, D. (2006). Using qualitative research synthesis to build an actionable knowledge base. *Management Decision*, 44(2), 213-227. <https://doi.org/10.1108/00251740610650201>
- Chebat, J. C., & Michon, R. (2003). Impact of ambient odors on mall shoppers' emotions, cognition, and spending: A test of competitive causal theories. *Journal of Business Research*, 56(7), 529-539. [https://doi.org/10.1016/S0148-2963\(01\)00247-8](https://doi.org/10.1016/S0148-2963(01)00247-8)
- Chebat, J. C., Morrin, M., & Chebat, D.-R. (2009). Does age attenuate the impact of pleasant ambient scent on consumer response? *Environment and Behavior*, 41(2), 258-267. <https://doi.org/10.1177/0013916507311792>
- Christensen, G. L., & Olson, J. C. (2002). Mapping consumers' mental models with ZMET. *Psychology & Marketing*, 19(6), 477-501. <https://doi.org/10.1002/mar.10021>
- Davies, B. J., Kooijman, D., & Ward, P. (2003). The sweet smell of success: Olfaction in retailing. *Journal of Marketing Management*, 19(5-6), 611-627. <https://doi.org/10.1080/0267257X.2003.9728228>
- Doty, R. L., & Cameron, E. L. (2009). Sex differences and reproductive hormone influences on human odor perception. *Physiology & Behavior*, 97(2), 213-228. <https://doi.org/10.1016/j.physbeh.2009.02.032>

- Doucé L., & Janssens, W. (2013). The presence of a pleasant ambient scent in a fashion store: The moderating role of shopping motivation and affect intensity. *Environment and Behavior*, 45(2), 215-238. <https://doi.org/10.1177/0013916511410421>
- Doucé, L., Poels, K., Janssens, W., & De Backer, C. (2013). Smelling the books: The effect of chocolate scent on purchase-related behavior in a bookstore. *Journal of Environmental Psychology*, 36, 65-69. <https://doi.org/10.1016/j.jenvp.2013.07.006>
- Dörtyol, İ. T. (2021). Do consumers need to smell? Scale development and validation. *Journal of Sensory Studies*, 36(2), e12630. <https://doi.org/10.1111/joss.12630>
- Dravnieks, A. (1982). Odor quality: semantically generated multidimensional profiles are stable. *Science*, 218(4574), 799-801. <https://doi.org/10.1126/science.7134974>
- Errajaa, K., Legohérel, P., Daucé, B., & Bilgihan, A. (2021). Scent marketing: Linking the scent congruence with brand image. *International Journal of Contemporary Hospitality Management*, 33(2), 402-427. <https://doi.org/10.1108/IJCHM-06-2020-0637>
- Emsenhuber, B. (2011). Scent marketing: Making olfactory advertising pervasive. In J. Müller, F. Alt, D. Michelis (Eds.), *Pervasive advertising* (pp. 343-360). London: Springer. https://doi.org/10.1007/978-0-85729-352-7_17
- Fleck, N., & Maille, V. (2010). Thirty years of conflicting studies on the influence of congruence as perceived by the consumer: Overview, limitations and avenues for research. *Recherche et Applications en Marketing* (English edition), 25(4), 69-92. <https://doi.org/10.1177/205157071002500404>
- Gaby, J. M., & Tepper, B. J. (2020). A comparison of hedonic and emotional responses to common odors delivered by qPODs (Portable Olfactive Devices) and traditional sniff jars. *Food Quality and Preference*, 80, 103804. <https://doi.org/10.1016/j.foodqual.2019.103804>
- Guéguen, N., & Petr, C. (2006). Odors and consumer behavior in a restaurant. *International Journal of Hospitality Management*, 25(2), 335-339. <https://doi.org/10.1016/j.ijhm.2005.04.007>
- Gilbert, N. (2008). *What the nose knows*. New York: Crown Publishers.
- Girard, A., Lichters, M., Sarstedt, M., & Biswas, D. (2019). Short- and long-term effects of nonconsciously processed ambient scents in a servicescape: Findings from two field experiments. *Journal of Service Research*, 22(4), 440-455. <https://doi.org/10.1177/1094670519842333>
- Gvili, Y., Levy, S., & Zwilling, M. (2018). The sweet smell of advertising: The essence of matching scents with other ad cues. *International Journal of Advertising*, 37(4), 568-590. <https://doi.org/10.1080/02650487.2017.1339584>
- Guillet, B. D., Kozak, M., & Kucukusta, D. (2019). It's in the air: Aroma marketing and affective response in the hotel world. *International Journal of Hospitality & Tourism Administration*, 20(1), 1-14. <https://doi.org/10.1080/15256480.2017.1359727>
- Hao, A. W., Paul, J., Trott, S., Guo, C., & Wu, H.-H. (2021). Two decades of research on nation branding: A review and future research agenda. *International Marketing Review*, 38(1), 46-69. <https://doi.org/10.1108/IMR-01-2019-0028>

- Hansen, F., Percy, L., & Hansen, M. H. (2004). *Consumer choice behaviour: An emotional theory* (Research Paper, No. 1). Copenhagen: Department of Marketing, Copenhagen Business School.
- Helmefalt, M., & Hultén, B. (2017). Multi-sensory congruent cues in designing retail store atmosphere: Effects on shoppers' emotions and purchase behavior. *Journal of Retailing and Consumer Services*, 38, 1-11. <https://doi.org/10.1016/j.jretconser.2017.04.007>
- Hertz, R. S. (1997). The effects of cue distinctiveness on odor-based context-dependent memory. *Memory & Cognition*, 25(3), 375-380. <https://doi.org/10.3758/BF03211293>
- Herz, R. S. (2011). The emotional, cognitive, and biological basics of olfaction: Implications and considerations for scent marketing. In A. Krishna (Ed.), *Sensory marketing: Research on the sensuality of products* (pp. 117-138). London: Routledge.
- Herz, R. S., & Engen, T. (1996). Odor memory: Review and analysis. *Psychonomic Bulletin & Review*, 3(3), 300-313. <https://doi.org/10.3758/BF03210754>
- Herrmann, A., Zidansek, M., Sprott, D. E., & Spangenberg, E. R. (2013). The power of simplicity: Processing fluency and the effects of olfactory cues on retail sales. *Journal of Retailing*, 89(1), 30-43. <https://doi.org/10.1016/j.jretai.2012.08.002>
- Hirsch, A. R. (1995). Effects of ambient odors on slot-machine usage in a Las Vegas casino. *Psychology & Marketing*, 12(7), 585-594. <https://doi.org/10.1002/mar.4220120703>
- Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research*, 9(2), 132-140. <https://doi.org/10.1086/208906>
- Jacob, C., Stefan, J., & Guéguen, N. (2014). Ambient scent and consumer behavior: A field study in a florist's retail shop. *The International Review of Retail, Distribution and Consumer Research*, 24(1), 116-120. <https://doi.org/10.1080/09593969.2013.821418>
- Ji, M., & King, B. (2018). Explaining the embodied hospitality experience with ZMET. *International Journal of Contemporary Hospitality Management*, 30(11), 3442-3461. <https://doi.org/10.1108/IJCHM-10-2017-0709>
- Kivioja, K. (2017). Impact of point-of-purchase olfactory cues on purchase behavior. *Journal of Consumer Marketing*, 34(2), 119-131. <https://doi.org/10.1108/JCM-08-2015-1506>
- Knasko, S. C. (1995). Pleasant odors and congruency: Effects on approach behavior. *Chemical senses*, 20(5), 479-487. <https://doi.org/10.1093/chemse/20.5.479>
- Kotler, P. (1973). Atmospherics as a marketing tool. *Journal of Retailing*, 49(4), 48-64.
- Lwin, M. O., Morrin, M., & Krishna, A. (2010a). Exploring the superadditive effects of scent and pictures on verbal recall: An extension of dual coding theory. *Journal of Consumer Psychology*, 20(3), 317-326. <https://doi.org/10.1016/j.jcps.2010.04.001>
- Lwin, M. O., Morrin, M., & Krishna, A. (2010b). Product scent and memory. *Journal of Consumer Research*, 37(1), 57-67. <https://doi.org/10.1016/j.jcps.2010.04.001>

- Lehrner, J., Eckersberger, C., Walla, P., Pötsch, G., & Deecke, L. (2000). Ambient odor of orange in a dental office reduces anxiety and improves mood in female patients. *Physiology & Behavior*, 71(1-2), 83-86. [https://doi.org/10.1016/S0031-9384\(00\)00308-5](https://doi.org/10.1016/S0031-9384(00)00308-5)
- Lehrner, J., Marwinski, G., Lehr, S., Jöhren, P., & Deecke, L. (2005). Ambient odors of orange and lavender reduce anxiety and improve mood in a dental office. *Physiology & Behavior*, 86(1-2), 92-95. <https://doi.org/10.1016/j.physbeh.2005.06.031>
- Leenders, M. A., Smidts, A., & El Haji, A. (2019). Ambient scent as a mood inducer in supermarkets: The role of scent intensity and time-pressure of shoppers. *Journal of Retailing and Consumer Services*, 48, 270-280. <https://doi.org/10.1016/j.jretconser.2016.05.007>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *Journal of Clinical Epidemiology*, 62(10), e1-e34. <https://doi.org/10.1016/j.jclinepi.2009.06.006>
- Lim, W. M., Yap, S. F., & Makkar, M. (2021). Home sharing in marketing and tourism at a tipping point: What do we know, how do we know, and where should we be heading? *Journal of Business Research*, 122, 534-566. <https://doi.org/10.1016/j.jbusres.2020.08.051>
- Lin, I. Y. (2004). Evaluating a servicescape: The effect of cognition and emotion. *International Journal of Hospitality Management*, 23(2), 163-178. <https://doi.org/10.1016/j.ijhm.2003.01.001>
- Ling, I-L., Yang, C.-M., Liu, Y.-F., & Tsai, Y.-H. (2009). Penetrating adolescents' mental models of mp3 with ZMET. *Adolescence*, 44(176), 949-963. Retrieved from <https://fddocuments.in/document/penetrating-adolescents-mental-models-of-mp3-with-zmet.html?page=1>
- De Luca, R., & Botelho, D. (2020). Olfactory priming on consumer categorization, recall, and choice. *Psychology & Marketing*, 37(8), 1101-1117. <https://doi.org/10.1002/mar.21342>
- Lunardo, R. (2012). Negative effects of ambient scents on consumers' skepticism about retailer's motives. *Journal of Retailing and Consumer Services*, 19(2), 179-185. <https://doi.org/10.1016/j.jretconser.2011.11.007>
- Martin, G. N., Apena, F., Chaudry, Z., Mulligan, Z., & Nixon, C. (2001). The development of an attitudes towards the Sense of Smell Questionnaire (SoSQ) and a comparison of different professions' responses. *North American Journal of Psychology*, 3(3), 491-502. Retrieved from <https://eprints.mdx.ac.uk/3516/>
- Mattila, A. S., & Wirtz, J. (2001). Congruency of scent and music as a driver of in-store evaluations and behavior. *Journal of Retailing*, 77(2), 273-289. [https://doi.org/10.1016/S0022-4359\(01\)00042-2](https://doi.org/10.1016/S0022-4359(01)00042-2)
- McKibbin, A. (2006). Systematic reviews and librarians. *Library Trends*, 55(1), 202-215. <https://doi.org/10.1353/lib.2006.0049>

- Mitchell, D. J., Kahn, B. E., & Knasko, S. C. (1995). There's something in the air: Effects of congruent or incongruent ambient odor on consumer decision making. *Journal of Consumer Research*, 22(2), 229-238. <https://doi.org/10.1086/209447>
- Möller, J., & Herm, S. (2013). Shaping retail brand personality perceptions by bodily experiences. *Journal of Retailing*, 89(4), 438-446. <https://doi.org/10.1016/j.jretai.2013.05.004>
- Morrison, M., Gan, S., Dubelaar, C., & Oppewal, H. (2011). In-store music and aroma influences on shopper behavior and satisfaction. *Journal of Business Research*, 64(6), 558-564. <https://doi.org/10.1016/j.jbusres.2010.06.006>
- Morrin, M. (2010). Scent marketing: An overview. In A. Krishna (Ed.), *Sensory marketing: Research on the sensuality of products* (pp. 75-86). New York: Routledge/Taylor & Francis Group.
- Morrin, M., & Chebat, J. C. (2005). Person-place congruency: The interactive effects of shopper style and atmospherics on consumer expenditures. *Journal of Service Research*, 8(2), 181-191. <https://doi.org/10.1177/1094670505279420>
- Morrin, M., Chebat, J. C., & Chebat, G. C. (2011). The impact of scent and music on consumer perceptions of time duration. In A. Krishna (Ed.), *Sensory marketing. Research on the sensuality of products* (pp. 153-164). London: Routledge.
- Morrin, M., & Ratneshwar, S. (2000). The impact of ambient scent on evaluation, attention, and memory for familiar and unfamiliar brands. *Journal of Business Research*, 49(2), 157-165. [https://doi.org/10.1016/S0148-2963\(99\)00006-5](https://doi.org/10.1016/S0148-2963(99)00006-5)
- Morrin, M., & Ratneshwar, S. (2003). Does it make sense to use scents to enhance brand memory? *Journal of Marketing Research*, 40(1), 10-25. <https://doi.org/10.1509/jmkr.40.1.10.19128>
- Motyka, S., Grewal, D., Puccinelli, N. M., Roggeveen, A. L., Avnet, T., Daryanto, A., de Ruyter, K., & Wetzels, M. (2014). Regulatory fit: A meta-analytic synthesis. *Journal of Consumer Psychology*, 24(3), 394-410. <https://doi.org/10.1016/j.jcps.2013.11.004>
- Ngai, E. W. (2005). Customer relationship management research (1992-2002) An academic literature review and classification. *Marketing Intelligence and Planning*, 23(6), 582-605. <https://doi.org/10.1108/02634500510624147>
- Nibbe, N., & Orth, U. R. (2017). Odor in marketing. In A. Buettner (Ed.), *Springer handbook of odor* (pp. 141-142). Cham: Springer. https://doi.org/10.1007/978-3-319-26932-0_56
- Parodi, A., Sanguineti, R., Catalano, M., Penco, S., Pronzato, M. A., Scanarotti, C., & Bassi, A. M. (2010). A comparative study of leukaemia inhibitory factor and interleukin-1 α intracellular content in a human keratinocyte cell line after exposure to cosmetic fragrances and sodium dodecyl sulphate. *Toxicology Letters*, 192(2), 101-107. <https://doi.org/10.1016/j.toxlet.2009.10.013>
- Pittaway, L., Robertson, M., Munir, K., Denyer, D., & Neely, A. (2004). Networking and innovation: A systematic review of the evidence. *International Journal of Management Reviews*, 5(3-4), 137-168. <https://doi.org/10.1111/j.1460-8545.2004.00101.x>

- Pullman, M. E., & Gross, M. A. (2004). Ability of experience design elements to elicit emotions and loyalty behaviors. *Decision Sciences*, 35(3), 551-578. <https://doi.org/10.1111/j.0011-7315.2004.02611.x>
- Rindfleisch, A., & Inman, J. (1998). Explaining the familiarity-liking relationship: Mere exposure, information availability, or social desirability? *Marketing Letters*, 9(1), 5-19. <https://doi.org/10.1023/A:1007958302123>
- Schifferstein, H. N. J., & Blok, S. T. (2002). The signal function of thematically (in) congruent ambient scents in a retail environment. *Chemical Senses*, 27(6), 539-549. <https://doi.org/10.1093/chemse/27.6.539>
- Schifferstein, H. N. J., Talke, K. S. S., & Oudshoorn, D.-J. (2011). Can ambient scent enhance the nightlife experience? *Chemosensory perception*, 4(1), 55-64. <https://doi.org/10.1007/s12078-011-9088-2>
- Seo, H.-S., Roidl, E., Müller, F., & Negoias, S. (2010). Odors enhance visual attention to congruent objects. *Appetite*, 54(3), 544-549. <https://doi.org/10.1016/j.appet.2010.02.011>
- Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management*, 15(1-3), 53-67. <https://doi.org/10.1362/026725799784870496>
- Silva, J., Sá, E. S., Escadas, M., & Carvalho, J. (2021). The influence of ambient scent on the passengers' experience, emotions and behavioral intentions: An experimental study in a public bus service. *Transport Policy*, 106, 88-98. <https://doi.org/10.1016/j.tranpol.2021.03.022>
- Solomon, M. R. (1996). *Consumer behavior, buying, having, and being*. London: Pearson Education.
- Spangenberg, E. R., Crowley, A. E., & Henderson, P. W. (1996). Improving the store environment: Do olfactory cues affect evaluations and behaviors? *Journal of Marketing*, 60(2), 67-80. <https://doi.org/10.2307/1251931>
- Spangenberg, E. R., Grohmann, B., & Sprott, D. E. (2005). It's beginning to smell (and sound) a lot like Christmas: The interactive effects of ambient scent and music in a retail setting. *Journal of Business Research*, 58(11), 1583-1589. <https://doi.org/10.1016/j.jbusres.2004.09.005>
- Spangenberg, E. R., Sprott, D. E., Grohmann, B., & Tracy, D. L. (2006). Gender-congruent ambient scent influences on approach and avoidance behaviors in a retail store. *Journal of Business Research*, 59(12), 1281-1287. <https://doi.org/10.1016/j.jbusres.2006.08.006>
- Spence, C. (2021). Scent in motion: On the multiple uses of ambient scent in the context of passenger transport. *Frontiers in Psychology*, 12, 702517. <http://doi.org/10.3389/fpsyg.2021.702517>
- Teller, C., & Dennis, C. (2012). The effect of ambient scent on consumers' perception, emotions and behaviour: A critical review. *Journal of Marketing Management*, 28(1-2), 14-36. <https://doi.org/10.1080/0267257X.2011.560719>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207-222. <https://doi.org/10.1111/1467-8551.00375>

- Tranfield, D., Denyer, D., Marcos, J., & Burr, M. (2004). Co-producing management knowledge. *Management Decision*, 42(3/4), 375-386. <https://doi.org/10.1108/00251740410518895>
- Turley, L. W., & Milliman, R. E. (2000). Atmospheric effects on shopping behavior: A review of the experimental evidence. *Journal of Business Research*, 49(2), 193-211. [https://doi.org/10.1016/S0148-2963\(99\)00010-7](https://doi.org/10.1016/S0148-2963(99)00010-7)
- Vijaya, N., Umamathi, T., Baby, A. G., Dorothy, R., Rajendran, S., Arockiaselvi, J., & Al-Hashem, A. (2020). Nanomaterials in fragrance products. In A. Nanda, S. Nanda, T. A. Nguyen, S. Rajendran, Y. Slimani (Eds.), *Nanocosmetics. Fundamentals, applications and toxicity micro and nano technologies* (pp. 247-265). Amsterdam: Elsevier. <https://doi.org/10.1016/B978-0-12-822286-7.00012-7>
- Vinitzky, G., & Mazursky, D. (2011). The effects of cognitive thinking style and ambient scent on online consumer approach behavior, experience approach behavior, and search motivation. *Psychology & Marketing*, 28(5), 496-519. <https://doi.org/10.1002/mar.20398>
- Vlahos, J. (2007, September 9). Scent and sensibility. *New York Times*. Retrieved from <https://www.nytimes.com/2007/09/09/realestate/keymagazine/909SCENT-txt.html>
- Voss, K. E., Spangenberg, E. R., & Grohmann, B. (2003). Measuring the hedonic and utilitarian dimensions of consumer attitude. *Journal of Marketing Research*, 40(3), 310-320. <https://doi.org/10.1509/jmkr.40.3.310.19238>
- Ward, P., Davies, B. J., & Kooijman, D. (2007). Olfaction and the retail environment: Examining the influence of ambient scent. *Service Business*, 1(4), 295-316. <https://doi.org/10.1007/s11628-006-0018-3>
- Warden, C. A., & Chen, J. F. (2009). When hot and noisy is good: Chinese values *renao* and consumption metaphors. *Asia Pacific Journal of Marketing and Logistics*, 21(2), 216-231. <https://doi.org/10.1108/13555850910950040>
- Xiao, J., Tait, M., & Kang, J. (2020). Understanding smellscape: Sense-making of smell-triggered emotions in place. *Emotion, Space and Society*, 37, 100710. <https://doi.org/10.1016/j.emospa.2020.100710>
- Yang, L.-C., & Chen, K.-N. (2015). Cosmetic scents by visual and olfactory senses versus purchase intention. *International Journal of Market Research*, 57(1), 125-144. <https://doi.org/10.2501/IJMR-2014-039>
- Yousem, D. M., Maldjian, J. A., Siddiqi, F., Hummel, T., Alsop, D. C., Geckle, R. J., Bilker, W. B., & Doty, R. L. (1999). Gender effects on odor-stimulated functional magnetic resonance imaging. *Brain Research*, 818(2), 480-487. [https://doi.org/10.1016/S0006-8993\(98\)01276-1](https://doi.org/10.1016/S0006-8993(98)01276-1)
- Zaltman, G. (1997). Rethinking market research: Putting people back in. *Journal of Marketing Research*, 34(4), 424-437. <https://doi.org/10.1177/002224379703400402>
- Zaltman, G., & Coulter, R. H. (1995). Seeing the voice of the customer: Metaphor-based advertising research. *Journal of Advertising Research*, 35(4), 35-51.

Appendix

Table 3. Review articles with more than 30 citations

Sl. No.	Name of paper	Authors	Name of the journal	Year of publication	No. of citations
1	2	3	4	5	6
1	Ambient scent as a mood inducer in supermarkets: The role of scent intensity and time-pressure of shoppers	Leenders, Smidts, & El Haji	<i>Journal of Retailing & Consumer Services</i>	2019	98
2	Congruency of scent and music as a driver of in-store evaluations and behavior	Mattila & Wirtz (2001)	<i>Journal of Retailing</i>	2001	1662
3	The effect of ambient scent on consumers' perception, emotions, and behaviour: A critical review	Teller & Dennis	<i>Journal of Marketing Management</i>	2012	118
4	Effects of ambient odors on slot-machine usage in a Las Vegas casino	Hirsch	<i>Psychology & Marketing</i>	1995	432
5	Gender-congruent ambient scent influences on approach and avoidance behaviors in a retail store	Spangenberg, Sprott, Grohmann, & Tracy	<i>Journal of Business Research</i>	2006	373
6	Odors and consumer behavior in a restaurant	Guéguen & Petr	<i>International Journal of Hospitality Management</i>	2006	243
7	Multi-sensory congruent cues in designing retail store atmosphere: Effects on shoppers' emotions and purchase behavior	Helme Falk & Hulten	<i>Journal of Retailing & Consumer Services</i>	2017	181
8	Impact of point-of-purchase olfactory cues on purchase behavior	Kivioja	<i>Journal of Consumer Marketing</i>	2017	37
9	Impact of ambient odors on mall shoppers' emotions, cognition, and spending: A test of competitive causal theories	Chebat & Michon	<i>Journal of Business Research</i>	2003	1177
10	The signal function of thematically (in)congruent ambient scents in a retail environment	Schifferstein & Blok	<i>Chemical Senses</i>	2002	118
11	The presence of a pleasant ambient scent in a fashion store: the moderating role of shopping motivation and affect intensity	Doucé & Janssens	<i>Environment & Behavior</i>	2013	148

Table 3 cont.

1	2	3	4	5	6
12	The power of simplicity: Processing fluency and the effects of olfactory cues on retail sales	Herrmann, Zidansek, Sprott, & Spangenberg	<i>Journal of Retailing</i>	2013	166
13	In-store music and aroma influences on shopper behavior and satisfaction	Morrison, Gan, Dubelaar, & Oppewal	<i>Journal of Business Research</i>	2011	474
14	Can ambient scent enhance the nightlife experience?	Schifferstein, Talke, & Oudshoorn	<i>Chemosensory Perceptions</i>	2011	68
15	Product scent and memory	Lwin, Morrin, & Krishna	<i>Journal of Consumer Research</i>	2010	262
16	Odors enhance visual attention to congruent objects	Seo, Roidl, Müller, & Negoias	<i>Appetite</i>	2010	119
17	Does age attenuate the impact of pleasant ambient Scent on Consumer Response?	Chebat & Morrin	<i>Environment & Behavior</i>	2009	80
18	There's something in the air: effects of congruent or incongruent ambient odor on consumer decision making	Mitchell, Kahn, & Knasko	<i>Journal of Consumer Research</i>	1995	698
19	Ambient odors of orange and lavender reduce anxiety and improve mood in a dental office	Lehmer, Marwinski, Lehr, Johren, & Deecke	<i>Psychology & Behavior</i>	2005	572
20	Ambient odor of orange in a dental office reduces anxiety and improves mood in female patients	Lehmer, Eckersberger, Walla, Pötsch, & Deecke	<i>Psychology & Behavior</i>	2000	409
21	Negative effects of ambient scents on consumers' skepticism about retailer's motives	Lunardo	<i>Journal of retailing & Consumer Services</i>	2012	56
22	Olfaction and the retail environment: Examining the influence of ambient scent	Ward, Davies, & Kooijman	<i>Service Business</i>	2007	74
23	It's beginning to smell (and sound) a lot like Christmas: The interactive effects of ambient scent and music in a retail setting	Spangenberg, Grohmann, & Sprott	<i>Journal of Business Research</i>	2005	495
24	The impact of ambient scent on evaluation, attention, and memory for familiar and unfamiliar brands	Morrin & Ratneshwar	<i>Journal of Business Research</i>	2000	419
25	The sweet smell of success: Olfaction in retailing	Davies, Kooijman, & Ward	<i>Journal of Marketing</i>	2003	165

Article 2

Chatterjee S., Bryla P., Mapping consumers' semi-conscious decisions with the use of ZMET in a retail market setup, *Decision*, 2023, Vol. 50, No. 2, pp. 221-232.
<https://doi.org/10.1007/s40622-023-00350-3>.
IF=1.5 according to 2023 JCR. 100 points.



Mapping consumers' semi-conscious decisions with the use of ZMET in a retail market setup

Shuvam Chatterjee · Pawel Bryla

Accepted: 24 July 2023
© The Author(s) 2023

Abstract The essence of marketing today for retail consumers is to produce a favorable sensory brand experience to gain competitive visibility. Experiential marketing is a phenomenon that is in the current trend of usage by marketing experts to ensure that consumers are more involved in the purchase decision-making process. Purchase decisions are the results of both conscious and semi-conscious consumer experiences. This paper explores the underlying consumer thoughts and emotions influenced by retail store attributes (fragrance, music, store layout, and temperature) which play a significant role in their purchase decision making affecting their mood and behavior. The study introduces Zaltman Metaphor Elicitation Technique (ZMET) as a qualitative tool to elicitate hidden understanding of a consumer's decision-making process by stimulating human senses and interpreting the attributes that ultimately contribute to consumer decision-making. The researcher selects a well-known retail brand to understand and identify the hidden metaphors contributing to consumer satisfaction through retail atmospherics. The study brought

out prominent network retail clusters and their supporting elements which ultimately contribute to consumer satisfaction during the purchasing process inside a retail store. The study would enable store managers to identify the relevant core elements hidden in the subconscious consumer minds which would facilitate enhanced customer satisfaction during designing their retail stores.

Keywords Metaphors · Theme mapping · Consumer satisfaction · Retail · ZMET · Shopping experience · Retail store atmospherics · Experiential marketing · In-store decision-making

JEL Classification M001 · M31

Introduction

Retail marketing managers in today's era are emphasizing more on the ambiance and atmosphere of the point of interaction for the consumers and the sellers for the consumption of products and services. Retailers strive to stand out from rivals by offering a pleasurable buying experience (El Hedhli et al. 2016). According to Dion and Borraz (2017), a key component of retail store management now focuses on luring and emotionally tying in consumers with enjoyable experiences, especially when it comes to fostering

S. Chatterjee (✉)
Doctoral School of Social Science, University of Lodz,
Ul. Narutowicza 68, 90-136 Łódź, Poland
e-mail: shuvam.chatterjee@edu.uni.lodz.pl

P. Bryla
Faculty of International and Political Studies, University
of Lodz, Łódź, Poland
e-mail: pawel.bryla@uni.lodz.pl

social relationships through improved retail store attributes.

Keeping environmental conditions in mind, the sensory cues, typically, light, temperature, color, and odor are becoming increasingly important for creating a lasting emotional impact on the consumer's mind (Donovan et al. 1994) and plays a significant role in evaluating stores and builds on trust, credibility, and satisfaction (Baker et al. 1994). Babin and Attaway (2000) discuss how atmospheric cues play a significant role in building a lasting impression of a shopping experience (Turley and Milliman 2000; Turley and Chebat 2002). Terblanche (2018) suggests retailers strive to stand out from their competitors by offering a pleasurable buying experience. Retail store atmospherics are important background factors that influence store ambiance, affect customers' sensory perceptions, and influence their in-store shopping behavior (Roggeveen et al. 2020). Research on store atmospherics has examined a variety of favorable reactions to store environments, including consumer contentment, favorable Word-of-Mouth (WOM), and patronage intentions (Burlison and Oe 2018; Davis 2013).

The academic literature in the field of retail design store attributes lags behind practice. In practice, pertinent research queries that pinpoint the characteristics of retail stores that result from sociological or technical advancements typically surface first. Emphasis is placed on externalizing retail consumers' expectations and experienced retail designers' tacit knowledge.

Past studies understanding the retail store attributes affecting consumer thoughts and emotions have focused on understanding the major determinants for a delightful shopping experience (Kauppinen-Räsänen et al. 2020a, b). Also, Elmashhara and Soares (2022) study focuses on understanding how consumer attitude toward retail atmospheric cues contributes to enhanced shopper satisfaction. There is a clear gap in understanding the acceptability of retail store attributes affecting the thoughts and emotions of consumers from an embodied semi-conscious retail experience. To address this research gap, our study investigates and examines the underlying fundamental factors (core elements) serving as a linkage between the design and purchase decision-making intentions of consumers, which are becoming more and more important in the competitive environment, thus

addressing the key research question of understanding the retail store attributes that affect consumer thoughts and emotions in their retail purchase decisions from an embodied semi-conscious standpoint.

An original research methodology is presented in this study. This method can reveal previously unrecognized parts of the consumer's purchase decision-making intentions to make purchases that are influenced by retail store attributes. The use of a novel approach is also meant to serve as motivation for readers to investigate more complex and critically based research techniques when they are looking at other facets of the retail purchasing experience.

Literature review

Color schemes, lighting, music, and fragrance as part of retail store atmospherics

Past studies have shown retailers alter the environment to encourage desired outcomes and improved in-store behavior (Babin and Darden 1996; Francioni et al. 2018). This study is based on the S–O–R paradigm (Mehrabian and Russell 1974), which claims that stimuli (S) that cause behavioral responses (R) in an individual (O). Environmental psychologists devised this method, which can be used to comprehend how a recipient responds to a collection of stimuli. The importance of atmospherics as a stimulus on a variety of customer behavioral outcomes has been reinforced by earlier studies on retailing (Biswas et al. 2014; Lee et al. 2018).

Retailers deploy ambient store attributes including color schemes, lighting, music, and fragrance which are also widely known in marketing studies.

According to Ainsworth and Foster (2017), previous research acknowledged the usage of color, lighting, and music as part of retail atmospheric cues (Babin and Attaway 2000).

Chebat and Morrin (2007) suggested color be a powerful design technique that may be utilized to entice customers. It has been used to create an image or an ambiance. Custers et al. (2010) discussed that past studies have emphasized the crucial role lighting plays in establishing mood (Quartier et al. 2014).

Color, which is an atmospheric variable, that defines the visual attributes within a retail store (Bellizzi et al. 1983) is categorized into warm and

cool colors distinguished through longer and shorter wavelengths (Crowley 1993). Van Rompay et al. (2012) study places color on a similar atmospheric cue where the impact is mainly measured through the presence or absence of the same. Spence (2007) study suggests that if a product inside a retail setup could match the balance between all the sensory cues the consumers could eventually have a more effective multi-sensory experience. Pan and Zinkhan (2006) studied that the key to success for a retail firm is to ensure a pleasurable ‘in-stay’ experience for their consumers. It is currently the need of the hour to produce a welcoming store ambiance, demonstrating positive vibes and an enhanced shopping experience (Douce and Janssen 2013).

Grewal et al. (2003) suggested music to be one of the least expensive tools to improve consumers’ perceptions. Implementation of music in retail stores, which started on a basic level by either making it present or absent, did show impressive results in influencing consumers’ purchase intention, emotions, and satisfaction across retail setups where music was present (Grewal et al. 2003). Music is looked after more like an associative during purchase feature inside a store which does influence consumer buying outcomes (Hui et al. 1997). Mattila and Wirtz (2001) further discussed how consumers with a distressed mind could be lifted by music heightening their arousal which further contributes to a positive in-store buying experience.

Fragrance in recent times is one of those cues which has received significant attention giving ample scope to marketers to believe that scent marketing is the next big thing in the continuous change of retail atmospheric strategies adopted by marketers. Bosmans (2006) study unfolds how fragrance plays a critical role in products and store evaluation which eventually contributes to the increased time spent inside the retail outlets (Mitchell et al. 1995) which thus contributes to increased impulsive purchasing attitudes among young shoppers (Morrin and Chebat 2005; Spangenberg et al. 2006).

Anticipating the success of these studies laid the platform for Herz (2010) study which unfolds that the presence of fragrance might have an impact on the purchase intentions of consumers. Research studies on the extensively large retail environment (Mattila and Wirtz 2001; Spangenberg et al. 2006; Haberland 2010) have also brought out that fragrance cues exaggerated

spending typically under aromatic surroundings. Similar observations were found considering the same setup in a shopping mall (Chebat and Michon 2003; Morrin and Chebat 2005). It is indeed clear that fragrances inside retail outlets created enhanced consumer spending than having a specific general environment for a retail setup (Mattila and Wirtz 2001; Chebat and Michon 2003). Consumers influenced under aromatic conditions tend to develop affection toward the retail outlet (Haberland 2010), or in some cases the affection forms because of the increased amount of time spent inside the retail outlet (Gueguen and Petr 2006). Fragrance cues when tested in a retail setup would work very easily when clubbed with tactile cues and other sensory cues. Olfactory cues would go better off matching with its target when a specific product category could be identified with a specific fragrance. The consumers would be able to reconnect and be retained with the store and its associated product very easily.

Technology these days is playing a crucial role in setting the mood for consumers inside a retail outlet, from being it like artificially induced fragrance to AI-processed facial and music biometrics (Rodgers et al. 2021). Roggeveen et al. (2020) proposed a framework to capture consumer movements on multiple retail touchpoints both inside and outside the retail stores. Moreover, all-around service excellence along with a multi-sensory connected environment is equally crucial in building a customer connection with the brand (Raisanen et al. 2020). Contrary to these studies, Douce and Adams (2020) study reveals that the sense of pleasantness decreases when intense retail cues are added to a retail store environment. Elmashhara and Soares (2022) study reveals composite store atmospheric cues influence shoppers’ buying intentions and boost positive WOM as well.

Zaltman metaphor elicitation technique

ZMET was introduced by Zaltman at Harvard in the early 1990s. The technique was represented as: “Human thoughts contain a lot of activity that they are unaware of. The majority of what affects what individuals say and do happens subconsciously. It requires new methods because of this: To access secret information to access what people are unaware they are aware of” (Pink 1998, p. 214).

ZMET aims to apply its patented methodologies to discover these deep metaphors by exploring beyond consumers' conscious and unconscious mental processes to discover why and how people think and act the way they do (Zaltman and Zaltman 2008).

The two essential components of ZMET are photo elicitation and means-end theory. As was previously mentioned, one of three methods that use photographs to elicit subjective worlds through interviewing is known as photo elicitation. The means-end theory suggests a value chain that connects a product's characteristics to its practical and emotional (or psychosocial) effects, as well as to the development of individual values (Ha and Jang 2013). According to ZMET's interpretation of the means-end theory, product, and service qualities have implications, such as product advantages and underlying personal values that customers want to realize through their use. ZMET elicits, describes, and links consumers' thoughts and feelings to characteristics of goods or services. Previous studies discussed how ZMET contributed to figuring out embodied hospitality encounters (Ji and King 2018). Also, Jung et al. (2021) study discussed how using ZMET, three virtual reality themes were uncovered to fully understand the immersive consumer experience, whereas Wu and Chen (2012) study suggests a new theoretical framework for consumers' e-learning usage behavior.

The study chose Zaltman Metaphor Elicitation Technique (ZMET) as a qualitative tool to decipher the semi-conscious thoughts and feelings of consumers by identifying and matching the deep metaphors. Zaltman and Zaltman (2008) suggested how individuals assess their immediate surroundings through metaphors, as metaphors live through the way humans perceive things having a more prominent understanding of what they encounter and subsequently forming their strategy for action. Zaltman and Zaltman (2008) investigated that metaphors are deeply rooted as they operate more from an unconscious state of mind. Consumers at most times are not aware of the behavior of the unconscious mind and the subsequent impact it has on decision-making. Zaltman et al. (2015) however argue that consumers seldom receive any mechanism to nurture those unconscious thoughts. ZMET studies when combined with laddering interviews proved to be highly successful in finding out structural associations between components thus

providing a way to elicit and map both the content and the structure of the consumer's mental model.

The discussion above created the way for the study question, which is: "Understanding the retail store attributes that affect consumer thoughts and emotions playing an important role in their retail purchase decisions.

Methodology

Data collection and analysis

The researchers sent invitations to 20 people they had chosen using purposive sampling. Purposive sampling enables researchers to choose study participants from the general public using their discretion (Patton 2002). With the aid of this sampling technique, the researchers were able to choose participants from the retail shopping mall where respondents have previously received such services. After receiving affirmative responses from more than 80% of the respondents within 7–10 days, initial screening was conducted considering their customary manners and behaviors. Finally, a total of 15 human individuals were chosen to take part in the research's next phase.

The respondents selected mainly belong to the age group of 18–40 years, deliberately to ensure a maximum understanding of experiential marketing approaches, as suggested by Chebat et al. (2009).

A brief profile of the participants is presented in Table 1.

To choose the best analogies for the study at hand, the researchers made sure that the respondents they recruited had at least some prior experience of going to a store of that sort. The subjects were chosen, and a subject identification id was given to them so that every respondent becomes unique and later the researchers do not have any confusion and complication dealing with the enormous set of photos received from the respondents. The respondents were provided with a soft copy of the Researcher Instruction kit, which is depicted in Table 2. Below.

The subjects were introduced to the context that best described "what they were feeling during their retail shopping experience." Interviews took place in Lodz, Poland. The majority of the images might be interpreted as metaphors, as can be seen in Fig. 1. Picture 7 & 8 for example provides an analogy for the

Table 1 Profile of participants. Source: Own study

Participant no.	Age	Gender	Education	Prior experience in retail shopping under aromatic influence	Type of store
1	28	Male	Medical University Student	Yes	Apparel Retail Store
2	24	Male	University—Postgraduate	Yes	Apparel Retail Store
3	34	Female	Professional	Yes	Ladies Toiletries Store
4	27	Male	Master's Student	Yes	Men's Clothing Store
5	21	Male	Graduate Student	Yes	Apparel Retail Store
6	37	Male	Working Professional	Yes	Men's Clothing Store
7	39	Male	Business	Yes	Apparel Retail Store
8	19	Female	Graduate Student	Yes	Women Accessories Store
9	20	Female	Student	Yes	Apparel Retail Store
10	22	Male	Student	Yes	Apparel Retail Store
11	28	Female	Master's Student	Yes	Apparel Retail Store
12	31	Female	Working Professional	Yes	Women's Clothing Store
13	36	Male	Working Professional	Yes	Men's Clothing Store
14	25	Female	Master's Student	Yes	Apparel Retail Store
15	29	Female	Business Owner	Yes	Apparel Retail Store

Table 2 Research instruction kit. Source: Chatterjee and Pandey (2019)

ZMET interview topic	The stated event of the research is referred to as a topic presented to a subject for ZMET, on which the interviewee must elaborate their emotions throughout the interview. Here the situation handed over was—“Elaborate on your feelings during your retail shopping experience”
Demographic data form for the topic	Form comprising statistically expressed socioeconomic characteristics of a population, including average family size, age, sex, education level, income level, marital status, and employment
Confidentiality agreement	A paper outlining the voluntary disclosure of data contract and the subject privacy information
Thank you note	A unique thank you note for their voluntarily taking part in the study

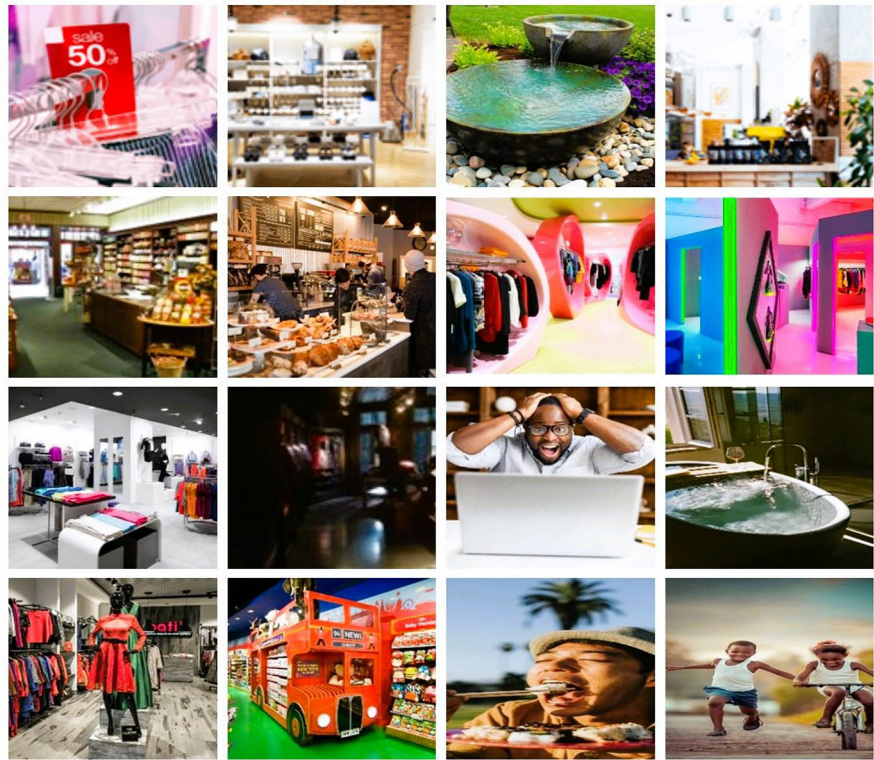
vibrant color and fragrance used in the retail stores that indicate the retail store attributes contributing to the consumer's purchase decision making affecting their mood and behavior.

Due to ethical considerations, this research carefully respects the subject information's confidentiality; as a result, no identifying information was recorded at any point during the interview procedure. To have a more systematic and professional approach toward the respondents, all interviewees are given a subject identification id at the time of selection, which may have been accessed by the researchers just for this research purpose. The study data that was taken from each participant and saved using industry standard encryption software has been connected to the subject identifying ids. The subject identifying numbers have

been deleted from the database after the conclusion of the study.

The subjects are then encouraged to snap images with their cameras or to download photographs from the internet that they believe are relevant and related to the sentiments they perceive when placed within the provided topic or circumstance. They are strongly instructed not to choose photos that show the scene or the subject in detailed detail, but rather to bring photos that show the metaphors related to the subject. One week was provided for each participant to gather, choose, and mail the digital copies of the photos to the researchers. For the interview procedure, the images from each subject are printed and given a unique number. Each topic was then given the convenience of receiving an interview date. A room with facilities like

Fig. 1 Selected participant images—collage. Source: Own survey-based outcome



air conditioning, cozy seating, drinking water, and refreshments was chosen for the interactive session. The subjects are unaware that the room has been outfitted with cameras from various angles.

Personal interview

The process of interview for the respondents followed a 7 steps approach involving the respondents in the interview for an average time of 1 h. 35 min with the minimum and maximum time load of 1.15 h. to 1.55 h.

A brief greeting and assurance that there were no right or incorrect responses to the interview questions preceded the interviews. The interviewer then asked if the interviewees had any further photos, they would like to bring but could not locate during their search (i.e., missing images step). The respondents were then prompted to share a series of tales connected to the different images (i.e., the storytelling step). The interviewer recorded any mentions of constructs that were pertinent to the research questions about emotions, their causes, meanings derived from the experiences, and behavioral intentions while they were

being listened to. The researchers formed each person's mental map by using arrows to denote casual relationships. If only feelings were expressed and no justifications were given, the interviewer prodded the subject to elaborate on their thoughts.

When more clarity was required, the interviewer used reflective interviewing techniques including restating and summarizing to make sure the researchers had understood everything correctly. The researcher asked respondents if they would like to broaden any frames of the photo to better depict their emotional encounters after giving each picture's story (metaphor elaboration step). The respondents were asked to group the photographs into categories using their logic after discussing each image following the methods mentioned above (the triad task). The respondents were then instructed to describe their emotions using the five senses (sensory images step). Interviewees were prompted for any further images after the sensory image process (missing images step). The interviewee might want to use the opportunity of the interview's conclusion to communicate their emotional contacts through further photographs, so

the researchers thought it was worthwhile to execute this step at the beginning of the interview.

Afterward, participants were instructed to compile their extensive experiences into a cogent short story (vignette step). Finally, the interviewees were then instructed to make a collage.

Findings

The transcribed laddering interviews and the metaphor elicitation study resulted in four themes or core elements: (1) Convenience (2) Sensory experience (3) Mood & Feelings (4) Memory Revisit. Under each theme, we present several selected illustrative excerpts from the interviews and visual images that were sourced from our participants (see Fig. 1a–p [starting from left to right; from top to bottom]).

First core element: convenience during retail shopping

The raw attribute that emerged from our study was that consumers' subconscious experience could bring out a sense of convenience during their retail experience journey. Consider the following excerpt from Participant 4 (male, 27 years old): "I find it extremely helpful when I get to see clear informative signage and navigation inside the retail store (Fig. 1a)". The other insightful raw attributes that came out are easy to view simplified display settings making the purchasing decisions far easier and more convenient (Fig. 1b). The third raw attribute that surfaced from the laddering interviews is depicted by Participant 14 (female, 25 years old), which she depicted as "filling the vessel". An excerpt from the participant goes like this: "The retail hypermarket store makes me feel, how I cater to my various needs with the many products of the hypermarket. You can always rely on them! (Fig. 1c)." The element derived has been consistently playing significant contribution in building consumer's in-store shopping experience contributing to purchase intentions (Terblanche and Kidd 2021). The result is also in line with the studies of Chang and Chen (2021) that suggest that perceived ease of use inside a retail store contributes to having a strong impact on consumers' shopping intentions.

Second core element: sensory cues

The second related theme that has emerged from our findings is Sensory cues. According to the excerpt from Participant 8 (female, 19 years old): "I believe congruent sensory cues create a pleasant cohesive retail buying experience, especially the magic of fragrance makes it a big difference." The results are in line with the studies conducted by De Nisco and Warnaby (2013) which focused on how variables like the desire to stay inside retail shopping outlets impact shopping outcomes both directly and indirectly. Participant 15 (female, 29 years old) excerpt suggests: "Every time I get tempted with the fresh smell of the hot bun and most of the time, do end up buying impulsively." The findings are similar to Elmasghara and Soares (2019) study, which argues on promoting consumer intentions as one of the critical outcomes in the retail context.

Again, the laddering interview conducted on Participant 6 (male, 37 years old) revealed from image 5 that he often gets enticed by the color combination and the sense of fragrance which makes the overall shopping journey worth remembering. Images 7 & 8 are validated by Participant 10 (male, 22 years old). According to him, the right light and color tones add up to the retail shopping experience and his excerpts say, "Adding a refreshing smell do works wonder for me and I tend to overspend time without realizing the same". Participant 2 (male, 24 years old) summarizes how a well-arranged assortment of apparel with the use of spatial formation for ease of traffic and sighting of the clothes creates the right blend of shopping experience. The feeling is in tune with the literature that suggests the right visual aesthetics contribute to consumer satisfaction and encourage positive word-of-mouth (Lloyd et al. 2014). This strongly suggests that visual sensory cues (sight) play an important role in an enhanced shopping experience.

Third core element: mood and feelings

The third theme that emerged is the consumer's mood and feeling inside the retail space while shopping. Interview with Participant 7 (male, 39 years old) justified through the metaphor elicitation technique that often the gloomy lighting conditions and loud music creates a club-like atmosphere which appeals to youngsters like him as the entire ambiance appeals to

be deeper with a tinge of flirting. Participant 5 (male, 21 years old) depicts his feelings through the excerpts: “I associate shopping experience in hypermarkets with a feeling of pleasant surprise when I see something that I have never seen before. This applies especially to clothing and household appliances. This is especially felt when students like me coming from a foreign country get to see collections which are not frequently available in my own country.” Laddering interview with participant 8 (female, 19 years old) suggests the following which is depicted through the excerpts; “I typically feel calm and relaxed while doing grocery shopping in a retail space. It is like spending quality time with myself.”

Fourth core element: memory revisit

The laddering interview with Participant 9 (female, 20 years old) brings out the metaphor of old memories associated with the consumer, and recollecting the same would as a strong brand-building exercise for the retail store. Further, the participant suggested that strolling inside the female clothing area reminds him of his first date with his girlfriend. Participant 12 (female, 31 years old) shared her thoughts on how wondering through a well-organized retail facility does remind her of her carefree childhood life having a feeling of nostalgia. The study result is completely aligned with the research results of Song et al. (2021) which discuss how building nostalgic experiences could trigger consumer’s revisit intentions (Barnes et al. 2016).

Laddering interview with Participant 3 (female, 34 years old) excerpts; “It is like a ‘feel-good’ factor for me every time I walk inside a retail shopping space, not only ensuring ample choice for products but food as well.” The most important excerpt came from participant 13 (male, 36 years old); “When you’re an adult and able to buy what you want, you buy the things you always wanted as a child. This is how I make the child inside me happy and make up for it.”

Discussion

This research, in response to the lack of empirical evidence on thematic consumer experiences in the retail market, focuses mainly on consumers’ perceptions of delightful physical retail shopping

experiences. The research aim was connected with the understanding, of how retail store attributes play a significant role in consumers’ purchase decision-making.

The researchers have found that ZMET is a useful tool that offers a means of bringing the imaginative experience to the fore and eliciting retail attributes from a semi-conscious mind which otherwise would have been difficult to portray, thus uncovering retail consumers’ hidden emotions and experiences. The use of metaphors, visuals, and stories was extremely helpful. The researchers were pleasantly surprised by the number, quality, and richness of the material that was elicited. Several respondents were complimentary about the creative and instructive components of ZMET. Also, they stated that after using the laddering approach, they “felt unburdened,” almost as if they had let all of their ideas out. By bringing to light several previously undocumented experience aspects, particularly visual-based imagery, metaphors, and multi-sensory experiences, ZMET may encourage readers to consider a wider range of characteristics to enhance established consumer purchase decision-making research approaches (Table 3).

The study, thus adopting ZMET as a research tool, adheres to the objective of qualitative research, that is to understand the reason behind people’s reactions to a stimulus or experience (Maxwell 2013), which in turn adds the consumer’s voice to the product or service designing, improvement, and development process. Dubey et al. (2016) discussed how a model for customer delight anticipating key surprise elements such as humor, schema discrepancy & perceived firm expertise could contribute to building customer delight.

Prior research on the retail store shopping experience tended to concentrate on the material aspects of experiences like consumer satisfaction, (Elmashhara and Soares 2022), loyalty, or word of mouth and presume that these were the reasons why customers were satisfied and had plans to visit (Carpenter 2008). Customers’ subjectivities and imaginations are considered vital components of the experience by the current researchers without disregarding such features.

The current study addresses the issue of a lack of scientific research into how features of retail stores affect consumers’ thoughts and feelings, particularly from an embodied semi-conscious standpoint. As too

Table 3 Summarized custom steps of ZMET designed and used for the interview. Source: Christensen and Olson (2002)

Step 1	Sharing the Story	This allowed people to express their experiences. Participants provided eight to ten photos, and each one described how each one related to the environment they experienced at a store
Step 2	Missed images	Participants reviewed themes and images that were missed to pinpoint any pertinent problems for which they couldn't find a picture
Step 3	Sorting task	Participants were asked to group their images into logical groups and give each category a name or description
Step 4	Expanding the frame	The fundamental constructions and the links between them were extracted using the laddering technique. Participants' photographs served as the stimulation
Step 5	Images that best express the subjects' emotions	Participants were asked to select an image that most effectively expressed their sentiments involving their sensory cues
Step 6	Vignette	Participants were asked to create a short fictitious story or film that highlighted the most important aspects of the topic at hand
Step 7	Consensus maps	The researcher created a mental model (a map or a causal model) for each participant. A consensus map was then constructed by combining the mental maps made by each participant

much of the same could result in decreased approach behavior, it is crucial to establish the ideal degree of sensory qualities in a retail environment (Doucé and Adams 2020). Additionally, the current study would give the academic community a deeper knowledge of the cognitive and emotional responses of the retail customer to this type of persuasive communication (Coulter et al. 2001).

The findings have several practical implications. It portrays that consumers appreciate playful in-store retail sensory touch mainly in the form of fragrance (Chatterjee 2015; Chatterjee and Bryla 2022) and music (Vukadin et al. 2018). Also, memory rebuilding and reconnecting through brands appeared to be a winning exercise to regain confidence among consumers during their retail shopping journey. Moreover, retail shopping convenience (Lloyd et al. 2014) came out to be another crucial indicator for a winning consumer shopping experience in a retail setup. Retailers are keen on providing a unique shopping experience that makes shoppers feel satisfied and most likely to recommend their stores. This “feel-good” satisfaction among shoppers in this study is influenced by olfactory cues inside the mall, music, and store convenience along with memory revisit exercises. Fragrance relaxes the mind and soothing music along with color schemes that project positive vibes in the display areas create an upscale environment that the consumers are looking for, which is what retail marketers should aim at.

Limitations

This research is not without limitations, some of which we would say are pointing toward future research opportunities. Despite the study sample being respectful and diversified concerning the distribution of age, it is regional. The study was conducted in the Lodz region of Poland. Honestly, the Lodzkie region people of Poland may be more social, or extreme shoppers, compared to other Polish regions or even shoppers in other countries. Hence, the proposed model could be tested in other regional contexts or by doing cross-cultural studies to compare results from different cultures. Moreover, the studied malls have their unique characteristics, and therefore the results cannot be generalized to other shopping areas such as town centers, shopping streets, or factory-outlet malls.

Again, this study focuses more on shoppers' positive attitudes toward ambiance fragrance, and other sensory cues along with shopping convenience and building a memory revisit window as key drivers for the desire to stay at the shopping mall. However, further research is required to discover other antecedents of this factor. In this vein, we think it may be worthwhile to check the effect of other environmental cues, such as mall location, weather conditions, and social factors on the desire to stay in shopping areas. Finally, the difficulty of interpreting the experimental effects of sensory cues (music, fragrance, temperature, store layout) to obtain a sensory-based outcome (to

like or dislike the sensory cues) through ZMET seems extremely difficult to interpret the causal antecedents. This is a regular limitation in similar research.

Funding The fund was provided by Uniwersytet Łódzki (Grant No. Project IDUB B2312109000158.07 Doctoral Research Grant Competition Edition 2022).

Declarations

Conflict of interest The authors declare no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Ainsworth J, Foster J (2017) Comfort in brick and mortar shopping experiences: examining antecedents and consequences of comfortable retail experiences. *J Retail Consum Serv* 35:27–35. <https://doi.org/10.1016/j.jretconser.2016.11.005>
- Baker J, Grewal D, Parasuraman A (1994) The influence of store environment on quality inferences and store image. *J Acad Mark Sci* 22(4):328–339. <https://doi.org/10.1177/0092070394224002>
- Babin BJ, Attaway JS (2000) Atmospheric affect as a tool for creating value and gaining share of customer. *J Bus Res* 49(2):91–99. [https://doi.org/10.1016/S0148-2963\(99\)00011-9](https://doi.org/10.1016/S0148-2963(99)00011-9)
- Babin BJ, Darden WR (1996) Good and bad shopping vibes: spending and patronage satisfaction. *J Bus Res* 35:201–206. [https://doi.org/10.1016/0148-2963\(95\)00125-5](https://doi.org/10.1016/0148-2963(95)00125-5)
- Barnes SJ, Mattsson J, Sørensen F (2016) Remembered experiences and revisit intentions: a longitudinal study of safari park visitors. *Tour Manag* 57:286–294. <https://doi.org/10.1016/j.tourman.2016.06.014>
- Bellizzi JA, Crowley AE, Hasty RW (1983) The effects of color in store design. *J Retail* 59(1):21–45
- Biswas D, Labrecque LI, Lehmann DR, Markos E (2014) Making choices while smelling, tasting, and listening: the role of sensory (Dis) similarity when sequentially sampling products. *J Mark* 78(1):112–126. <https://doi.org/10.1509/jm.12.0325>
- Bosmans A (2006) Scents and sensibility: when do (in) congruent ambient scents influence product evaluations? *J Mark* 70(3):32–43. <https://doi.org/10.1509/jmkg.70.3.032>
- Burlison J, Oe H (2018) A discussion framework of store image and patronage: a literature review. *Int J Retail Distrib Manag* 46(7):705–724. <https://doi.org/10.1108/IJRDM-11-2017-0275>
- Carpenter JM (2008) Consumer shopping value, satisfaction and loyalty in discount retailing. *J Retail Consum Serv* 15(5):358–363. <https://doi.org/10.1016/j.jretconser.2007.08.003>
- Chang YW, Chen J (2021) What motivates customers to shop in smart shops? The impacts of smart technology and technology readiness. *J Retail Consum Serv* 58:102325. <https://doi.org/10.1016/j.jretconser.2020.102325>
- Chatterjee S (2015) Olfactory branding: a new trend for defining brands through smell—a case of ITC Sonar Hotel in Kolkata, India. *Int J Trade Global Mark* 8(3):196–206. <https://doi.org/10.1504/IJTG.2015.071603>
- Chatterjee S, Bryla P (2022) Innovation and trends in olfactory marketing: a review of the literature. *J Econ Manag* 44(1):210–235. <https://doi.org/10.22367/jem.2022.44.09>
- Chatterjee S, Pandey M (2019) Consumer satisfaction attribute mapping in hospitality industry through ZMET. *Int J Bus Innov Res* 20(1):87–105. <https://doi.org/10.1504/IJBIR.2019.101691>
- Chebat JC, Michon R (2003) Impact of ambient odors on mall shoppers' emotions, cognition, and spending: a test of competitive causal theories. *J Bus Res* 56(7):529–539. [https://doi.org/10.1016/S0148-2963\(01\)00247-8](https://doi.org/10.1016/S0148-2963(01)00247-8)
- Chebat JC, Morrin M (2007) Colors and cultures: exploring the effects of mall decor on consumer perceptions. *J Bus Res* 60:189–196. <https://doi.org/10.1016/j.jbusres.2006.11.003>
- Chebat JC, Morrin M, Chebat DR (2009) Does age attenuate the impact of pleasant ambient scent on consumer response? *Environ Behav* 41(2):258–267. <https://doi.org/10.1177/0013916507311792>
- Christensen GL, Olson JC (2002) Mapping consumers' mental models with ZMET. *Psychol Mark* 19(6):477–501. <https://doi.org/10.1002/mar.10021>
- Coulter RA, Zaltman G, Coulter KS (2001) Interpreting consumer perceptions of advertising: an application of the Zaltman Metaphor Elicitation Technique. *J Advert* 30(4):1–21. <https://doi.org/10.1080/00913367.2001.10673648>
- Crowley AE (1993) The two-dimensional impact of color on shopping. *Mark Lett* 4(1):59–69. <https://doi.org/10.1007/BF00994188>
- Custers PJ, De Kort YAW, Ijsselstein WA, De Kruiff ME (2010) Lighting in retail environments: atmosphere perception in the real world. *Light Res Technol* 42(3):331–343. <https://doi.org/10.1177/1477153510377836>
- Davis LY (2013) Let us go shopping: exploring Northwest Chinese consumers' shopping experiences. *Int J Consum Stud* 37:353–359. <https://doi.org/10.1111/j.1470-6431.2012.01095.x>

- De Nisco A, Warnaby G (2013) Shopping in downtown: the effect of urban environment on service quality perception and behavioural intentions. *Int J Retail Distrib Manag* 41(9):654–670. <https://doi.org/10.1108/IJRDM-05-2013-0106>
- Dion D, Borraz S (2017) Managing status: How luxury brands shape class subjectivities in the service encounter. *J Mark* 81(5):67–85. <https://doi.org/10.1509/jm.15.0291>
- Donovan RJ, Rossiter JR, Marcoolyn G, Nesdale A (1994) Store atmosphere and purchasing behavior. *J Retail* 70(3):283–294. [https://doi.org/10.1016/0022-4359\(94\)90037-X](https://doi.org/10.1016/0022-4359(94)90037-X)
- Doucé L, Adams C (2020) Sensory overload in a shopping environment: not every sensory modality leads to too much stimulation. *J Retail Consum Serv* 57:102154. <https://doi.org/10.1016/j.jretconser.2020.102154>
- Doucé L, Janssens W (2013) The presence of a pleasant ambient scent in a fashion store: the moderating role of shopping motivation and affect intensity. *Environ Behav* 45(2):215–238. <https://doi.org/10.1177/0013916511410421>
- Dubey P, Bajpai N, Guha S (2016) Mapping customer delight by using a surprise model. *Indian J Mark*. 46(10):22–39. <https://doi.org/10.17010/ijom/2016/v46/i10/102852>
- El Hedhli K, Zourrig H, Chebat JC (2016) Shopping well-being: is it just a matter of pleasure or doing the task? The role of shopper's gender and self-congruity. *J Retail Consum Serv* 31:1–13. <https://doi.org/10.1016/j.jretconser.2016.03.002>
- Elmashhara MG, Soares AM (2019) The impact of entertainment and social interaction with salespeople on mall shopper satisfaction: the mediating role of emotional states. *Int J Retail Distrib Manag* 47(2):94–110. <https://doi.org/10.1108/IJRDM-06-2018-0112>
- Elmashhara MG, Soares AM (2022) Linking atmospherics to shopping outcomes: The role of the desire to stay. *J Retail Consum Serv* 64:102744. <https://doi.org/10.1016/j.jretconser.2021.102744>
- Francioni B, Savelli E, Cioppi M (2018) Store satisfaction and store loyalty: The moderating role of store atmosphere. *J Retail Consum Serv* 43:333–341. <https://doi.org/10.1016/j.jretconser.2018.05.005>
- Grewal D, Baker J, Levy M, Voss GB (2003) The effects of wait expectations and store atmosphere evaluations on patronage intentions in service-intensive retail stores. *J Retail* 79(4):259–268. <https://doi.org/10.1016/j.jretai.2003.09.006>
- Guéguen N, Petr C (2006) Odors and consumer behavior in a restaurant. *Int J Hosp Manag* 25(2):335–339. <https://doi.org/10.1016/j.ijhm.2005.04.007>
- Haberland MF (2010) The power of scent: Empirical field studies of olfactory cues on purchase behavior, Doctoral dissertation. University of St. Gallen, St. Gallen
- Ha J, Jang S (2013) Attributes, consequences, and consumer values: a means-end chain approach across restaurant segments. *Int J Contemp Hosp Manag* 25(3):383–409. <https://doi.org/10.1108/09596111311311035>
- Herz RS (2010) The emotional, cognitive and biological basics of olfaction. In: *Sensory marketing: research on the sensuality of products*. Routledge, pp 87–107
- Hul MK, Dube L, Chebat JC (1997) The impact of music on consumers' reactions to waiting for services. *J Retail* 73(1):87–104. [https://doi.org/10.1016/S0022-4359\(97\)90016-6](https://doi.org/10.1016/S0022-4359(97)90016-6)
- Ji M, King B (2018) Explaining the embodied hospitality experience with ZMET. *Int J Contemp Hosp Manag* 30(11):3442–3461. <https://doi.org/10.1108/IJCHM-10-2017-0709>
- Jung J, Yu J, Seo Y, Ko E (2021) Consumer experiences of virtual reality: insights from VR luxury brand fashion shows. *J Bus Res* 130:517–524. <https://doi.org/10.1016/j.jbusres.2019.10.038>
- Kauppinen-Räsänen H, Mühlbacher H, Taishoff M (2020a) Exploring consumers' subjective shopping experiences in directly operated luxury brand stores. *J Retail Consum Serv* 57:102251. <https://doi.org/10.1016/j.jretconser.2020.102251>
- Lee NY, Noble SM, Biswas D (2018) Hey big spender! A golden (color) atmospheric effect on tipping behavior. *J Acad Mark Sci* 46(2):317–337. <https://doi.org/10.1007/s11747-016-0508-3>
- Lloyd AE, Chan RY, Yip LS, Chan A (2014) Time buying and time saving: effects on service convenience and the shopping experience at the mall. *J Serv Mark* 28(1):36–49. <https://doi.org/10.1108/JSM-03-2012-0065>
- Maxwell JA (2013) *Qualitative research design—an interactive approach*. SAGE Publications, LA
- Mattila AS, Wirtz J (2001) Congruency of scent and music as a driver of in-store evaluations and behavior. *J Retail* 77(2):273–289. [https://doi.org/10.1016/S0022-4359\(01\)00042-2](https://doi.org/10.1016/S0022-4359(01)00042-2)
- Mehrabian A, Russell JA (1974) *An approach to environmental psychology*. The MIT Press
- Mitchell DJ, Kahn BE, Knasko SC (1995) There's something in the air: Effects of congruent or incongruent ambient odor on consumer decision making. *J Consum Res* 22(2):229–238. <https://doi.org/10.1086/209447>
- Morrin M, Chebat JC (2005) Person-place congruency: the interactive effects of shopper style and atmospherics on consumer expenditures. *J Serv Res* 8(2):181–191. <https://doi.org/10.1177/1094670505279420>
- Pan Y, Zinkhan GM (2006) Determinants of retail patronage: a meta-analytical perspective. *J Retail* 82(3):229–243. <https://doi.org/10.1016/j.jretai.2005.11.008>
- Patton MQ (2002) *Qualitative research & evaluation methods*. Sage, CA
- Pink DH (1998) *Metaphor marketing*. Fast Company 14(5):214–219
- Quartier K, Vanrie J, Van Cleempoel K (2014) As real as it gets: what role does lighting have on consumer's perception of atmosphere, emotions and behaviour? *J Environ Psychol* 39:32–39. <https://doi.org/10.1016/j.jenvp.2014.04.005>
- Rodgers W, Yeung F, Odindo C, Degbey WY (2021) Artificial intelligence-driven music biometrics influencing customers' retail buying behavior. *J Bus Res* 126:401–414. <https://doi.org/10.1016/j.jbusres.2020.12.039>
- Roggeveen AL, Grewal D, Schweiger EB (2020) The DAST framework for retail atmospherics: the impact of in-and out-of-store retail journey touchpoints on the customer experience. *J Retail* 96(1):128–137. <https://doi.org/10.1016/j.jretai.2019.11.002>
- Song H, Xu JB, Kim JH (2021) Nostalgic experiences in time-honored restaurants: antecedents and outcomes. *Int J Hosp*

- Manag 99:103080. <https://doi.org/10.1016/j.ijhm.2021.103080>
- Spangenberg ER, Sprott DE, Grohmann B, Tracy DL (2006) Gender-congruent ambient scent influences on approach and avoidance behaviors in a retail store. *J Bus Res* 59(12):1281–1287. <https://doi.org/10.1016/j.jbusres.2006.08.006>
- Spence C (2007) Audiovisual multisensory integration. In: *Acoustical science and technology*, vol 28(2), pp 61–70. <https://doi.org/10.1250/ast.28.61>
- Terblanche NS (2018) Revisiting the supermarket in-store customer shopping experience. *J Retail Consum Serv* 40:48–59. <https://doi.org/10.1016/j.jretconser.2017.09.004>
- Terblanche NS, Kidd M (2021) Exploring an in-store customer journey for customers shopping for outdoor apparel. *J Retail Consum Serv* 63:102722. <https://doi.org/10.1016/j.jretconser.2021.102722>
- Turley LW, Chebat JC (2002) Linking retail strategy, atmospheric design and shopping behaviour. *J Mark Manag* 18(1–2):125–144. <https://doi.org/10.1362/0267257022775891>
- Turley LW, Milliman RE (2000) Atmospheric effects on shopping behavior: a review of the experimental evidence. *J Bus Res* 49(2):193–211. [https://doi.org/10.1016/S0148-2963\(99\)00010-7](https://doi.org/10.1016/S0148-2963(99)00010-7)
- Van Rompay TJ, Tanja-Dijkstra K, Verhoeven JW, van Es AF (2012) On store design and consumer motivation: Spatial control and arousal in the retail context. *Environ Behavior* 44(6):800–820. <https://doi.org/10.1177/0013916511407309>
- Vukadin A, Wongkitrungrueng A, Assarut N (2018) When art meets mall: impact on shopper responses. *J Product Brand Manag* 27(3):277–293. <https://doi.org/10.1108/JPBM-01-2017-1406>
- Wu CH, Chen TC (2012) Understanding e-learning system usage behavior: an evolutionary psychology perspective. *Procedia Soc Behav Sci* 64:362–371. <https://doi.org/10.1016/j.sbspro.2012.11.043>
- Zaltman G, Zaltman LH (2008) *Marketing metaphoria: what deep metaphors reveal about the minds of consumers*. Harvard Business Press, Boston
- Zaltman G, Olson J, Forr J (2015) Toward a new marketing science for hospitality managers. *Cornell Hosp Q* 56(4):337–344. <https://doi.org/10.1177/1938965515599841>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Article 3

Chatterjee S., Bryla P., Saleh M.I., Cross-cultural differences in the effects of the ambient scent on in-store behavior: the role of companionship, *Decision*, 2024, Vol. 51, No. 3, pp. 339-354.
<https://doi.org/10.1007/s40622-024-00400-4>.

IF=1.5 according to 2023 JCR. 100 points



Cross-cultural differences in the effects of the ambient scent on in-store behavior: the role of companionship

Shuvam Chatterjee[✉] · Pawel Bryla[✉] ·
Mahmoud Ibraheam Saleh[✉]

Accepted: 19 August 2024
© The Author(s) 2024

Abstract While previous studies have examined the influence of store atmospherics and social factors independently, limited research has investigated their synergistic impacts across cultures. In particular, the interactions between ambient scents, companionship influences, and cross-cultural shopping customs remain underexplored. Therefore, this study investigates how ambient scents influence retail shopping behaviors with a companion across cultures. Data were collected via surveys administered to customers in Polish and Indian shopping malls ($N=579$), examining the impact of detected fragrances on time spent, money spent, purchase decisions, cognitive responses, and attitudes. Shopping with a companion in a scented environment has a more positive influence on time spent, money spent and impulse purchases in India than in Poland. There is no difference between these two cultures regarding cognitive

responses to a scented retail environment, but there are significant differences for attitudinal responses and repurchase intentions. We found a positive association between the consumer rating of the shopping environment in terms of the ambient scent and the amount of money spent in India, but not in Poland. Theoretical and practical implications are discussed for optimizing atmospheric design according to cultural customs around shopping companionships.

Keywords Retail shopping · Olfaction · Cross-cultural · Companionship · Sensory marketing · India · Poland

Introduction

Retailers have increasingly recognized the importance of the in-store environment in shaping consumer behavior and satisfaction (Bradford and Desrochers 2009; Parsons and Conroy 2006). Atmospheric elements such as background music (Rit et al. 2019), color schemes (Martinez et al. 2021), store layouts (Hirpara and Parikh 2021), perceived crowding (Lucia-Palacios et al. 2018), and ambient scents (Xiao et al. 2020) all directly impact shopper responses like satisfaction (Morrison et al. 2011), spending habits (Doucé and Janssens 2013; Herrmann et al. 2013), and evaluations of products and the service environment (Baker et al. 2002; Labrecque and Milne 2012).

S. Chatterjee (✉)
Doctoral School of Social Science, University of Lodz,
Łódź, Poland
e-mail: shuvam.chatterjee@edu.uni.lodz.pl

P. Bryla
Faculty of International and Political Studies, University
of Lodz, Łódź, Poland
e-mail: pawel.bryla@uni.lodz.pl

M. I. Saleh
Tourism Studies Department, Faculty of Tourism
and Hotel Management, Helwan University, Cairo, Egypt
e-mail: mahmoudibraheam580@gmail.com

Specifically, a growing body of research has focused on the effects of ambient fragrances within retail establishments (Teller and Dennis 2012). Field experiments show pleasant scents can prolong browsing duration (Knasko 1995; Leenders et al. 2019), improve merchandise assessments (Lwin and Morrin 2012; Merrilees and Miller 2019; Michon et al. 2005), and drive higher spending (Leenders et al. 2019). However, some studies report inconsistent odor impacts (Douce and Adams 2020). Interestingly, culture also significantly shapes consumer behavior (Elhajjar 2023; Baskentli et al. 2023), yet few studies investigate how fragrance interacts with social and cultural context on purchase intentions (Merrilees and Miller 2019). Importantly, consumers' culture significantly shapes consumer behavior (Elhajjar 2023; Baskentli et al. 2023). Research indicates that odor impacts are also modified based on cultural norms (Chrea et al. 2005). However, there remains a gap to explore how ambient fragrances interact with the social context, which is influenced by culture and companionship, to affect purchase intentions.

According to Rieunier (2000), the atmosphere in a retail setting refers to all the variables that can be changed to affect shoppers' attitudinal, behavioral, and cognitive responses. These consist of stimuli, including temperature, light, color, store design, music, and scent. Previous studies have significantly advanced the understanding of atmospheric signals' impact on consumer decision-making (Wilson 2003; Gueguen and Petr 2006; Chatterjee and Kundu 2020). Kotler (1973) talked about the importance of atmosphere in retail management strategy. Atmospheric factors have been shown to influence emotions, attention, and behaviors in various retail contexts (Kotler 1973; Spangenberg et al. 2005; Turley and Chebat 2002; Michon et al. 2005; Errajaa et al. 2021). Studies on the drivers of the atmosphere, considering social cues like companionship (Borges et al. 2010; Lucia-Palacios et al. 2018) and internal store design conditions (Baraban and Durocher 2010), as well as the introduction of smart technologies (Ameen et al. 2022), contrast with the direct impact of atmospherics. Numerous previous studies have explored the influence of the atmosphere on consumer behavior and retail strategy. Leenders et al. (2019) discussed how scent in a store can improve customers' mood and lower stress levels (Lehrner et al. 2005). Retail marketers should

focus on enhancing the internal shop atmosphere to highlight the value of their goods and services and encourage more repeat business (Chatzoglou et al. 2022). But adding too many sensory cues could also lead to sensory overload, making things less enjoyable (Douc   and Adams 2020). According to Leenders et al.'s (2019) noteworthy findings, when consumers are exposed to high-intense aromatic settings, they tend to underestimate the amount of time they spend in retail stores and end up making both unplanned and actual purchases. According to Rit et al.'s (2019) research, customers are more likely to spend time on products that are associated with highly exciting musical environments and high arousal scented environments. This is consistent with a study by Spangenberg et al. (2005) that found similar outcomes for the cross-modal congruency of scent quality (pine fragrance) and music theme (Christmas-based).

This study aims to address this gap. It examines the relationship between companionship, ambient scents, and purchase intentions in a retail environment, adopting a cross-cultural approach between India and Poland. These contexts were selected to facilitate a nuanced examination of this under-researched topic across international markets. Further, the theoretical framework draws from research on cultural values—the deep-seated norms and beliefs governing cultural systems' behaviors (Schwartz 2012). Drawing on theories of cultural values (Schwartz 2012), this study aims to address this gap by examining how ambient scents influence companionship and willingness to buy across cultural contexts. Data were collected from Indian and Polish shoppers to evaluate these relationships in each market. The selection of these international contexts will allow for a cross-cultural examination of a hitherto under-researched topic within experiential marketing. The following research questions will be addressed:

- How does companionship influence consumer behaviors in a scented retail environment depending on culture (regarding time spent, money spent, and impulse purchases)?
- How does companionship influence consumers' cognitive, behavioral and attitudinal responses in a scented retail environment depending on culture?
- What is the relationship between consumer rating of environmental scent quality in a retail store

with the amount of money spent depending on culture?

The article is structured as follows: [Sect. 2](#) introduces the theoretical lens and hypotheses. [Section 3](#) outlines the methodology. [Section 4](#) presents the data analysis and critical findings. [Section 5](#) discusses the implications of the results. [Section 6](#) considers the managerial applications. [Section 7](#) addresses limitations and paths for future research.

Theoretical framework

Choice of country for the cross-cultural study—Poland and India

While some research has analyzed the impact of culture on hedonic responses to retail atmospheric cues experimentally (Rayburn and Voss 2013), limited work has explored how culture moderates the effect of companionship and ambient fragrances on shopping behaviors. The current study aims to address this gap. Poland and India were selected to allow for an insightful cross-cultural examination. Both represent rising retail markets undergoing experiential revolutions with differing clientele demographics and geographical settings (Diallo et al. 2018; Thomas et al. 2014). Moreover, studies have underscored cross-country variability in consumer evaluation of retail experiences (Thomas et al. 2014).

As one of the fastest-growing markets globally, India offers an ideal context to understand evolving consumer perspectives. Meanwhile, Poland provides an interesting European point of reference that has received less empirical focus, particularly regarding companionship influences (Berki-Kiss and Menrad 2022; Pfeifer et al. 2023; Solgaard et al. 2023). A critical cultural difference that informs the current investigation is each nation's level of individualism versus collectivism (Hofstede 2001). Individualistic societies prioritize individual needs and autonomy, whereas collectivist cultures emphasize group harmony and loyalty. This distinction has important implications for conceptualizing the role of shopping companions across settings.

Moreover, individualism/collectivism shapes relational norms within communities. In highly individualistic cultures like Poland, the self is more often

viewed as independent, whereas India's collectivist orientation positions the self as interdependent. This dichotomy informed the hypotheses regarding how companion presence may stimulate distinct behaviors in each context. Overall, comparing Poland and India allowed for a meaningful examination of how vital cultural attributes like individualism/collectivism moderate the link between social shopping influences and ambient scent exposure. Greater theoretical insight was gained by studying these dynamics cross-nationally.

Theoretical concepts

This research advances the literature by proposing and testing a unique model examining the influence of companionship in retail environments on purchase intentions. The theoretical foundation draws from Mehrabian and Russell's (1974) stimulus-organism-response (S-O-R) paradigm, which underscores the role of companionship and ambient scents as environmental stimuli that elicit emotional responses (Chatterjee & Bryla 2023). While stores are often assumed to be perceived visually, this research proposes that verbal and nonverbal social cues from shopping partners can also shape atmospheric experiences (Borges et al. 2010; Gui et al. 2021; Merrilees & Miller 2019; Wenzel & Benkenstein 2018).

According to S-O-R, myriad stimuli impact emotional states (Mehrabian and Russell 1974). These stimuli include social factors, as prior work has shown emotions are also influenced during shopping through social support from companions (Lucia-Palacios et al. 2018). People subsequently assess atmospherics based on felt emotions, orienting behavior toward approach or avoidance. Considerable evidence supports a linkage between meticulously designed retail settings and customer actions (Leenders et al. 2019; Helmefalk and Hultén, 2017). Sensory factors such as ambient scents have been demonstrated to impact emotions, attention, and behaviors in various retail contexts (Kotler 1973; Spangenberg et al., 1996; Turley & Chebat 2002; Michon et al. 2005; Errajaa et al. 2021).

Notably, the research topic of cross-cultural differences in the effects of ambient scent on in-store behavior is closely connected to two critical theoretical frameworks. The first is Schwartz's theory of cultural values, which provides a lens for understanding

key cultural variations between societies. The second is the theory of planned behavior, which offers insights into the link between cultural, social, and situational factors and ensuing behaviors.

Schwartz's cultural value theory is highly relevant as it proposes that cultures differ in their emphasis on cultural dimensions, such as individualism versus collectivism. These cultural leanings shape important societal norms and affect individual perceptions and actions. As the research compares outcomes in collectivistic Asian cultures versus individualistic Western cultures, Schwartz's model provides a foundation for hypothesizing cultural differences (Schwartz 2012). For example, it helps predict that ambient scents may wield more significant influence independently in individualistic cultures like Poland but have their effects modified more by social contexts, such as shopping companions' emotions in collectivistic India.

Meanwhile, the theory of planned behavior offers an approach to link cultural and social influences to the behavioral indicator of purchase intention (Ajzen 1991). It suggests behaviors stem from intentions formed by attitudes and subjective norms. Subjective norms encompass social pressures from important referent groups. Therefore, the model indicates companions could function as a referent group, meaning their presence and emotive state alter attitude formation from ambient scents via subjective norms. Cross-cultural differences in individualism-collectivism further imply that the subjective norm component may hold more weight in shaping the intent of collectivists than individualists. Together, these theoretical frameworks provide a robust lens for understanding how ambient scent perceptions and their translation into in-store behaviors could diverge systematically between cultures due to variances in social orientation and norm adherence.

This research also draws from the theory of planned behavior (Ajzen 1991), which posits behavioral intentions as a critical mediator of actions requiring forethought. Intentions capture the motivational factors guiding responses to products/services (Ajzen 2001). Elder and Krishna (2012) further the perspective by arguing sensory perceptions, such as fragrances, inform intentions. Ambient scents have been shown to influence purchase intentions directly and indirectly via emotions (Morrin and Ratneshwar 2000; Doucé and Janssens 2013). Together, these

theoretical lenses provide a framework for hypothesizing how ambient scents and shopping companionship can elicit unique emotional pathways to purchase consideration across cultural contexts like Poland and India. Cross-cultural differences exist in these relationships due to divergent cultural dimensions (Hofstede 1984, 2001; Jeong et al. 2019). The proposed model offers a novel theoretical synthesis with meaningful applications for experiential retailing.

Companionship in retail shopping

Consumers often go shopping with friends and acquaintances. According to studies on consumer behavior, going shopping with friends can impact a person's decision to make a purchase (Borges et al. 2010). A study conducted by Borges et al. (2010) suggests that purchase outcomes of companion shopping are linked to both buying intents and consumption outcomes, such as consumer satisfaction and well-being. Furthermore, retailers should encourage shopping with companions to increase sales and customer satisfaction (Gui et al. 2021). According to Mora and González (2016) and Wenzel and Benkenstein (2018), research on shopping with friends has mostly examined how it affects customer happiness, readiness to buy, or monetary expenditure; however, consumer purchase decision outcomes like patience (i.e., spending more time) and spending more money are also significant outcome variables.

Also, Merrilees and Miller's (2019) research shows shopping companions are essential for increasing the emotional shopping experience. Emotions have been shown to play a vital role in shopping behaviors and decision-making (Babin & Attaway 2000; Bagozzi 2000). Wenzel and Benkenstein (2018) suggest shopping with a companion directly impacts consumers' emotions. On the contrary, Borges et al. (2010) suggest consumers who strongly identify with a retail environment prefer to shop alone rather than with a relative, which lends credence to the idea that customers will take action to preserve a favored experience.

Based on the theoretical underpinnings, we propose that customers and their companions who are exposed to an odor will show positive purchasing reactions. Atmospheric factors such as ambient scents have been demonstrated to impact emotions, attention, and behaviors in various retail contexts (Kotler 1973; Spangenberg et al. 2005; Turley and

Chebat 2002; Michon et al. 2005; Errajaa et al. 2021). This study focuses on cross-country (India vs Poland) customer behavior and behavioral intents that are likely to be influenced by a store's ambiance, particularly when it comes to buying intentions and fragrance, along with companionship. We believe that the effects of companionship can be associated with the dimension of individualism/collectivism widely used to analyze cross-cultural differences. Cultural background shapes values, determining behaviors and shopping decisions (Hofstede 1984, 2001; Jeong et al. 2019). Therefore, cross-cultural differences between Indian and Polish consumers are hypothesized in their responses to companionship and ambient scents in retail environments. The following hypotheses are formulated considering the arguments:

H1a: Companionship influences Indian consumers considering the amount of time spent in a scented retail environment more positively than Polish consumers.

H1b: Companionship influences Indian consumers considering the amount of money spent in a scented retail environment more positively than Polish consumers.

H1c: Companionship influences Indian consumers considering impulse purchases in a scented retail environment more strongly than Polish consumers.

H2a: Companionship influences Indian consumers' cognitive responses in a scented retail environment, such as a strong position in mind, first preference choice, exclusivity, and lower concern about price fluctuation for the retail outlet, more positively than Polish consumers.

H2b: Companionship influences Indian consumers' behavioral responses in a scented retail environment, such as consumer repurchase and revisit intentions, sticking to the same retail outlet & considering all purchases in the same category from this retail store, more positively than Polish consumers.

H2c: Companionship influences Indian consumers' attitudinal responses in a scented retail environment, such as recommending the store to others, preference for the retail store, and having a bonding with the retail store, more positively than Polish consumers.

Consumer evaluation of ambient scent quality

The attributes of a scent can influence people's approach or avoidance behavior (Gulas and Bloch 1995). An individual's perceptions of fragrance are often guided by age (Doty and Kamath 2014; Chebat et al. 2009) and gender (Helmefalk and Hulten 2017; Krishna et al. 2010). Kotler (1973) suggests that scents should be considered in atmospheric models and investigations, as sensory factors like ambient scents have been demonstrated to impact emotions, attention, and behaviors in various retail contexts (Kotler 1973; Spangenberg et al. 2005; Turley and Chebat 2002; Michon et al. 2005; Errajaa et al. 2021).

Existing research has shown that scents can affect mood (Schifferstein et al. 2011), elevate well-being and lower stress (Poon and Grohmann 2014), enhance people's opinions of goods (Krishna et al. 2010), services (Naja et al. 2015), and experiences (Schifferstein et al. 2011). Zemke and Shoemaker (2008) found that adding a scent to a meeting space can dramatically boost interpersonal interactions. Ambient scents have been shown to influence purchase intentions (Chatterjee 2017) directly and indirectly via emotions (Morrin and Ratneshwar 2000; Doucé and Janssens 2013). Girard et al. (2019) suggest that ambient fragrance is a valuable sensory marketing strategy as it improves consumers' perceptions and impacts their mood (Leenders et al. 2019). Furthermore, scents have been demonstrated to influence expenditure and visit duration (Guéguen and Petr 2006), behaviors (Naja et al. 2015; Doucé et al. 2013), and satisfaction (McDonnell 2007; Morrison et al. 2011). Building on these findings, the following hypothesis is formulated:

H3: Consumer rating of environmental scent quality in a retail store has a positive association with the amount of money spent in India and Poland.

Methodology

Measurement of key variables

The present study employed a quantitative methodology to develop valid and reliable measures for critical constructs. Insights were drawn from previous literature on consumers' shopping companionship and approach behaviors in retail settings (Gui

et al. 2021; Leenders et al. 2019). A 5-point Likert scale was adopted to measure shopping companionship, where one represented "strongly disagree" and five represented "strongly agree." This scale captured factors such as the time and money spent with companions and impulsive purchases (Gui et al. 2021). Leenders et al.'s (2019) examination of consumer approach behaviors in retail was also referenced to develop scales for time spent shopping, money spent, and impulsive purchases. A 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) was used consistently across these constructs.

Additionally, established scales from prior research were drawn upon to measure consumers' cognitive, attitudinal, and behavioral reactions (Dick and Basu 1994; Watson et al. 2015). The attitude was operationalized through agreement with statements about positive brand evaluations, favorable disposition, and likelihood of recommending the brand. Behavioral intent incorporated ongoing patronage intentions and a willingness to pay price premiums. Cognitive measures captured brand knowledge structures and top-of-mind awareness. All these reactions were assessed using the standardized 5-point Likert scale described above. Pilot tests with consumer samples were conducted to refine the wording and ensure the scales demonstrated sufficient reliability, with Cronbach's alphas exceeding the recommended 0.7 threshold (Hair et al. 2017). The result was a set of validated multi-item measures for key theoretical constructs based on past literature in a consistent 5-point Likert format.

Data collection

In two sizable malls in Poland and India, a total of 635 mall intercept-administered questionnaires were given to respondents. Shopping malls provide a relevant context as they are typical third places where customers go to have social interaction in addition to shopping (Rosenbaum et al. 2017). While a single regional mall sample is neither completely random nor always typical, this study focuses on understanding relationships between factors rather than population description. Clothes retailers served as the primary research location, selected according to Carman's (1970) criteria frequently affecting consumer attitude and purchase inclination. A procedural approach addressed common method bias (Podsakoff et al. 2003). Participants were first made aware of the

anonymous nature of their responses, and questions were presented in a non-sequential order.

Surveys were administered within a coverage period to minimize bias from shopping patterns, considering both days of the week (weekends) and times (late evenings) when stores experience heavier foot traffic. A pre-test ($n=50$) was conducted to ensure retail customers could reliably distinguish stores by scent while shopping. Questions asked whether customers could smell anything in-store and rated any scent's pleasantness, strength, store differentiation, and novelty on a 5-point Likert scale. The final sample consisted of 300 valid responses from India and 279 from Poland who passed the pre-test, for a total of 579. Data was collected via intercept surveys administered by trained research assistants fluent in the local languages over three months from March to May 2023 in Poland and over two months from mid-June till mid-August 2023 in India. Responses were analyzed using PROCESS macro and IBM SPSS 24 statistical software. Measures were taken to ensure a rigorous research design and methodology that provides valid insights while acknowledging the limitations of a single context study with a non-probability sample. The focus remains on understanding relationships as informed by prior literature.

Data analysis and findings

Study sample analysis

Table 1 illustrates that the demographic profiles of the survey participants from Poland and India are largely similar, with a few significant exceptions. In both countries, the proportion of genders is about equal; however, Poland has a more balanced gender distribution, and India has somewhat more males. Most respondents in both nations are between the ages of 21 and 30, yet India has a higher percentage in this age group—71.3%—than Poland (60.9%). There are more respondents from Poland in the 31–40 and 41–50 age groups. The average age of the Indian subsample is lower than that of the Polish subsample, reflecting India's younger demographic structure compared to Poland. Data shows Indians have a lower median age than Poles, indicating half of India's population is below the younger age cutoff in contrast to Poland's older population profile. This age difference

Table 1 Country-wise demographic profile of respondents in India and Poland

Demographic item	Subgroups	India (N=300)		Poland (N=279)	
		n	%	n	%
Gender	Male	156	52.0	141	50.5
	Female	144	48.0	138	49.5
Age	18–20	0	1.9	11	3.9
	21–30	214	71.3	170	60.9
	31–40	86	28.7	83	29.7
	41–50	0	0	15	5.4
	51–60	0	0	0	0
Highest qualification	School	0	0	11	3.9
	University (UG)	58	19.3	55	19.7
	University (PG)	232	77.3	200	71.7
	Doctorate	10	3.3	13	4.7
Relationship status	Single	93	31.0	44	15.8
	Living with partner	82	27.3	105	37.6
	Married	121	40.3	128	45.9
	Divorced	4	1.3	1	0.4
	Widow/widower	0	0	1	0.4
	Other	0	0	0	0
Professional situation	Student	42	14.0	53	19.0
	Blue collar worker	0	0	1	0.4
	White collar worker	165	55.0	133	47.7
	Self-employed	84	28.0	77	27.6
	Farmer	0	0	1	0.4
	Unemployed	6	2.0	2	0.7
	Other	3	1.0	12	4.3

between the two countries' populations aligns with observations that India has a more youthful demographic composition opposite Poland's relative aging.

Most of the population has a postgraduate university degree from Poland (71.7%) and India (77.3%), indicating equal educational levels. A few more respondents from Poland only have a high school diploma or an undergraduate degree. Relationship status varied between the India and Poland samples, with the percentage of single respondents being higher in India at 31% compared to 15.8% in Poland, whereas the percentage of respondents living with a partner was higher in Poland at 37.6% versus 27.3% in India. Additionally, the percentage of married respondents was slightly higher in Poland at 45.9% than the 40.3% of Indian respondents who were married, while both samples had very small percentages of divorced respondents and widow/widower statuses

making up mostly negligible proportions. The married rate is marginally comparable. Professionally, the percentages of students, independent contractors, and white-collar jobs are comparable in both nations. The primary distinction is that while the share of unemployed people in the Polish sample is 0.7%, it is higher in India at 2%. In conclusion, the survey results show that although the two national subsamples have similar gender distribution, high rates of education, and a preponderance of white-collar jobs, Indian respondents are younger on average, with a higher percentage of unmarried people, and having a higher jobless rate.

Reliability and validity

Good reliability and validity have been shown for the constructs in this study that look at fragrance and consumer behavior, culture and consumer decision-making, purchase attitude intention, cognitive responses, behavioral intentions, and attitude intentions. All the constructs' Cronbach's alpha reliability coefficients, which range from 0.76 to 0.95, are above the suggested cutoff point of 0.70, showing sufficient internal consistency. Further proving reliability, the construct's composite reliability is above the benchmark of 0.70, ranging from 0.81 to 0.95, in addition to establishing internal consistency reliability (Hair et al. 2017). Regarding validity, according to several researchers, a scale's validity is not always affected by average variance extracted values that are somewhat less than the cautious threshold of 0.50 (Hair et al. 2019; Hulland 1999). Thus, an overall validity assessment that included cross-loadings, composite reliability, and fit indices indicated that the measurement could effectively capture the target constructs, even though some averages were barely below 0.50. According to comprehensive guidelines evaluating validity, we can have acceptable confidence in the validity of the scales even with minor deficiencies in average variance (MacKenzie et al. 2011; Peterson and Kim 2013).

Hypotheses tests

Initial analyses explored descriptive characteristics and differences between Polish and Indian consumers. Cross-tabulations in SPSS provided overview demographic profiles for each cultural group. Chi-square

tests then examined whether significant variations existed between Polish and Indian respondents. The chi-square assessed independence between categorical variables such as gender, age, scent preferences, and group to identify potential areas of divergence. Given past research indicating cultural influences on sensory perceptions, these preliminary analyses aimed to differentiate between Polish and Indian consumers regarding fragrance perspectives as a foundation for hypothesis development. Specifically, the chi-square helped reveal descriptive traits and significant differences to target in subsequent hypotheses examining how cultural background moderates fragrance influence on purchase intentions.

As for hypothesis H1a, it is supported, as there is a statistically significant difference between Indian and Polish retail consumers regarding the influence of companionship on time spent inside a retail store under the influence of fragrance. Specifically, more

than 90% of Indian respondents agreed or strongly agreed that shopping with a companion made them spend more time in the retail outlet. In contrast, only 23.7% of Polish respondents agreed or strongly agreed with the same statement. Most Polish respondents (67.8%) disagreed or strongly disagreed that a companion influenced their time spent. The highly skewed responses between the two country groups indicate that Indian consumers are much more positively influenced by companionship when it comes to prolonged shopping in a store where fragrances are present. This proves that companionship has a differential effect on Indian consumers compared to Polish consumers when exposed to retail fragrances, supporting hypothesis H1a. The chi-square test shows a statistically significant association (see Table 2) between countries and the influence of companionship on time spent shopping, given the significant differences ($p < 0.001$, India $M = 4.03$; Poland $M = 3.45$).

Table 2 Chi-square differences between the country contexts (India vs Poland)

Hypotheses number	Comparison valence	Chi-square sig	Mean differences		Hypotheses statement test
			India	Poland	
H1a	The influence on companionship considering time spent inside a retail store	0.000***	4.03	3.45	Supported
H1b	The influence on companionship considering the money spent inside a retail store	0.000***	3.78	2.59	Supported
H1c	The influence on companionship has a positive impact on product decisions inside a retail store	0.000***	3.11	2.18	Supported
H2a	The influence on companionship is considered a strong position in mind	0.050*	3.20	3.29	Not supported
	The influence on companionship considering first preference choice	0.044*	1.59	2.15	Not supported
	The influence on companionship considering lower concern about price fluctuation	0.000***	1.67	1.68	Not supported
	The influence on companionship considering exclusivity	0.000***	1.75	2.14	Not supported
H2b	The influence on companionship considering consumer re-purchase/consumer re-visit intentions	0.000***	4.69	3.98	Supported
	The influence on companionship considers sticking to the same retail outlet	0.003***	4.15	4.31	Not supported
	The influence on companionship considers all purchases in the same category from this retail store	0.000***	2.70	3.01	Not supported
H2c	The influence on companionship considers recommending the store to others	0.013**	4.21	4.06	Supported
	The influence on companionship is considered a strong preference for the retail store	0.000***	4.25	3.92	Supported
	The influence on companionship considers having a bonding/association with the retail store	0.000***	4.02	3.79	Supported

As for hypothesis H1b, it is also supported, as there is a significant difference between Indian and Polish consumers regarding the influence of companionship on money spent in a retail store when exposed to fragrances. Most Indian respondents (> 80%) agreed or strongly agreed that having a shopping companion made them spend more money in the retail outlet. In contrast, only 15.4% of Polish respondents agreed or strongly agreed with the same statement. Most Polish respondents (73.8%) disagreed or strongly disagreed that having a companion impacted their spending. This indicates that companionship has a strong positive association with money spent by Indian consumers when shopping in a fragranced environment. For Polish consumers, companionship does not seem to influence spending to the same degree. The highly divergent responses between the two country groups provide evidence supporting hypothesis H1b. The chi-square test confirms a statistically significant relationship between countries ($p < 0.001$, India $M = 3.78$; Poland $M = 2.59$) and the effect of companionship on money spent while exposed to fragrances in a retail setting.

As for hypothesis H1c, the results provide support for it as well. There is a clear difference between Indian and Polish consumers regarding the influence of companionship on product decisions when shopping in a fragranced retail environment. Most Indian respondents (> 90%) agreed or strongly agreed that having a companion positively impacted their product decisions inside the store. In contrast, only 23.6% of Polish respondents agreed or strongly agreed with this statement. Most Polish respondents (53.1%) disagreed or strongly disagreed that companionship affected their product decisions. This indicates that for Indian consumers, having a shopping companion led to more favorable product choices with fragrances in retail outlets. For Polish consumers, companionship did not influence product decisions to the same degree. The significant divergence in responses between the two country groups provides evidence that companionship has a more positive impact on product decisions for Indian retail consumers compared to Polish consumers when exposed to in-store fragrances. This supports hypothesis H1c. The chi-square test confirms the significant association between countries ($p < 0.001$, India $M = 3.11$; Poland $M = 2.18$) and the effect of companionship on product decisions under conditions of retail fragrance.

As for hypothesis H2a, it is not supported. There are apparent differences between Indian and Polish consumers regarding the influence of companionship on cognitive responses related to the retail outlet in the presence of fragrances. For the statement "This supermarket occupies a strong position in my mind," 36.4% of Indian respondents agreed/strongly agreed compared to 46.9% of Polish respondents ($p < 0.05$, India $M = 3.20$; Poland $M = 3.29$). For "This supermarket is my first preference for purchases," only 2.4% of Indians agreed/strongly agreed versus 17.5% of Polish respondents ($p < 0.05$, India $M = 1.59$; Poland $M = 2.15$). For "I would have less botheration about price fluctuations," just 1.3% of Indians agreed/strongly agreed in contrast to 6.4% of Polish respondents ($p < 0.001$, India $M = 1.67$; Poland $M = 1.88$). And for "I would consider this supermarket exclusively for purchases," only 2.6% of Indian respondents agreed/strongly agreed compared to 7.2% of Polish respondents ($p < 0.001$, India $M = 1.75$; Poland $M = 2.14$). In all cases, Polish consumers expressed more positive cognitive perceptions of the retail outlet across the various measures when shopping with companions and exposed to fragrances. Companionship more positively influences cognitive retail responses among Polish consumers than among Indian consumers when the ambient scent is present. This is opposite to what we expected in hypothesis H2a.

As for hypothesis H2b, it is partially supported. Companionship more positively influences consumer re-purchase/re-visit intentions among Indian consumers than among Polish respondents. While there is a significant difference in responses between Indian ($M = 4.69$) and Polish ($M = 3.98$) consumers, with Indians demonstrating stronger agreement that companionship enhances retail loyalty, the findings do not fully support the hypothesis. Specifically, companionship did not significantly affect sticking to the same outlet or concentrating all category purchases there as expected. This suggests that while social shopping heightened repeat patronage intentions for Indians to some degree relative to Poles, companionship did not reliably drive exclusivity in behavioral loyalty as predicted. Therefore, H2b receives mixed support, as repurchase motivations were influenced by companionship for Indians over Poles but other proposed loyalty dimensions regarding store preference consistency or category-level spend focus did not follow the

expected pattern. To be more specific, there are differences between Indian and Polish consumers regarding the influence of companionship on behavioral intentions with fragrances in a retail environment. For "I would repurchase from this supermarket," 99.4% of Indian respondents agreed/strongly agreed compared to 90.7% of Polish respondents ($p < 0.001$, India $M = 4.69$; Poland $M = 3.98$). This shows a stronger intention to repurchase among Indian consumers. However, the results of the chi-square tests examining differences in loyalty intentions revealed some notable variations between the Polish and Indian consumers. For the statement "I would stick to this supermarket chain," 83.8% of Polish respondents have positive outcomes toward loyalty with agreed (27.2%)/strongly agreed (56.6%), whereas 97.3% of Indians have positive outcomes toward loyalty with agreed (77.3%)/strongly agreed (20%). While the Polish group had a higher percentage that strongly agreed, the Indian group had a larger percentage that just agreed, which led to an opposite effect to the hypothesized one ($p < 0.003$, India $M = 4.15$; Poland $M = 4.31$). And for "I would consider all purchases in a category from this supermarket," 22.6% of Indians agreed/strongly agreed compared to 43.4% of Polish respondents, again demonstrating stronger loyalty for Polish consumers ($p < 0.000$, India $M = 2.70$; Poland $M = 3.01$). So, while Indian consumers show a slightly higher intention to repurchase, Polish consumers exhibit stronger loyalty intentions to stick with the supermarket chain and conduct more of their category purchases there. This provides mixed results—the data supports the hypothesis for repurchase intentions but not for the other loyalty measures. Overall, there appears to be a differential effect of companionship on behavioral intentions between Indian and Polish consumers when exposed to retail fragrances. In summary, the data partially supports H2b, with

Indian consumers demonstrating a higher repurchase intention but Polish consumers, who showed greater values of other loyalty dimensions.

As for hypothesis H2c, the crosstab results provide support. There are apparent differences between Indian and Polish consumers regarding the influence of companionship on attitudinal responses to the retail outlet when exposed to fragrances. For "I would recommend this supermarket to others," 94.0% of Indian respondents agreed/strongly agreed compared to 82.5% of Polish respondents ($p < 0.013$, India $M = 4.21$; Poland $M = 4.06$). For "I have a strong preference for this supermarket," 92.0% of Indians agreed/strongly agreed versus 75.2% of Polish consumers ($p < 0.000$, India $M = 4.25$; Poland $M = 3.92$). And for "I have a strong bond with this supermarket", 86.3% of Indian respondents agreed/strongly agreed in contrast to 69.9% of Polish consumers ($p < 0.000$, India $M = 4.02$; Poland $M = 3.79$). In all three attitudinal measures, Indian consumers expressed much more positive perceptions and greater emotional affinity to the supermarket when considering the effects of shopping with companions in a scented environment. This provides clear evidence that companionship has a more favorable influence on attitudinal retail responses for Indian consumers than Polish consumers, consistent with hypothesis H2c. The definite differences between the two country groups' levels of agreement indicate that companionship impacts attitudinal retail perceptions differently for Indian and Polish consumers exposed to ambient scents.

As for hypothesis H3, as far as the Indian consumers are concerned, the evaluation of the environmental fragrance quality displayed a positive association with spending ($p < 0.033$, $\beta = 0.143$), as more pleasant scents boosted predicted expenditures (refer to Table 3). However, for Polish retail consumers, the data suggests that there is no statistically significant

Table 3 Regression analysis of consumers' money spent in the retail store

Hypotheses pathway to the money spending in retail outlet	St. Error	β coefficient	t-value	p value	Hypotheses test
<i>India</i>					
Environment in terms of ambient scent	177.717	0.143	2.139	0.033*	Supported
<i>Poland</i>					
Environment in terms of ambient scent	452.088	-.037	-0.579	0.563	Not supported

*Significant at the 0.05 level

impact of consumer rating of the ambient scent on the amount of money spent. Specifically, the analysis shows the relationship between Polish consumers' overall environmental views and their stance on fragrances is not statistically meaningful ($p=0.56$). The results diverge from findings for Indian consumers, where a statistically significant association was found between the evaluation of the ambient scent and spending.

Discussion

The cultural differences between India and Poland provide further insights into the varying impact of companionship and ambient scents on consumer behavior. Culturally, Indians strongly emphasize collectivism and preference for group decision-making (Hofstede 1984, 2001). As such, the presence of companions may not significantly alter individual attitudes, whereas social influence could substantially impact the more individualistic Polish consumers. Additionally, exposure to foreign retail concepts is relatively newer for Indians compared to the more European-influenced Polish consumers (Jeong et al. 2019). This means Indians may have more established preferences against solo shopping experiences that are less malleable to social and sensory cues in the store environment. Furthermore, scents may be a less novel tactic for value-conscious Indians accustomed to stimulating sales promotions. In contrast, Polish consumers unaccustomed to such olfactory marketing may be more susceptible to positive branding associations from fragrances when shopping socially (Carnevale et al. 2023).

Combined, these socio-cultural factors could explain why companionship and fragrances had less impact on Indian versus Polish cognitive perceptions, behaviors, and choices in retail settings, as hypothesized. This is consistent with the Stimulus-Organism-Response model (Mehrabian and Russell 1974), which provides a framework for understanding how environmental and individual assessments predict consumer responses. The findings also reveal that impulse purchases and sensitivity to atmospherics affect all consumers moderately, as observed in the studies by Leenders et al. (2019) and Elmaslhara and Soares (2022). However, the cultural differences between India and Poland emerge more nuancedly.

For instance, Indian consumers' more collectivistic and long-term orientation (Hofstede 1984) may make them less susceptible to impulse purchases, as they are more attuned to social norms and traditions. In contrast, individualistic Polish consumers may be more prone to impulse buying and responsive to sensory cues in the retail environment.

Additionally, the divergent impact of age on spending between Indian and Polish consumers can be attributed to the dissimilar population profiles and the varying role of age in the two societies (Correia et al. 2016; Boardman and McCormick 2023). While age negatively impacted spending for Indians adhering to elder respect, Polish consumers have aged amid mature market forces, lessening the age effects. These cultural variations highlight the need for region-specific validation of retail analytics across segmentally diverse trade areas to account for the idiosyncrasies in consumerism influenced by socioeconomic circumstances.

Theoretical contribution

This study makes several significant theoretical contributions. It is the first to investigate the impact of retail atmosphere on consumer behavior based on a cross-cultural comparison of the companionship effect. Findings demonstrate the effectiveness of fragrance, showing how ambient scents in stores improve attitudes and strengthen customer-brand bonds. This address calls to examine how altering a store's overall aroma influences behavior and performance related to time and money spent (Leenders et al. 2019). As retailers increasingly develop new technologies and experiences to enhance the customer journey, it grows more crucial to understand how the atmosphere shapes experiences. Any retailer can benefit significantly from atmospherics that enhance branding by comprehending the link between surroundings, brand image, and purchase outcomes. The study provides evidence of advantages when creating and leveraging atmospheric tools to influence attitudes and actions. The findings respond to challenges posed by Bagozzi (2000) and Verhoef et al. (2009) to deepen comprehension of retail shopping impacts in social settings. It specifically advances knowledge on shopping with partners by testing six hypotheses highlighting companions' value.

An essential contribution is demonstrating that solitary shoppers exhibit more price sensitivity than paired counterparts, as Wakefield and Inman (2003) and Jeong et al. (2019) noted. It also shows companionship improves emotional elements of shopping, particularly for attitudinal responses like recommendations and store bonding. This occurs by linking the atmosphere to a positive branded experience, enhanced when shopping socially. An alternative interpretation is that co-shoppers help co-create brand experiences through consumer-to-consumer connections, facilitating experiential value. Overall, the study makes critical theoretical advances in understanding how retail atmospherics and companionship synergistically influence cross-cultural consumer behavior, with implications for experiential retail design and marketing.

Managerial implications

This study first investigates how the ambient scent, as an atmospheric tool, influences companionship and affects cross-cultural consumer purchase behavior. The findings demonstrate fragrance's impact on in-store shopping, which encourages favorable opinions and strengthens the bond between customers and retailers. The influence of companionship in the two countries is considered as the study leads to several managerial recommendations. First, as the data suggests, Indian retail consumers are strongly influenced by companionship. Therefore, Indian retailers should focus more on sales promotions offering discounts for multiple customers. This could be achieved by ensuring customers shop with like-minded friends through targeted communication campaigns. Secondly, to provide more insightful purchasing advice to Indian retail consumers, employees should receive proper training, including workshops developing emotional intelligence. Role plays may be helpful here (Rocco and Whalen 2014). According to Ameen et al. (2022), the Polish counterpart could benefit from adding self-guided smart technologies, such as VR headsets and interactive devices, to enhance personal shopping experiences since companionship had less impact. Third, Polish customers may benefit slightly more from curated, personalized purchasing experiences than their Indian counterparts from ongoing social media engagement providing tailored content.

Fourth, fragrances that are consistent and compatible with the brand image should be more prominently displayed in women-only retail outlets (Errajaa et al. 2021), as women in both nations were more affected by fragrance than males. Showcasing trademark scents in print advertisements to female consumers and potential shoppers in Poland and India would also be a good idea. Finally, age seemed to have a differential impact on Indian versus Polish consumers. For the Indian retail market, targeting young shoppers, focusing on price bands and smart technologies like augmented reality smart glasses, and creating immersive experiences (Pfeifer et al. 2023) may work well. For the Polish counterpart, the traditional role of knowledgeable sales staff demonstrating empathy and helping reduce stress through decision support could enrich shopping satisfaction to the highest level (Wieseke et al. 2012; Lucia-Palacios et al. 2018). In summary, these tailored implications present practical opportunities for retailers to optimize their atmospherics and social factors according to cultural nuances in cross-border shopping behaviors.

Limitations and future scope of study

This study has several limitations. It focused on consumers from India and Poland in the context of cross-cultural companionship and existing fragrances in retail stores, limiting generalizability. Appropriately extending the research for the same two countries using an experimental group-control group setup could verify the results. Secondly, the study focused mainly on shoppers aged 20–38. An area for future research would be collecting data from older shoppers, who may not be as active or engaged with companions and have distinct preferences considering companionship and technology during shopping (Ameen and Anand 2020). Additionally, this study used a cross-sectional design, collecting data at a single point in time. With technology expected to play an increasingly more significant role, additional longitudinal research could collect data at different times to examine the involvement of other atmospheric elements over time. Finally, it is also to be noted that the results are reflections of self-reported data rather than observing actual behavioral patterns of the shoppers across both nations.

In summary, generalizability remains limited, pending replications using experimental designs

across demographic groups and retail contexts over time, as technologies continue evolving shopping atmospheres and experiences. Expanding the research scope would strengthen the understanding of companionship's role across cultures.

Funding This study is funded by the NAWA PROM (Poland) Mobility 2023 International Mobility Grant for International-Doctoral Students - Agreement No. 70/W/PROM/2023. Recipient - Shuvam Chatterjee.

Declarations

Conflict of interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent Participants gave informed consent via the statement "I am aware that my responses are confidential, and I agree to participate in this survey" where an affirmative reply was required to finish the survey. They were able to withdraw from the survey at any time without giving a reason.

Research involving human participants and or animals The study complies with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. No animals were involved for this study.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Ajzen I (1991) The theory of planned behavior. *Organ Behav Hum Decis Process* 50(2):179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen I (2001) Nature and operation of attitudes. *Annu Rev Psychol* 52(1):27–58. <https://doi.org/10.1146/annurev.psych.52.1.27>
- Ameen N, Anand A (2020) Generation Z in the United Arab Emirates: a smart-tech driven iGeneration. In: Gentina E, Parry E (eds) *The new generation z in asia: dynamics, differences, digitalisation (the changing context of managing people)*. Emerald Publishing Limited, Bingley, pp 181–192. <https://doi.org/10.1108/978-1-80043-220-820201018>
- Ameen N, Hosany S, Paul J (2022) The personalisation-privacy paradox: consumer interaction with smart technologies and shopping mall loyalty. *Comput Hum Behav* 126:106976. <https://doi.org/10.1016/j.chb.2021.106976>
- Babin BJ, Attaway JS (2000) Atmospheric affect as a tool for creating value and gaining share of customer. *J Bus Res* 49(2):91–99. [https://doi.org/10.1016/S0148-2963\(99\)00011-9](https://doi.org/10.1016/S0148-2963(99)00011-9)
- Bagozzi RP (2000) On the concept of intentional social action in consumer behavior. *J Consum Res* 27(3):388–396. <https://doi.org/10.1086/317593>
- Baker J, Parasuraman A, Grewal D, Voss GB (2002) The influence of multiple store environment cues on perceived merchandise value and patronage intentions. *J Mark* 66(2):120–141. <https://doi.org/10.1509/jmkg.66.2.120.18470>
- Baraban RS, Durocher JF (2010) *Successful restaurant design*. Wiley, New York
- Baskentli S, Hadi R, Lee L (2023) How culture shapes consumer responses to anthropomorphic products. *Int J Res Mark*. <https://doi.org/10.1016/j.ijresmar.2023.06.005>
- Berki-Kiss D, Menrad K (2022) The role emotions play in consumer intentions to make pro-social purchases in Germany—an augmented theory of planned behavior model. *Sustain Prod Consum* 29:79–89. <https://doi.org/10.1016/j.spc.2021.09.026>
- Boardman R, McCormick H (2023) Exploring how different ages of consumers shop on women's fashion retail websites. *Int J Hum Comput Stud* 177:103064. <https://doi.org/10.1016/j.ijhcs.2023.103064>
- Borges A, Chebat JC, Babin BJ (2010) Does a companion always enhance the shopping experience? *J Retail Consum Serv* 17(4):294–299. <https://doi.org/10.1016/j.jretconser.2010.02.007>
- Bradford KD, Desrochers DM (2009) The use of scents to influence consumers: the sense of using scents to make cents. *J Bus Ethics* 90:141–153. <https://doi.org/10.1007/s10551-010-0377-5>
- Carman JM (1970) Correlates of brand loyalty: some positive results. *J Mark Res* 7(1):67–76. <https://doi.org/10.1177/002224377000700108>
- Carnevale M, Hadi R, Luna D, Pogacar R (2023) Follow your nose when it sounds right: how brand names influence consumer responses to product scents. *J Bus Res* 157:113578. <https://doi.org/10.1016/j.jbusres.2022.113578>
- Chatterjee (2017) Brand loyalty on the basis of olfactory techniques using discriminant analysis: a case of cafe coffee day store in Kolkata, India. *Acad Market Stud J* 21(1):41–46
- Chatterjee S, Kundu A (2020) Sub-conscious decision mapping and network framework for retail market consumption. *Indian J Mark* 50(2):35–51. <https://doi.org/10.17010/ijom/2020/v50/i2/150440>
- Chatterjee S, Bryla P (2023) Mapping consumers' semi-conscious decisions with the use of ZMET in a retail market setup. *Decision* 50(2):221–232. <https://doi.org/10.1007/s40622-023-00350-3>

- Chatzoglou P, Chatzoudes D, Savvidou A, Fotiadis T, Delias P (2022) Factors affecting repurchase intentions in retail shopping: an empirical study. *Heliyon*. <https://doi.org/10.1016/j.heliyon.2022.e10619>
- Chebat JC, Morrin M, Chebat D-R (2009) Does age attenuate the impact of pleasant ambient scent on consumer response? *Environ Behav* 41(2):258–267. <https://doi.org/10.1177/0013916507311792>
- Chrea C, Valentin D, Sulmont-Rossé C, Nguyen DH, Abdi H (2005) Semantic, typicality and odor representation: a cross-cultural study. *Chem Senses* 30(1):37–49. <https://doi.org/10.1093/chemse/bjh255>
- Correia C, Lopez KJ, Wroblewski KE, Huisinigh-Scheetz M, Kern DW, Chen RC (2016) Global sensory impairment in older adults in the United States. *J Am Geriatr Soc* 64(2):306–313. <https://doi.org/10.1111/jgs.13955>
- Diallo MF, Seck AM (2018) How store service quality affects attitude toward store brands in emerging countries: effects of brand cues and the cultural context. *J Bus Res* 86:311–320. <https://doi.org/10.1016/j.jbusres.2017.08.017>
- Dick AS, Basu K (1994) Customer loyalty: toward an integrated conceptual framework. *J Acad Mark Sci* 22:99–113. <https://doi.org/10.1177/0092070394222001>
- Donovan RJ, Rossiter JR, Marcoolyn G, Nesdale A (1994) Store atmosphere and purchasing behavior. *J Retail* 70(3):283–294. [https://doi.org/10.1016/0022-4359\(94\)90037-X](https://doi.org/10.1016/0022-4359(94)90037-X)
- Doty RL, Kamath V (2014) The influences of age on olfaction: a review. *Front Psychol* 5:20. <https://doi.org/10.3389/fpsyg.2014.00020>
- Doucé L, Adams C (2020) Sensory overload in a shopping environment: not every sensory modality leads to too much stimulation. *J Retail Consum Serv* 57:102154. <https://doi.org/10.1016/j.jretconser.2020.102154>
- Doucé L, Janssens W (2013) The presence of a pleasant ambient scent in a fashion store: the moderating role of shopping motivation and affect intensity. *Environ Behav* 45(2):215–238. <https://doi.org/10.1177/0013916511410421>
- Doucé L, Poels K, Janssens W, De Backer C (2013) Smelling the books: the effect of chocolate scent on purchase-related behavior in a bookstore. *J Environ Psychol* 36:65–69. <https://doi.org/10.1016/j.jenvp.2013.07.006>
- Elder RS, Krishna A (2012) The “visual depiction effect” in advertising: facilitating embodied mental simulation through product orientation. *J Consum Res* 38(6):988–1003. <https://doi.org/10.1086/661531>
- Elhajjar S (2023) Factors influencing buying behavior of Lebanese consumers towards fashion brands during economic crisis: a qualitative study. *J Retail Consum Serv* 71:103224. <https://doi.org/10.1016/j.jretconser.2022.103224>
- Elmashhara MG, Soares AM (2022) Linking atmospherics to shopping outcomes: the role of the desire to stay. *J Retail Consum Serv* 64:102744. <https://doi.org/10.1016/j.jretconser.2021.102744>
- Errajaa K, Legohérel P, Daucé B, Bilgihan A (2021) Scent marketing: linking the scent congruence with brand image. *Int J Contemp Hosp Manag* 33(2):402–427. <https://doi.org/10.1108/IJCHM-06-2020-0637>
- Girard A, Sarstedt M, Lichters M (2019) Ambient scent's effects in sensory service marketing: an abstract. In: Finding new ways to engage and satisfy global customers: proceedings of the 2018 academy of marketing science (AMS) world marketing congress (WMC) 21. Springer, pp 583–584. https://doi.org/10.1007/978-3-030-02568-7_157
- Guéguen N, Petr C (2006) Odors and consumer behavior in a restaurant. *Int J Hosp Manag* 25(2):335–339. <https://doi.org/10.1108/IJCHM-06-2020-0637>
- Gui DY, Liu S, Dai Y, Liu Y, Wang X, Huang H (2021) Greater patience and monetary expenditure: how shopping with companions influences purchase decisions. *J Retail Consum Serv* 63:102665. <https://doi.org/10.1016/j.jretconser.2021.102665>
- Gulas CS, Bloch PH (1995) Right under our noses: ambient scent and consumer responses. *J Bus Psychol* 10:87–98. <https://doi.org/10.1007/BF02249272>
- Hair JF Jr, Hult GTM, Ringle C, Sarstedt M (2017) A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publications, London
- Hair JF, Risher JJ, Sarstedt M, Ringle CM (2019) When to use and how to report the results of PLS-SEM. *Eur Bus Rev* 31(1):2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Helmefalk M, Hultén B (2017) Multi-sensory congruent cues in designing retail store atmosphere: effects on shoppers' emotions and purchase behavior. *J Retail Consum Serv* 38:1–11. <https://doi.org/10.1016/j.jretconser.2017.04.007>
- Herrmann A, Zidansek M, Sprott DE, Spangenberg ER (2013) The power of simplicity: processing fluency and the effects of olfactory cues on retail sales. *J Retail* 89(1):30–43. <https://doi.org/10.1016/j.jretai.2012.08.002>
- Hirpara S, Parikh PJ (2021) Retail facility layout considering shopper path. *Comput Ind Eng* 154:106919. <https://doi.org/10.1016/j.cie.2020.106919>
- Hofstede G (1984) Culture's consequences: International differences in work-related values, vol 5. Sage, London
- Hofstede G (2001) Culture's consequences: comparing values, behaviors, institutions and organizations across nations. Sage
- Hulland J (1999) Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strateg Manag J* 20(2):195–204. [https://doi.org/10.1002/\(SICI\)1097-0266\(199902\)20:2%3c195::AID-SMJ13%3e3.0.CO;2-7](https://doi.org/10.1002/(SICI)1097-0266(199902)20:2%3c195::AID-SMJ13%3e3.0.CO;2-7)
- Jacob C, Stefan J, Guéguen N (2014) Ambient scent and consumer behavior: a field study in a florist's retail shop. *Int Rev Retail Distrib Consum Res* 24(1):116–120. <https://doi.org/10.1080/09593969.2013.821418>
- Jeong JY, Crompton JL, Hyun SS (2019) What makes you select a higher price option? Price–quality heuristics, cultures, and travel group compositions. *Int J Tour Res* 21(1):1–10. <https://doi.org/10.1002/jtr.2236>
- Knasko SC (1995) Pleasant odors and congruency: effects on approach behavior. *Chem Senses* 20(5):479–487. <https://doi.org/10.1093/chemse/20.5.479>
- Kotler P (1973) Atmospherics as a marketing tool. *J Retail* 49(4):48–64
- Krishna A, Lwin MO, Morrin M (2010) Product scent and memory. *J Consum Res* 37(1):57–67. <https://doi.org/10.1086/649909>

- Labrecque LI, Milne GR (2012) Exciting red and competent blue: the importance of color in marketing. *J Acad Mark Sci* 40(5):711–727. <https://doi.org/10.1007/s11747-010-0245-y>
- Leenders MA, Smidts A, El Haji A (2019) Ambient scent as a mood inducer in supermarkets: the role of scent intensity and time-pressure of shoppers. *J Retail Consum Serv* 48:270–280. <https://doi.org/10.1016/j.jretconser.2016.05.007>
- Lehrner J, Marwinski G, Lehr S, Jöhren P, Deecke L (2005) Ambient odors of orange and lavender reduce anxiety and improve mood in a dental office. *Physiol Behav* 86(1–2):92–95. <https://doi.org/10.1016/j.physbeh.2005.06.031>
- Lucia-Palacios L, Pérez-López R, Polo-Redondo Y (2018) Can social support alleviate stress while shopping in crowded retail environments? *J Bus Res* 90:141–150. <https://doi.org/10.1016/j.jbusres.2018.05.018>
- Lwin MO, Morrin M (2012) Scenting movie theatre commercials: the impact of scent and pictures on brand evaluations and ad recall. *J Consum Behav* 11(3):264–272. <https://doi.org/10.1002/cb.1368>
- MacKenzie SB, Podsakoff PM, Podsakoff NP (2011) Construct measurement and validation procedures in MIS and behavioral research: integrating new and existing techniques. *MIS Q* 35(2):293–334. <https://doi.org/10.2307/23044045>
- Martínez LM, Rando B, Agante L, Abreu AM (2021) True colors: consumers' packaging choices depend on the color of retail environment. *J Retail Consum Serv* 59:102372. <https://doi.org/10.1016/j.jretconser.2020.102372>
- McDonnell J (2007) Music, scent and time preferences for waiting lines. *Int J Bank Mark* 25(4):223–237. <https://doi.org/10.1108/02652320710754015>
- Mehrabian A, Russell JA (1974) An approach to environmental psychology. The MIT Press, New York
- Merrilees B, Miller D (2019) Companion shopping: the influence on mall brand experiences. *Mark Intell Plan* 37(4):465–478. <https://doi.org/10.1108/MIP-08-2018-0340>
- Michon R, Chebat JC, Turley LW (2005) Mall atmospherics: the interaction effects of the mall environment on shopping behavior. *J Bus Res* 58(5):576–583. <https://doi.org/10.1016/j.jbusres.2003.07.004>
- Mora JD, González EM (2016) Do companions really enhance shopping? Assessing social lift over forms of shopper value in Mexico. *J Retail Consum Serv* 28:228–239. <https://doi.org/10.1016/j.jretconser.2015.10.004>
- Morrin M, Ratneshwar S (2000) The impact of ambient scent on evaluation, attention, and memory for familiar and unfamiliar brands. *J Bus Res* 49(2):157–165. [https://doi.org/10.1016/S0148-2963\(99\)00006-5](https://doi.org/10.1016/S0148-2963(99)00006-5)
- Morrison M, Gan S, Dubelaar C, Oppewal H (2011) In-store music and aroma influences on shopper behavior and satisfaction. *J Bus Res* 64(6):558–564. <https://doi.org/10.1016/j.jbusres.2010.06.006>
- Naja M, Zaichkowsky JL, Dykstra A, Brée J (2015) Investigating the use of scent in a medical service environment. In *Ideas in marketing: finding the new and polishing the old: proceedings of the 2013 academy of marketing science (AMS) annual conference*. Springer, pp 615–616. https://doi.org/10.1007/978-3-319-10951-0_225
- Parsons A, Conroy D (2006) Sensory stimuli and e-tailers. *J Consum Behav Int Res Rev* 5(1):69–81. <https://doi.org/10.1002/cb.32>
- Peterson RA, Kim Y (2013) On the relationship between coefficient alpha and composite reliability. *J Appl Psychol* 98(1):194–198. <https://doi.org/10.1037/a0030767>
- Pfeifer P, Hilken T, Heller J, Alimamy S, Di Palma R (2023) More than meets the eye: In-store retail experiences with augmented reality smart glasses. *Comput Hum Behav* 146:107816. <https://doi.org/10.1016/j.chb.2023.107816>
- Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 88(5):879. <https://doi.org/10.1037/0021-9010.88.5.879>
- Poon T, Grohmann B (2014) Spatial density and ambient scent: effects on consumer anxiety. *Am J Bus* 29(1):76–94. <https://doi.org/10.1108/AJB-05-2013-0027>
- Rayburn SW, Voss KE (2013) A model of consumer's retail atmosphere perceptions. *J Retail Consum Serv* 20(4):400–407. <https://doi.org/10.1016/j.jretconser.2013.01.012>
- Rieunier S (2000) L'influence de la musique d'ambiance sur le comportement des consommateurs sur le lieu de vente. Doctoral dissertation, Paris 9
- Rit MP, Croijmans I, Speed LJ (2019) High-tempo and stinky: high arousal sound–odor congruence affects product memory. *Multisensory Res* 32(4–5):347–366. <https://doi.org/10.1163/22134808-20191410>
- Rocco RA, Whalen DJ (2014) Teaching yes, and... improv in sales classes: Enhancing student adaptiveselling skills, sales performance, and teaching evaluations. *J Mark Educ* 36(2), 197–208. <https://doi.org/10.1177/0273475314537278>
- Rosenbaum MS, Kelleher C, Friman M, Kristensson P, Scherer A (2017) Replacing place in marketing: a resource-exchange place perspective. *J Bus Res* 79:281–289. <https://doi.org/10.1016/j.jbusres.2017.01.009>
- Schifferstein HN, Talke KS, Oudshoorn DJ (2011) Can ambient scent enhance the nightlife experience? *Chemosens Percept* 4:55–64. <https://doi.org/10.1007/s12078-011-9088-2>
- Schwartz SH (2012) An overview of the Schwartz theory of basic values. *Online Read Psychol Cult* 2(1):11. <https://doi.org/10.9707/2307-0919.1116>
- Solgaard HS, Yang Y, Nguyen TT (2023) An investigation of consumers' preference and willingness to pay for fish welfare in Denmark: a discrete choice modeling approach. *Aquaculture* 574:739652. <https://doi.org/10.1016/j.aquaculture.2023.739652>
- Spangenberg ER, Grohmann B, Sprott DE (2005) It's beginning to smell (and sound) a lot like Christmas: the interactive effects of ambient scent and music in a retail setting. *J Bus Res* 58(11):1583–1589. <https://doi.org/10.1016/j.jbusres.2004.09.005>
- Teller C, Dennis C (2012) The effect of ambient scent on consumers' perception, emotions and behaviour: a critical review. *J Mark Manag* 28(1–2):14–36. <https://doi.org/10.1080/0267257X.2011.560719>
- Thomas T, Carraher EC (2014) A retail perspective on the shopping behavior, cultures and personalities for China, United Arab Emirates, Belgium, India, Germany and

- America. *J Technol Manag China* 9(3):289–296. <https://doi.org/10.1108/JTMC-08-2014-0050>
- Turley LW, Chebat JC (2002) Linking retail strategy, atmospheric design and shopping behaviour. *J Mark Manag* 18(1–2):125–144. <https://doi.org/10.1362/0267257022775891>
- Verhoef PC, Lemon KN, Parasuraman A, Roggeveen A, Tsiros M, Schlesinger LA (2009) Customer experience creation: determinants, dynamics and management strategies. *J Retail* 85(1):31–41. <https://doi.org/10.1016/j.jretai.2008.11.001>
- Wakefield KL, Inman JJ (2003) Situational price sensitivity: the role of consumption occasion, social context and income. *J Retail* 79(4):199–212. <https://doi.org/10.1016/j.jretai.2003.09.004>
- Watson GF, Beck JT, Henderson CM, Palmatier RW (2015) Building, measuring, and profiting from customer loyalty. *J Acad Mark Sci* 43:790–825. <https://doi.org/10.1007/s11747-015-0439-4>
- Wenzel S, Benkenstein M (2018) Together always better? The impact of shopping companions and shopping motivation on adolescents' shopping experience. *J Retail Consum Serv* 44:118–126. <https://doi.org/10.1016/j.jretconser.2018.06.001>
- Wieseke J, Geigenmüller A, Kraus F (2012) On the role of empathy in customer-employee interactions. *J Serv Res* 15(3):316–331. <https://doi.org/10.1177/1094670512439743>
- Wilson S (2003) The effect of music on perceived atmosphere and purchase intentions in a restaurant. *Psychol Music* 31(1):93–112. <https://doi.org/10.1177/0305735603031001327>
- Xiao J, Tait M, Kang J (2020) Understanding smellscapes: Sense-making of smell-triggered emotions in place. *Emot Space Soc* 37:100710. <https://doi.org/10.1016/j.emospa.2020.100710>
- Zemke DM, Shoemaker S (2008) A sociable atmosphere: ambient scent's effect on social interaction. *Cornell Hosp Q* 49(3):317–329. <https://doi.org/10.1177/1938965508320626>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Article 4

Chatterjee S., Bryla P., Effects of in-store fragrance as a cognitive innovation on loyalty building behaviour, *International Journal of Business Innovation and Research*, in press, <http://dx.doi.org/10.1504/IJBIR.2023.1005838>

6. 40 points.

Effects of in-store fragrance as a cognitive innovation on loyalty building behaviour

Shuvam Chatterjee*

Doctoral School of Social Science,
University of Lodz,
ul. Narutowicza 68, 90-136 Łódź, Poland
Email: shuvam.chatterjee@edu.uni.lodz.pl
*Corresponding author

Pawel Bryla

Faculty of International & Political Studies,
University of Lodz, Poland
Email: pawel.bryla@uni.lodz.pl

Abstract: The essence of marketing today for retail consumers is to produce a favourable sensory brand experience to gain competitive visibility. Studies have explored the effect of fragrance; however, little has been talked about its impact on consumer brand loyalty under a retail setup. The study considers responses from 250 consumers understanding the nature of brand loyalty consumers form under the influence of fragrance. Confirmatory factor analysis was performed which was further verified with cluster analysis to understand the categorisation of brand loyalty. The findings reveal that fragrance has an impact on brand loyalty inside a retail store setup on all three categories of attitudinal, behavioural, and cognitive loyalty attributes and loyalty consists of the three categories as confirmed by the CFA and cluster analysis. The study will assist marketers in understanding the impact of olfactory marketing in increasing short-term and long-term retail sales and determines future research directions.

Keywords: olfactory cues; store loyalty; retail consumption; consumer behaviour; confirmatory factor analysis.

Reference to this paper should be made as follows: Chatterjee, S. and Bryla, P. (xxxx) 'Effects of in-store fragrance as a cognitive innovation on loyalty building behaviour', *Int. J. Business Innovation and Research*, Vol. X, No. Y, pp.xxx–xxx.

Biographical notes: Shuvam Chatterjee had completed his MBA from India and worked in academics full time for the last 12 years as an Assistant Professor in Marketing. Currently, he is a full time doctoral student with the Doctoral School of Social Science, University of Lodz, Poland. He has several publications with Scopus indexed and ABDC listed journals. His area of interest is mainly olfactory marketing.

Pawel Bryla is an Associate Professor at the Department of International Marketing and Retailing, Faculty of International and Political Studies, University of Lodz, Poland. His research interests revolve around consumer behaviour in the food market and food marketing as well as international student mobility. He has authored over 120 publications, including books and

articles in high-impact journals. In Google Scholar, he has 1,478 citations, with the Hirsch index of 19. He is an editorial board member of international journals, including *European Journal of International Management*, *Central European Management Journal*, *Foods*, *Sustainability* and *Economia Agro-Alimentare*.

This paper is a revised and expanded version of a paper entitled ‘The impact of fragrance on store brand loyalty’ presented at FedCSIS 2022 17th Conference on Computer Science and Intelligent Systems, Sofia Bulgaria, 4–7 September 2022.

1 Introduction

In an ever-growing retail competitive business, brands face a tough time coming out with innovative concepts where they could offer memorable shopping experiences to their consumers to differentiate and create a niche position (Berry et al., 2002). Markovic et al. (2018) observed this tussle to be more predominant in the services sector because of the intangible and other characteristics of services (Zeithaml et al., 1985). Grönroos (2006) spoke about the numerous touchpoints that exist in the services sector which are to be looked after to create unique customer satisfaction and enhanced brand-customer relationships. Retail service marketing practitioners are taking an increasing interest to create a sensory brand experience to influence consumer brand loyalty (Iglesias et al., 2019), especially keeping in mind olfactory congruency with the brand (Errajaa et al., 2020). Several business houses have adopted fragrance as a tool to enhance consumer satisfaction inside retail chains. Westin group of hotels uses ‘white tea’ fragrance (Chatterjee, 2015) and Hugo Boss uses an olfactory fragrance named ‘rich tamboti wood scent’ according to Elejalde-Ruiz (2014) to create a rich meaningful experience for their consumers.

Retail customers regularly look for stores that will make them feel good and make their shopping experience joyful, which will turn buying into a leisure activity. Thus, the retail outlet’s store environment has the power to influence customers’ emotions as well as their cognition in building consistent loyalty towards the store.

Although cognitive reasons may account for most planned purchases and store selections, according to research by Sherman et al. (1997), the environment of the store and customers’ emotional states may play a significant role in influencing purchase behaviour and building consistent loyalty for the store. The study thus confirmed that merchants should pay attention to customers’ in-store emotional states, which combine pleasure and arousal because customers’ emotions have a significant role in their purchasing decisions and long-term commitments to the store.

Despite the abundance of studies on store atmosphere, there is a dearth of empirical research that particularly examines the impact of fragrance on consumer emotions and behaviours that support the development of store brand loyalty. With this gap in mind, the study examines how loyalty intentions toward the retail store are influenced by smell, one of the atmospheric components. Our study has the following objectives:

- 1 To understand if consumers tend to develop store loyalty under the influence of fragrance.

- 2 To investigate the impact of fragrance on building attitudinal, behavioural, and cognitive loyalty drivers in a retail setup.

The remainder of the paper's flow is as follows. The theoretical context is addressed in Section 2. The objectives are introduced, and the hypotheses are developed in Section 3. Section 4 presents the methodology and analysis of the study. The outcomes are shown in Section 5. The investigation of the study's limits and potential future research directions concludes in Section 6.

2 Theoretical background

Researchers have been consistently studying the impact of olfactory cues on consumers for the last 30 years (Chatterjee and Bryla, 2022). A systematic meta-analysis of the same was performed by Roschk et al. (2017) along with several studies that tried to understand the impact of fragrance on consumers' purchasing behaviour (Herz, 2009; Kivioja, 2017; Spangenberg et al., 2006). Doucé and Janssens (2013) study demonstrates the effect of the presence vs. absence of fragrance on consumer decision-making. Several studies have also been conducted on understanding the olfactory congruence with the product (Doucé et al., 2013), with music (Spangenberg et al., 2006), and gender as well (Doty and Cameron, 2009). Maille (2001) discussed how fragrance is associated with memory recognition boosting higher appreciation by consumers if it is found to be pleasant, thus contributing to people's well-being (Herz, 2009) thereby immediately impacting their mood (Gilbert, 2008). Herz (2016) discusses how fragrance induces positive memories, thereby ensuring brand recall, which is one of the key factors for marketers in tuning their strategies. Helmfalk and Hultén (2017) explain how fragrance, when mixed with other environmental cues, creates pleasure for the consumers and contributes to a positive evaluation of the environment and ambiance (Bouzaabia, 2014), time spent (Guéguen and Petr, 2006) and spending (Herrmann et al., 2013). Ardelet et al. (2022) focused on how ambient fragrance initiates positive attitudes toward co-sharing workspaces. However, Lunardo (2012) discussed the negative impact of fragrances on the consumer being cynical about the retailer's intentions.

2.1 Store atmospheric and consumer behaviour

There has been a lot of buzz in the consumer behaviour literature understanding the role of store atmospherics contributing to consumer responses further involving brand loyalty. Past studies (Krasnikolakis et al., 2018) suggested that service firms showcasing some forms of atmospheric cues are dominant in securing a retail space attachment which contributes to favourable consumer behaviour. Chebat and Michon (2003) suggested how ambient fragrance used as a store atmospheric tool affects the perception of consumers directly promoting mood which reflects in the approach-avoidance behaviour of consumers (Krey et al., 2022). Chebat et al. (2001) discussed how ambient music appeals to the in-store environment creating a niche in the overall shopping experience and perception (Wen et al., 2020) of consumers resulting in consumer satisfaction (Morrison et al., 2011). Vilnai-Yavetz et al. (2021) study suggests how in-store retail atmospherics influence consumer spending and induce loyalty intentions as well. Muhammad et al. (2014) emphasised that store retailers should give more time to uplifting the emotional

state of retail consumers, which contributes to developing favourable brand associations. Baek et al. (2018) suggest how a visual representation inside the store in the form of design contributed to engaging consumers' attention.

2.2 *Brand loyalty*

Hwang et al. (2021) demonstrated that consumers' perceived quality of the service experience along with satisfaction contribute to brand loyalty. Paramita et al. (2021) further suggest how consumers' motive to understand the perceived benefits of the brand contributes to building long-term relationships. The study is supported by Cheung et al. (2021) research suggesting more consumer-to-consumer engagement supports behavioural engagement with the brand contributing to repurchase intentions and forming a deeper brand attachment (Li et al., 2020), thus contributing to building consistent brand loyalty.

Although olfactory congruence and fragrance influence have been discussed in several studies before, very few have talked about brand loyalty and the influence of olfactory cues on forming brand loyalty (Errajaa et al., 2020). This research has studied the impact fragrance has on the various characterisations of brand loyalty in the form of attitudinal loyalty (Butcher et al., 2001; Javalgi and Moberg, 1997; Mitra and Lynch, 1995; Fournier, 1998), behavioural loyalty (Jones et al., 2000; Bansal and Taylor, 1999; Dabholkar and Walls, 1999; Reynolds and Beatty, 1999; Reynolds and Arnold, 2000) and cognitive loyalty (Dwyer et al., 1987; Ostrowski et al., 1993; Anderson, 1996; De Ruyter et al., 1998; Gremler and Brown, 1996). From the above literature, ideally, store brand loyalty falls into three categories, namely attitudinal, behavioural and cognitive states.

3 **Hypotheses framed for the study**

Oliver (1999) discussed a retailer's loyalty to be having consistency in purchasing from a specific retail store. Previous studies have put across strong evidence of retail store loyalty based on store atmospherics (Babin and Attaway, 2000), and store service quality (Wolfenbarger and Gilly, 2003). Blut et al. (2018) discussed the choice of store to be a single-time decision in building retail store preference. Watson et al. (2015) study analysed the various loyalty components mainly in the form of attitudinal and behavioural loyalty and affective or cognitive drivers that would play a significant role in consumers' decision-making.

Dick and Basu (1994) also discussed that on several occasions the loyalty that consumers feel towards their store might be suppressed as a hidden latent loyalty which might affect their decision-making for them as well. This in tune suggests more prominent cognitive drivers that affect the consumer's decision making having a strong brand preference or building a strong position in their minds about that retail outlet.

Retailer loyalty involves cognitive, behavioural, and attitudinal components, according to a distinction frequently made in the research on loyalty (Kumar et al., 2013; Watson et al., 2015).

According to Dick and Basu (1994), the constructs for loyalty could be divided into the attitudinal components comprised of recommendations and strong preferences.

Hedigan et al. (2023) study suggests fragrance therapy inside and outside clinical trials clearly reduces stress and anxiety amongst the target audience. Herz (2016) study

demonstrated that happy memories and associations evoked by odours can improve mood, health, and wellness (Dyer et al., 2014), which would contribute in loyalty towards a retail shopping store. In a behavioural observation experiment, done by Ba et al. (2020), respondents – mostly pedestrians – responded by staying for longer periods of time while under the impact of aroma.

Attitudinal loyalty is closer to an individual's values and preferences, such as endorsing a specific retailer or having a strong preference for a retailer.

Based on the above discussion, the first hypothesis was formulated:

- 1 Fragrance inside a retail store contributes to developing store brand loyalty.
 - a Fragrance inside a retail store contributes to developing attitudinal loyalty (recommending the store to others; strong preference for the retail store; having a bonding/association with the retail store).

The behavioural component consists of consumers' re-purchase and re-visit intentions, such as consumer intentions to make another purchase from or visit a retail location, which can reveal automatic and/or habitual decision-making that occurs without the emotions that are frequently connected to attitudinal loyalty (Liu-Thompkins and Tam, 2013).

Accordingly, the second hypothesis was framed.

- b Fragrance inside a retail store contributes to developing behavioural loyalty (consumer re-purchase; consumer re-visit intentions).

According to Simonson et al. (2001) and Dick and Basu (1994), cognitive drivers are 'cold' aspects of the retail experience that influence customer loyalty through a deliberate, cognitive evaluation process, for example, a retail store having a strong position in a retail consumer's mind or being the first preference for the retail consumer.

Finally, the third hypothesis was framed considering the above discussions.

- c Fragrance inside a retail store contributes to developing cognitive loyalty (strong position in mind; first preference choice; exclusivity; lower concern about price fluctuation).

4 Methodology

4.1 Data collection

The concerned study was carried out in Kolkata city covering the widespread age distribution of the respondents to have a balance on the responses received. The sampling unit was residents of Kolkata city. The questionnaire thus prepared was administered to 300 respondents, out of which 283 were returned. However, 33 responses were incomplete and got rejected. Finally, 250 responses were selected for further analysis. The researchers ensured that the respondents have a basic understanding of experiential marketing by having a pre-conversation before distributing the survey questionnaire. The method involved distributing the questionnaire to the respondents who filled it in (in most cases asked the researcher to tick as directed by them) and returned it to the researcher.

4.2 Data analysis and findings

The study conducted Cronbach's alpha to understand the reliability of the ten items in the questionnaire for understanding the loyalty of the consumers within a specific retail outlet. The scale reliability measure came out to be 0.74 ensuring that the instrument is reliable.

4.3 Brand loyalty characterisation – factor analysis

Ten variables were selected under the macro-level brand loyalty characterisation; these variables are prima facie suspected to have three categories viz. behavioural, attitudinal, and cognitive as hypothesised, derived from Research objective 2.

We performed confirmatory factor analysis, the results of which is provided in Table 1.

Table 1 Factor analysis: Dcl_1_Revst_Stre, Dcl_2_Stck_To_Stre, Dcl_3_Cons_Purch_Part_Catg_Stor, Dcl_4_Reco_Stre, Dcl_5_Strng_Pref_Store, Dcl_6_Strng_Bondg_Store, Dcl_7_Strng_Postn_N_Mnd_Store, Dcl_8_Frst_Pref_Purchse_Store, Dcl_9_Ls_Bother_Prce_Fluc_Store, Dcl_10_Exclus_Purchse_Store

<i>Maximum likelihood factor analysis of the correlation matrix</i>				
<i>Unrotated factor loadings and communalities</i>				
<i>Variables</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Communalities</i>
Dcl_1_Revst_Stre	0.860	0.300	-0.114	0.843
Dcl_2_Stck_To_Stre	0.713	-0.323	-0.198	0.652
Dcl_3_Cons_Purch_Part_Catg_Stor	0.247	-0.231	-0.187	0.149
Dcl_4_Reco_Stre	0.670	0.239	0.001	0.506
Dcl_5_Strng_Pref_Store	0.660	-0.233	0.224	0.541
Dcl_6_Strng_Bondg_Store	0.241	-0.441	0.517	0.520
Dcl_7_Strng_Postn_N_Mnd_Store	0.354	-0.099	0.640	0.544
Dcl_8_Frst_Pref_Purchse_Store	0.314	-0.459	0.110	0.321
Dcl_9_Ls_Bother_Prce_Fluc_Store	0.093	-0.465	0.201	0.265
Dcl_10_Exclus_Purchse_Store	0.072	-0.874	-0.199	0.809
Variance	2.4907	1.7553	0.9061	5.1517
% var.	0.249	0.176	0.091	0.515

In Table 1, factors are not categorically distinguishing the loading of variables on factors. Hence, we proceeded with rotation using the varimax algorithm.

From Table 2, it is observed that Dcl_3 is an unimportant variable with a lower correlation coefficient in all three factors.

As hypothesised, Dcl_1 and Dcl_2 belong to the part of behavioural loyalty. However, Dcl_4 has been included in the behavioural factor contrary to the hypothesis to be included under the attitudinal factor.

Cognitive factors included Dcl_8, 9, and 10 and could not accommodate Dcl_7 (which is posted to the attitude factor). Dcl_2 has an overlap with behavioural and

cognitive; but as it has got more proximity towards behaviour, hence put under behaviour.

Table 2 Factor analysis: Dcl_1_Revst_Stre, Dcl_2_Stck_To_Stre, Dcl_3_Cons_Purch_Part_Catg_Stor, Dcl_4_Reco_Stre, Dcl_5_Strng_Pref_Store, Dcl_6_Strng_Bondg_Store, Dcl_7_Strng_Postn_N_Mnd_Store, Dcl_8_Frst_Pref_Purchase_Store, Dcl_9_Ls_Bother_Prc_Fluc_Store, Dcl_10_Exclus_Purchase_Store

<i>Rotated factor analysis of the correlation matrix</i>				
<i>Varimax rotation</i>				
<i>Variable</i>	<i>Behaviour</i> <i>Factor 1</i>	<i>Cognitive</i> <i>Factor 2</i>	<i>Attitude</i> <i>Factor 3</i>	<i>Communality</i>
Dcl_1_Revst_Stre	0.918	-0.016	0.012	0.843
Dcl_2_Stck_To_Stre	0.576	-0.551	0.132	0.652
Dcl_3_Cons_Purch_Part_Catg_Stor	0.173	-0.345	-0.015	0.149
Dcl_4_Reco_Stre	0.705	0.031	0.088	0.506
Dcl_5_Strng_Pref_Store	0.504	-0.274	0.460	0.541
Dcl_6_Strng_Bondg_Store	0.004	-0.216	0.688	0.520
Dcl_7_Strng_Postn_N_Mnd_Store	0.213	0.102	0.699	0.544
Dcl_8_Frst_Pref_Purchase_Store	0.118	-0.429	0.351	0.321
Dcl_9_Ls_Bother_Prc_Fluc_Store	-0.101	-0.337	0.377	0.265
Dcl_10_Exclus_Purchase_Store	-0.211	-0.858	0.168	0.809
Variance	2.0689	1.5896	1.4932	5.1517
% var.	0.207	0.159	0.149	0.515

Attitudinal factors accommodated Dcl_5, Dcl_6, Dcl_7 instead of Dcl_4, Dcl_5 and Dcl_6.

The variables under customer brand loyalty are generically highly overlapping in nature.

Table 3 Factors evolving from customer brand loyalty

<i>Variable</i>	<i>Factor1</i> <i>Behaviour</i>	<i>Factor2</i> <i>Cognitive</i>	<i>Factor3</i> <i>Attitude</i>
Dcl_1_Revst_Stre	0.647	-0.023	-0.16
Dcl_2_Stck_To_Stre	0.176	-0.247	-0.06
Dcl_3_Cons_Purch_Part_Catg_Stor	0.024	-0.071	-0.042
Dcl_4_Reco_Stre	0.154	0.022	0.013
Dcl_5_Strng_Pref_Store	0.093	-0.03	0.206
Dcl_6_Strng_Bondg_Store	-0.041	0.03	0.373
Dcl_7_Strng_Postn_N_Mnd_Store	0.006	0.152	0.437
Dcl_8_Frst_Pref_Purchase_Store	0.005	-0.07	0.094
Dcl_9_Ls_Bother_Prc_Fluc_Store	-0.03	-0.04	0.115
Dcl_10_Exclus_Purchase_Store	-0.141	-0.705	-0.054

From Table 3, the factors that are evolving from customer brand loyalty are:

- Factor 1 – behavioural loyalty

$$\begin{aligned} &0.647 * \text{Dcl_1_Revst_Stre} + 0.176 * \text{Dcl_2_Stck_To_Stre} \\ &+ 0.024 * \text{Dcl_3_Cons_Purch_Part_Catg_Stor} + 0.154 * \text{Dcl_4_Reco_Stre} \\ &+ 0.093 * \text{Dcl_5_Strng_Pref_Store} - 0.041 * \text{Dcl_6_Strng_Bondg_Store} \\ &+ 0.006 * \text{Dcl_7_Strng_Postn_N_Mnd_Store} \\ &+ 0.005 * \text{Dcl_8_Frst_Pref_Purchase_Store} \\ &- 0.03 * \text{Dcl_9_Ls_Bother_Prce_Fluc_Store} \\ &- 0.141 * \text{Dcl_10_Exclus_Purchse_Store} \end{aligned}$$

- Factor 2 – cognitive loyalty

$$\begin{aligned} &- 0.023 * \text{Dcl_1_Revst_Stre} - 0.247 * \text{Dcl_2_Stck_To_Stre} \\ &- 0.071 * \text{Dcl_3_Cons_Purch_Part_Catg_Stor} + 0.022 * \text{Dcl_4_Reco_Stre} \\ &- 0.030 * \text{Dcl_5_Strng_Pref_Store} + 0.030 * \text{Dcl_6_Strng_Bondg_Store} \\ &+ 0.152 * \text{Dcl_7_Strng_Postn_N_Mnd_Store} \\ &- 0.070 * \text{Dcl_8_Frst_Pref_Purchase_Store} \\ &- 0.040 * \text{Dcl_9_Ls_Bother_Prce_Fluc_Store} \\ &- 0.705 * \text{Dcl_10_Exclus_Purchse_Store} \end{aligned}$$

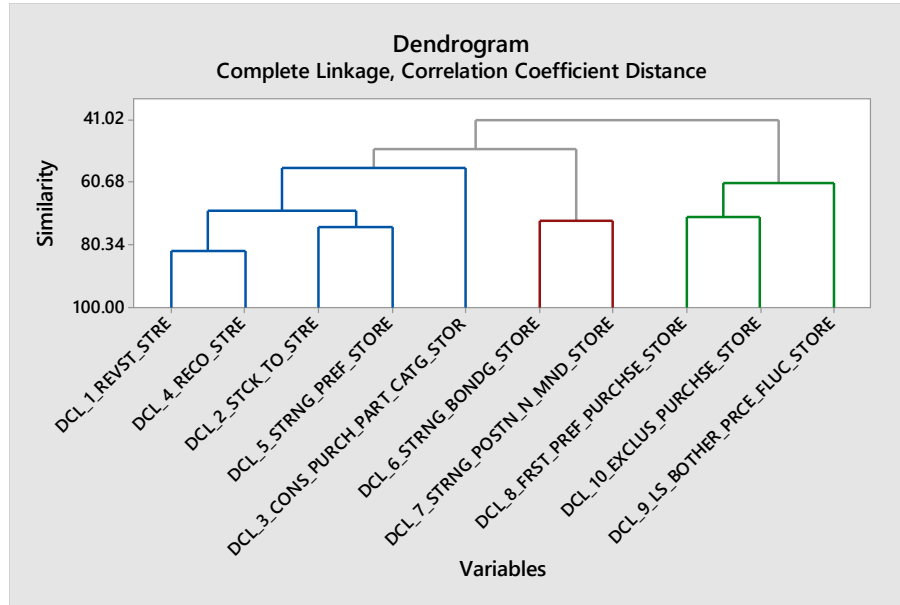
- Factor 3 – attitudinal loyalty

$$\begin{aligned} &- 0.160 * \text{Dcl_1_Revst_Stre} - 0.060 * \text{Dcl_2_Stck_To_Stre} \\ &- 0.042 * \text{Dcl_3_Cons_Purch_Part_Catg_Stor} + 0.013 * \text{Dcl_4_Reco_Stre} \\ &+ 0.206 * \text{Dcl_5_Strng_Pref_Store} - 0.373 * \text{Dcl_6_Strng_Bondg_Store} \\ &+ 0.437 * \text{Dcl_7_Strng_Postn_N_Mnd_Store} \\ &+ 0.094 * \text{Dcl_8_Frst_Pref_Purchase_Store} \\ &- 0.115 * \text{Dcl_9_Ls_Bother_Prce_Fluc_Store} \\ &- 0.054 * \text{Dcl_10_Exclus_Purchse_Store} \end{aligned}$$

Alternatively, the categories were reconfirmed using *cluster analysis* with the following details.

4.3.1 *Dendrogram of the cluster variables matched with that of the factor analysis*

From Figure 1, cluster analysis of variables: Dcl_1_Revst_Stre, Dcl_2_Stck_To_Stre, Dcl_3_Cons_Purch_Part_Catg_Stor, Dcl_4_Reco_Stre, Dcl_5_Strng_Pref_Store, Dcl_6_Strng_Bondg_Store, Dcl_7_Strng_Postn_N_Mnd_Store, Dcl_8_Frst_Pref_Purchase_Store, Dcl_9_Ls_Bother_Prce_Fluc_Store and Dcl_10_Exclus_Purchse_Store.

Figure 1 Cluster analysis for customer loyalty (see online version for colours)

4.3.2 Correlation coefficient distance, complete linkage amalgamation steps

Table 4 witnesses the amalgamation steps involved in the clusters in the following manner.

Table 4 Correlation coefficient distance, complete linkage

<i>Amalgamation steps</i>						
<i>Steps</i>	<i>Number of clusters</i>	<i>Similarity level</i>	<i>Distance level</i>	<i>Clusters joined</i>	<i>New cluster</i>	<i>No. of observations in new cluster</i>
1	9	82.2204	0.35559	1–4	1	2
2	8	74.8066	0.50387	2–5	2	2
3	7	72.7896	0.54421	6–7	6	2
4	6	71.7432	0.56514	8–10	8	2
5	5	69.6506	0.60699	1–2	1	4
6	4	61.0824	0.77835	8–9	8	3
7	3	56.2898	0.87420	1–3	1	5
8	2	50.2663	0.99467	1–6	1	7
9	1	41.0160	1.17968	1–8	1	10

Clusters formed largely confirm the factor analysis formed categories.

Table 5 Final partition in the cluster analysis for the number of factors in consumer loyalty

<i>Final partition</i>
<i>Cluster 1</i>
Dcl_1_Revst_Stre, Dcl_2_Stck_To_Stre, Dcl_3_Cons_Purch_Part_Catg_Stor, Dcl_4_Reco_Stre, Dcl_5_Strng_Pref_Store
<i>Cluster 2</i>
Dcl_6_Strng_Bondg_Store, Dcl_7_Strng_Postn_N_Mnd_Store
<i>Cluster 3</i>
Dcl_8_Frst_Pref_Purchase_Store, Dcl_9_Ls_Bother_Prce_Fluc_Store, Dcl_10_Exclus_Purchase_Store

From Table 6, the correlation between ‘olfactory cues’ and ‘store brand loyalty’ is 0.212, which indicates that they are very weakly positively correlated, and here the p-value associated with the Pearson correlation coefficient is 0.000. Since this value is less than 0.05, the two variables have a statistically significant association.

Table 6 Correlations – store brand loyalty * olfactory cues (N = 250)

		<i>Store brand loyalty</i>	<i>Olfactory cues</i>
Store brand loyalty	Pearson correlation	1	0.212*
	Sig. (2-tailed)		0.000
Olfactory cues	Pearson correlation	0.212*	1
	Sig. (2-tailed)	0.000	

Note: *Correlation is significant at 95% confidence level (2-tailed).

From Table 7, the correlation between ‘olfactory cues’ and ‘behavioural brand loyalty’ is 0.263, which indicates that they are positively correlated, and here the p-value associated with the Pearson correlation coefficient is 0.000. Since this value is less than 0.05, the two variables have a statistically significant association indicating a positive relationship between the studied variables. Thus, it is clear from this result that olfactory cues do have a moderate effect on the behavioural loyalty of consumers.

Table 7 Correlations – behavioural loyalty * olfactory cues (N = 250)

		<i>Olfactory cues</i>	<i>Behavioural loyalty</i>
Olfactory cues	Pearson correlation	1	0.263*
	Sig. (2-tailed)		0.000
Behavioural loyalty	Pearson correlation	0.263*	1
	Sig. (2-tailed)	0.000	

Note: *Correlation is significant at 95% confidence level (2- tailed).

From Table 8, the correlation between ‘olfactory cues’ and ‘attitudinal brand loyalty’ is 0.164, indicating a weak positive correlation and the p-value associated with the Pearson correlation coefficient is 0.000, which is less than 0.05, the two variables have a statistically significant association indicating a positive relationship between the studied variables. Thus, it is clear from this result that olfactory cues do have a moderate effect on the attitudinal loyalty of consumers under a retail store setup.

Table 8 Correlations – attitudinal loyalty * olfactory cues (N = 250)

		<i>Olfactory cues</i>	<i>Attitudinal loyalty</i>
Olfactory cues	Pearson correlation	1	0.164*
	Sig. (2-tailed)		0.000
Attitudinal loyalty	Pearson correlation	0.164*	1
	Sig. (2-tailed)	0.000	

Note: *Correlation is significant at 95% confidence level (2-tailed).

From Table 9, the correlation between ‘olfactory cues’ and ‘cognitive brand loyalty’ is 0.107, indicating a weak positive correlation and the p-value associated with the Pearson correlation coefficient is 0.017, which is less than 0.05, the two variables have a statistically significant association indicating a positive relationship between the studied variables. Thus, it is clear from this result that olfactory cues do have a moderate effect on the cognitive loyalty of consumers under a retail store setup.

Table 9 Correlations – cognitive loyalty * olfactory cues (N = 250)

		<i>Olfactory cues</i>	<i>Cognitive loyalty</i>
Olfactory cues	Pearson correlation	1	0.107*
	Sig. (2-tailed)		0.017
Cognitive loyalty	Pearson correlation	0.107*	1
	Sig. (2-tailed)	0.017	

Note: *Correlation is significant at 95% confidence level (2-tailed).

The store brand loyalty phenomenon was analysed using confirmatory factor analysis followed by verification by clustering.

5 Results and discussion

The present research examines one of the most unexplored yet one of the most promising areas in marketing, i.e., olfactory marketing. Consumers today look beyond the actual product purchase process and constantly seek comfort and pleasure during their purchase phase so that the overall buying experience gets enriched. Here, fragrance within a retail outlet if utilised properly in a balanced approach could create wonders for the retail marketer.

The first outcome of this study is where a significant relationship between olfactory cues and behavioural loyalty is established, thus establishing the fact that customers who are exposed to aromatic conditions within a retail outlet have lesser brand-switching intentions and tend to stick to the same retail store. The outcome is in tune with research work on in-store fragrances in three dimensions. Firstly, the congruence of fragrances and products and services sold in the retail store matters (Bone and Jantrania, 1992; Mitchell et al., 1995; Mattila and Wirtz, 2001). Secondly, the presence of fragrance simply arouses the behavioural responses of consumers (lesser brand switching intentions, sticking to the same brand) as observed by Spangenberg et al. (1996) and Morrin and Ratneshwar (2000). Thirdly, Mitchell et al. (1995), Bone and Ellen (1999) and Morrin and

Ratneshwar (2000) pointed out how a pleasant fragrance within a retail store resulted in positive behavioural responses.

The outcome for the second hypothesis supported that olfactory cues have a strong relationship with attitudinal loyalty thus projecting that customers would recommend the store to others and also they have a strong preference for the store with fragrance. This outcome is again in tune with studies conducted by Donovan et al. (1994), Mitchell (1994) and Bosmans (2006), where it is studied that the influence of fragrance within a store is far beyond the quality or attribute of the product itself.

Finally, the research outcome also supports that there is a significant association between olfactory cues and cognitive loyalty, thus establishing that the right mix of fragrances within a retail store could induce a permanent space in the customers' minds. The retail store could also tend to be the first preference for the customers and at the same time, they would be less bothered with price fluctuations as well. The study also established that customers would tend to develop exclusivity with the store having the right balance of fragrance.

During shopping, consumers' moods can influence how they perceive the products and the retail store as a whole, which can lead to higher spending (Puccinelli, 2006). They are also more likely to return to the same store repeatedly because they have a positive impression of it overall and feel satisfied and trusted (Hwang et al., 2021). Retail marketers can make this process more effective by introducing fragrance, a sensory stimulus that has a positive emotional impact on customers and increased store brand loyalty.

Unlike Mattila and Wirtz (2001), who tested the effects of various types of store features, such as music, the current study did not do so. To be able to make more robust findings concerning a more constrained range of atmospheric attributes like the scent, it was intended to avoid any confounding of the treatments with such extra store characteristics.

Additionally, the micro-level method boosts the analysis's prescriptive efficiency by concentrating on a single atmospheric component or a small number of atmospheric components (Baker et al., 1992; Kumar and Kim, 2014; Michon et al., 2005; Turley and Chebat, 2002).

Millions of dollars are spent by retailers to develop engaging retail environments that encourage customers to complete their purchases (Roggeveen et al., 2020). According to earlier research (Wojnarowska et al., 2020), the impact of fragrance on inhabitants' quality of life in a Polish city leads to health aspects that improve their level of comfort. Morrin and Tepper's (2021) study examines the influence of olfactory cues on consumers' perception, appetite, and eating behaviours, while Silva et al.'s (2021) study depicts the emotional and behavioural goals of commuters using public transportation. This study is one of the first studies to examine the impact of fragrance on consumer loyalty.

The current findings emphasise the significant implications of atmospherics for organisational success in managing retail outlets (Turley and Chebat, 2002; Turley and Milliman, 2000). Store atmosphere improvements boost customer loyalty and boost long-term relationships with retail customers.

6 Limitations and future scope of the study

This study has a few constraints. One of the hindrances is the lack of a controlled condition – experimental condition setup in which the impacting factor (fragrance) can be compared and tested. Incorporating a controlled condition into future research projects may provide an answer to the question of whether fragrance alone in retail outlets could lead to improved mood and cognitive performance resulting in unplanned buying and building brand loyalty.

Also, the study did not control for the additional variables like consumer trust, commitment, and satisfaction because they are not measured in the current study, but it is certainly an avenue for future research.

Further, in this study, only one type of store atmospheric feature was examined. The combination of other store atmospheric features such as lighting, temperature, and music on overall store ambiance would pave the way for further insights into people's moods and cognitive performance in retail shopping. Hence, future research should consider more attributes to better understand the importance of atmospheric cues on consumers' shopping behaviour.

Additionally, the study could be further stretched to scrutinise the role and significance of alternative sensory cues as 'in-store' innovations. It would be interesting to examine how these cues might influence shoppers' approach and touch behaviour in creating an appealing and attractive store atmosphere and design.

The study was carried out only in Kolkata, West Bengal. Hence, it is not necessary that a similar finding would emerge elsewhere. Additionally, the data were only gathered from one retail location. As a result, generalisation is difficult. Future studies should look into how fragrance is used in a variety of retail settings. For instance, data must be gathered from establishments of all sizes and locations if we are to learn more about the impact on loyalty as suggested by Morrison et al. (2011).

Also, since, all the variables are self-reported and not observed there could have been more accurate results if the researchers would have investigated the common method bias.

The scope for future studies is ample. One important area for understanding could be the impact of fragrance based on gender. A detailed study could be planned to examine how gender perceives the different attributes of sensory marketing, and which sensory stimuli are more effective for consumers' buying decision-making process based on male-female division. Also, the possibility of a real-time experiment in retail stores could be considered where portable eye-tracking devices and functional magnetic resonance imaging (fMRI) instruments could be used to better understand shoppers' buying behaviour process.

Furthermore, although fragrance cues have mainly been investigated as part of atmospheric research in retail stores aiming for consistent brand loyalty, the results have been inconsistent, necessitating more study.

The study mainly investigates the association between fragrance and loyalty, but the underlying mechanisms of this relationship still need to be explored in future research.

Future research may examine the effects of focusing on additional cues, such as colour or touch (Krey et al., 2022). Finally, future research should more clearly distinguish between the benefits of recurrent visitors versus those who are new to the retail stores, as well as the importance of expectations. First-time visitors might be

pleasantly surprised by the environmental atmospherics provided by the current store, which is debatably a type of arousal. The use of atmospheric factors is not sufficient alone to continue generating interest; rather, it requires constant updating of the store ambiance to sustain its image. In contrast, repeat visitors will become accustomed to the ambiance, which would therefore generate fewer effects as the novelty wears off.

References

- Anderson, E.W. (1996) 'Customer satisfaction and price tolerance', *Marketing Letters*, Vol. 7, No. 3, pp.256–274 [online] <https://doi.org/10.1007/BF00435742>.
- Ardelet, C., Fleck, N. and Grobert, J. (2022) 'When a clean scent soothes the soul: developing a positive attitude toward sharing service space with strangers', *Journal of Retailing and Consumer Services*, Vol. 68, p.103051 [online] <https://doi.org/10.1016/j.jretconser.2022.103051>.
- Ba, M., Kang, J. and Li, Z. (2020) 'The effects of sounds and food odour on crowd behaviours in urban public open spaces', *Building and Environment*, Vol. 182, p.107104 [online] <https://doi.org/10.1016/j.buildenv.2020.107104>.
- Babin, B.J. and Attaway, J.S. (2000) 'Atmospheric affect as a tool for creating value and gaining share of customer', *Journal of Business Research*, Vol. 49, No. 2, pp.91–99 [online] [https://doi.org/10.1016/S0148-2963\(99\)00011-9](https://doi.org/10.1016/S0148-2963(99)00011-9).
- Baek, E., Choo, H.J. and Lee, S.H.M. (2018) 'Using warmth as the visual design of a store: intimacy, relational needs, and approach intentions', *Journal of Business Research*, Vol. 88, pp.91–101 [online] <https://doi.org/10.1016/j.jbusres.2018.03.013>.
- Baker, J., Levy, M. and Grewal, D. (1992) 'An experimental approach to making retail store environmental decisions', *Journal of Retailing*, Vol. 68, No. 4, p.445.
- Bansal, H.S. and Taylor, S.F. (1999) 'The service provider switching model (SPSM): a model of consumer switching behaviour in the service industry', *Journal of Service Research*, Vol. 2, No. 2, pp.200–218 [online] <https://doi.org/10.1177/109467059922007>.
- Berry, L.L., Carbone, L.P. and Haeckel, S.H. (2002) 'Managing the total customer experience', *MIT Sloan Management Review*, Vol. 43, No. 3, pp.85–89.
- Blut, M., Teller, C. and Floh, A. (2018) 'Testing retail marketing-mix effects on patronage: a meta-analysis', *Journal of Retailing*, Vol. 94, No. 2, pp.113–135 [online] <https://doi.org/10.1016/j.jretai.2018.03.001>.
- Bone, P.F. and Ellen, P.S. (1999) 'Scents in the marketplace: explaining a fraction of olfaction', *Journal of Retailing*, Vol. 75, pp.243–262 [online] [https://doi.org/10.1016/S0022-4359\(99\)00007-X](https://doi.org/10.1016/S0022-4359(99)00007-X).
- Bone, P.F. and Jantrania, S. (1992) 'Olfaction as a cue for product quality', *Marketing Letters*, Vol. 3, No. 3, pp.289–296 [online] <https://doi.org/10.1007/BF00994136>.
- Bosmans, A. (2006) 'Scents and sensibility: when do (in) congruent ambient scents influence product evaluations?', *Journal of Marketing*, Vol. 70, No. 3, pp.32–43 [online] <https://doi.org/10.1509/jmkg.70.3.032>.
- Bouzaabia, R. (2014) 'The effect of ambient scents on consumer responses: consumer type and his accompaniment state as moderating variables', *International Journal of Marketing Studies*, Vol. 6, No. 1, pp.155–167, DOI: 10.5539/ijms.v6n1p155.
- Butcher, K., Beverley, S. and O'Callaghan, F. (2001) 'Evaluative and relational influences on service loyalty', *International Journal of Service Industry Management*, Vol. 12, No. 4, pp.310–327 [online] <https://doi.org/10.1108/09564230110405253>.
- Chatterjee, S. (2015) 'Olfactory branding: a new trend for defining brands through smell – a case of ITC Sonar Hotel in Kolkata, India', *International Journal of Trade and Global Markets*, Vol. 8, No. 3, pp.196–206, DOI: 10.1504/IJTGM.2015.071603.

- Chatterjee, S. and Bryła, P. (2022) 'Innovation and trends in olfactory marketing: a review of the literature', *Journal of Economics & Management*, Vol. 44, No. 1, pp.210–235 [online] <https://doi.org/10.22367/jem.2022.44.09>.
- Chebat, J.C. and Michon, R. (2003) 'Impact of ambient odors on mall shoppers' emotions, cognition, and spending: a test of competitive causal theories', *Journal of Business Research*, Vol. 56, No. 7, pp.529–539 [online] [https://doi.org/10.1016/S0148-2963\(01\)00247-8](https://doi.org/10.1016/S0148-2963(01)00247-8).
- Chebat, J.C., Chebat, C.G. and Vaillant, D. (2001) 'Environmental background music and in-store selling', *Journal of Business Research*, Vol. 54, No. 2, pp.115–123 [online] [https://doi.org/10.1016/S0148-2963\(99\)00089-2](https://doi.org/10.1016/S0148-2963(99)00089-2).
- Cheung, M.L., Pires, G.D., Rosenberger, P.J., Leung, W.K. and Sharipudin, M.N.S. (2021) 'The role of consumer-consumer interaction and consumer-brand interaction in driving consumer-brand engagement and behavioral intentions', *Journal of Retailing and Consumer Services*, Vol. 61, p.102574 [online] <https://doi.org/10.1016/j.jretconser.2021.102574>.
- Dabholkar, P.A. and Walls, S. (1999) 'Service evaluation and switching behavior for experiential services: an empirical test of gender differences within a broader conceptual framework', *The Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, Vol. 12, No. 1, pp.123–137.
- De Ruyter, K., Wetzels, M. and Bloemer, J. (1998) 'On the relationship between perceived service quality, service loyalty, and switching costs', *International Journal of Service Industry Management*, Vol. 9, No. 5, pp.436–453 [online] <https://doi.org/10.1108/09564239810238848>.
- Dick, A.S. and Basu, K. (1994) 'Customer loyalty: toward an integrated conceptual framework', *Journal of the Academy of Marketing Science*, Vol. 22, pp.99–113 [online] <https://doi.org/10.1177/0092070394222001>.
- Donovan, R.J., Rossiter, J.R., Marcolyn, G. and Nesdale, A. (1994) 'Store atmosphere and purchasing behavior', *Journal of Retailing*, Vol. 70, No. 3, pp.283–294 [online] [https://doi.org/10.1016/0022-4359\(94\)90037-X](https://doi.org/10.1016/0022-4359(94)90037-X).
- Doty, R.L. and Cameron, L.E. (2009) 'Sex differences and reproductive hormone influences on human odor perception', *Journal of Physiology & Behavior*, Vol. 97, No. 2, pp.213–228 [online] <https://doi.org/10.1016/j.physbeh.2009.02.032>.
- Doucé, L. and Janssens, W. (2013) 'The presence of a pleasant ambient scent in a fashion store: the moderating role of shopping motivation and affect intensity', *Environment and Behavior*, Vol. 45, No. 2, pp.215–238 [online] <https://doi.org/10.1177/0013916511410421>.
- Doucé, L., Poels, K., Janssens, W. and De Backer, C. (2013) 'Smelling the books: the effect of chocolate scent on purchase-related behavior in a bookstore', *Journal of Environmental Psychology*, Vol. 36, pp.65–69 [online] <https://doi.org/10.1016/j.jenvp.2013.07.006>.
- Dwyer, F.R., Schurr, P.H. and Oh, S. (1987) 'Developing buyer-seller relationships', *Journal of Marketing*, Vol. 51, pp.11–27 [online] <https://doi.org/10.1177/002224298705100202>.
- Dyer, J., Cleary, L., Ragsdale-Lowe, M., McNeill, S. and Osland, C. (2014) 'The use of aromasticks at a cancer centre: a retrospective audit', *Complementary Therapies in Clinical Practice*, Vol. 20, No. 4, pp.203–206 [online] <https://doi.org/10.1016/j.ctcp.2013.11.006>.
- Elejalde-Ruiz, A. (2014) 'For branding, many places adopt signature scents', *Los Angeles Times*, Los Angeles.
- Errajaa, K., Daucé, B. and Legohérel, P. (2020) 'Consumer reactions to olfactory congruence with brand image', *Journal of Retailing and Consumer Services*, Vol. 52, p.101898 [online] <https://doi.org/10.1016/j.jretconser.2019.101898>.
- Fournier, S. (1998) 'Consumers and their brands: developing relationship theory in consumer research', *Journal of Consumer Research*, Vol. 24, No. 4, pp.343–353 [online] <https://doi.org/10.1086/209515>.
- Gilbert, N. (2008) *What the Nose Knows*, CreateSpace, USA.

- Gremler, D.D. and Brown, S.W. (1996) 'Service loyalty: its nature, importance, and implications', in Edvardsson, B., Brown, S.W., Johnston, R. and Scheuing, E. (Eds.): *Advancing Service Quality: A Global Perspective*, pp.171–181, International Service Quality Association, New York.
- Grönroos, C. (2006) 'Adopting a service logic for marketing', *Marketing Theory*, Vol. 6, No. 3, pp.317–333 [online] <https://doi.org/10.1177/1470593106066794>.
- Guéguen, N. and Petr, C. (2006) 'Odors and consumer behavior in a restaurant', *International Journal of Hospitality Management*, Vol. 25, pp.335–339 [online] <https://doi.org/10.1016/j.ijhm.2005.04.007>.
- Hedigan, F., Sheridan, H. and Sasse, A. (2023) 'Benefit of inhalation aromatherapy as a complementary treatment for stress and anxiety in a clinical setting – a systematic review', *Complementary Therapies in Clinical Practice*, Vol. 101750 [online] <https://doi.org/10.1016/j.ctcp.2023.101750>.
- Helmefalk, M. and Hultén, B. (2017) 'Multi-sensory congruent cues in designing retail store atmosphere: effects on shoppers' emotions and purchase behavior', *Journal of Retailing and Consumer Services*, Vol. 38, pp.1–11 [online] <https://doi.org/10.1016/j.jretconser.2017.04.007>.
- Herrmann, A., Zidansek, M., Sprott, D.E. and Spangenberg, E.R. (2013) 'The power of simplicity: processing fluency and the effects of olfactory cues on retail sales', *Journal of Retailing*, Vol. 89, No. 1, pp.30–43, <https://doi.org/10.1016/j.jretai.2012.08.002>.
- Herz, R. (2009) *The Scent of Desire: Discovering Our Enigmatic Sense of Smell*, Harper Collins, USA.
- Herz, R.S. (2016) 'The role of odor-evoked memory in psychological and physiological health', *Brain Sciences*, Vol. 6, No. 3, p.22 [online] <https://doi.org/10.3390/brainsci6030022>.
- Hwang, S., Lee, M., Park, E. and del Pobil, A.P. (2021) 'Determinants of customer brand loyalty in the retail industry: a comparison between national and private brands in South Korea', *Journal of Retailing and Consumer Services*, Vol. 63, p.102684 [online] <https://doi.org/10.1016/j.jretconser.2021.102684>.
- Iglesias, O., Markovic, S. and Rialp, J. (2019) 'How does sensory brand experience influence brand equity? Considering the roles of customer satisfaction, customer affective commitment, and employee empathy', *Journal of Business Research*, Vol. 96, pp.343–354 [online] <https://doi.org/10.1016/j.jbusres.2018.05.043>.
- Javalgi, R.R.G. and Moberg, C.R. (1997) 'Service loyalty: implications for service providers', *Journal of Services Marketing*, Vol. 11, No. 3, pp.165–179 [online] <https://doi.org/10.1108/08876049710168663>.
- Jones, M.A., Beatty, S.E. and Mothersbaugh, D.V. (2000) 'Switching barriers and repurchase intentions in services', *Journal of Retailing*, Vol. 76, No. 2, pp.259–274 [online] [https://doi.org/10.1016/S0022-4359\(00\)00024-5](https://doi.org/10.1016/S0022-4359(00)00024-5).
- Kivioja, K. (2017) 'Impact of point-of-purchase olfactory cues on purchase behavior', *Journal of Consumer Marketing*, Vol. 34, No. 2, pp.119–131 [online] <https://doi.org/10.1108/JCM-08-2015-1506>.
- Krasonikolakis, I., Vrechopoulos, A., Pouloudi, A. and Dimitriadis, S. (2018) 'Store layout effects on consumer behavior in 3D online stores', *European Journal of Marketing*, Vol. 52, Nos. 5–6, pp.1223–1256 [online] <https://doi.org/10.1016/j.jbusres.2022.08.050>.
- Krey, N., Picot-Coupey, K. and Cliquet, G. (2022) 'Shopping mall retailing: a bibliometric analysis and systematic assessment of Chebat's contributions', *Journal of Retailing and Consumer Services*, Vol. 64, p.102702 [online] <https://doi.org/10.1016/j.jretconser.2021.102702>.
- Kumar, A. and Kim, Y.K. (2014) 'The store-as-a-brand strategy: the effect of store environment on customer responses', *Journal of Retailing and Consumer Services*, Vol. 21, No. 5, pp.685–695 [online] <https://doi.org/10.1016/j.jretconser.2014.04.008>.

- Kumar, V., Dalla Pozza, I. and Ganesh, J. (2013) 'Revisiting the satisfaction–loyalty relationship: empirical generalizations and directions for future research', *Journal of Retailing*, Vol. 89, No. 3, pp.246–262 [online] <https://doi.org/10.1016/j.jretai.2013.02.001>.
- Li, M.W., Teng, H.Y. and Chen, C.Y. (2020) 'Unlocking the customer engagement-brand loyalty relationship in tourism social media: the roles of brand attachment and customer trust', *Journal of Hospitality and Tourism Management*, Vol. 44, pp.184–192 [online] <https://doi.org/10.1016/j.jhtm.2020.06.015>.
- Liu-Thompkins, Y. and Tam, L. (2013) 'Not all repeat customers are the same: designing effective cross-selling promotion on the basis of attitudinal loyalty and habit', *Journal of Marketing*, Vol. 77, No. 5, pp.21–36 [online] <https://doi.org/10.1509/jm.11.0508>.
- Lunardo, R. (2012) 'Negative effects of ambient scents on consumers' skepticism about retailer's motives', *Journal of Retailing and Consumer Services*, Vol. 19, No. 2, pp.179–185 [online] <https://doi.org/10.1016/j.jretconser.2011.11.007>.
- Maille, V. (2001) 'L'influence des stimuli olfactifs sur le comportement du consommateur: un état des recherches', *Recherche et Applications en Marketing*, in French, Vol. 16, No. 2, pp.51–75 [online] <https://doi.org/10.1177/076737010101600204>.
- Markovic, S., Iglesias, O., Singh, J.J. and Sierra, V. (2018) 'How does the perceived ethicality of corporate services brands influence loyalty and positive word-of-mouth? Analyzing the roles of empathy, affective commitment, and perceived quality', *Journal of Business Ethics*, Vol. 148, No. 4, pp.721–740 [online] <https://doi.org/10.1007/s10551-015-2985-6>.
- Mattila, A.S. and Wirtz, J. (2001) 'Congruency of scent and music as a driver of in-store evaluations and behavior', *Journal of Retailing*, Vol. 77, No. 2, pp.273–289 [online] [https://doi.org/10.1016/S0022-4359\(01\)00042-2](https://doi.org/10.1016/S0022-4359(01)00042-2).
- Michon, R., Chebat, J.C. and Turley, L.W. (2005) 'Mall atmospherics: the interaction effects of the mall environment on shopping behavior', *Journal of Business Research*, Vol. 58, No. 5, pp.576–583 [online] <https://doi.org/10.1016/j.jbusres.2003.07.004>.
- Mitchell, D.J. (1994) 'For the smell of it all: functions and effects of olfaction in consumer behavior', *Advances in Consumer Research*, Vol. 21, No. 1, p.330.
- Mitchell, D.J., Kahn, B.E. and Knasko, S.C. (1995) 'There's something in the air: effects of congruent or incongruent ambient odor on consumer decision making', *Journal of Consumer Research*, Vol. 22, No. 2, pp.229–238 [online] <https://doi.org/10.1086/209447>.
- Mitra, A. and Lynch, J. (1995) 'Toward a reconciliation of market power and information theories of advertising effects on price elasticity', *Journal of Consumer Research*, Vol. 21, No. 4, pp.644–660 [online] <https://doi.org/10.1086/209425>.
- Morrin, M. and Ratneshwar, S. (2000) 'The effect of retail store environment on retailer performance', *Journal of Business Research*, Vol. 49, No. 2, pp.167–181 [online] [https://doi.org/10.1016/S0148-2963\(99\)00005-3](https://doi.org/10.1016/S0148-2963(99)00005-3).
- Morrin, M. and Tepper, B.J. (2021) 'Multisensory marketing: effects of environmental aroma cues on perception, appetite, and consumption of foods and drinks', *Current Opinion in Food Science*, Vol. 40, pp.204–210 [online] <https://doi.org/10.1016/j.cofs.2021.04.008>.
- Morrison, M., Gan, S., Dubelaar, C. and Oppewal, H. (2011) 'In-store music and aroma influences on shopper behavior and satisfaction', *Journal of Business Research*, Vol. 64, No. 6, pp.558–564 [online] <https://doi.org/10.1016/j.jbusres.2010.06.006>.
- Muhammad, N.S., Musa, R. and Ali, N.S. (2014) 'Unleashing the effect of store atmospherics on hedonic experience and store loyalty', *Procedia – Social and Behavioral Sciences*, Vol. 130, pp.469–478 [online] <https://doi.org/10.1016/j.sbspro.2014.04.055>.
- Oliver, R.L. (1999) 'Whence consumer loyalty', *Journal of Marketing*, Vol. 63, No. 4, pp.33–44 [online] <https://doi.org/10.1177/00222429990634s105>.
- Ostrowski, P.L., O'Brien, T. and Gordon, G.L. (1993) 'Service quality and customer loyalty in the commercial airline industry', *Journal of Travel Research*, Vol. 32, No. 2, pp.16–24 [online] <https://doi.org/10.1177/004728759303200203>.

- Paramita, W., Nhu, H.B.C., Ngo, L.V., Tran, Q.H.M. and Gregory, G. (2021) 'Brand experience and consumers' social interactive engagement with brand page: an integrated-marketing perspective', *Journal of Retailing and Consumer Services*, Vol. 62, p.102611 [online] <https://doi.org/10.1016/j.jretconser.2021.102611>.
- Puccinelli, N.M. (2006) 'Putting your best face forward: the impact of customer mood on salesperson evaluation', *Journal of Consumer Psychology*, Vol. 16, No. 2, pp.156–162 [online] https://doi.org/10.1207/s15327663jcp1602_6.
- Reynolds, K.E. and Arnold, M. (2000) 'Customer loyalty to the salesperson and the store: examining relationship customers in an upscale retail context', *Journal of Personal Selling & Sales Management*, Vol. 20, No. 2, pp.89–98, DOI: 10.1080/08853134.2000.10754228.
- Reynolds, K.E. and Beatty, S.E. (1999) 'Customer benefits and company consequences of customer-salesperson relationships in retailing', *Journal of Retailing*, Vol. 75, No. 1, pp.11–32 [online] [https://doi.org/10.1016/S0022-4359\(99\)80002-5](https://doi.org/10.1016/S0022-4359(99)80002-5).
- Roggeveen, A.L., Grewal, D. and Schweiger, E.B. (2020) 'The DAST framework for retail atmospherics: the impact of in-and out-of-store retail journey touchpoints on the customer experience', *Journal of Retailing*, Vol. 96, No. 1, pp.128–137 [online] <https://doi.org/10.1016/j.jretai.2019.11.002>.
- Roschk, H., Loureiro, S.M.C. and Breitsohl, J. (2017) 'Calibrating 30 years of experimental research: a meta-analysis of the atmospheric effects of music, scent, and color', *Journal of Retailing*, Vol. 93, No. 2, pp.228–240 [online] <https://doi.org/10.1016/j.jretai.2016.10.001>.
- Sherman, E., Mathur, A. and Smith, R.B. (1997) 'Store environment and consumer purchase behavior: mediating role of consumer emotions', *Psychology & Marketing*, Vol. 14, No. 4, pp.361–378 [online] [https://doi.org/10.1002/\(SICI\)1520-6793\(199707\)14:4<361::AID-MAR4>3.0.CO;2-7](https://doi.org/10.1002/(SICI)1520-6793(199707)14:4<361::AID-MAR4>3.0.CO;2-7).
- Silva, J., Sá, E.S., Escadas, M. and Carvalho, J. (2021) 'The influence of ambient scent on the passengers' experience, emotions and behavioral intentions: an experimental study in a public bus service', *Transport Policy*, Vol. 106, pp.88–98 [online] <https://doi.org/10.1016/j.tranpol.2021.03.022>.
- Simonson, I., Carmon, Z., Dhar, R., Drolet, A. and Nowlis, S.M. (2001) 'Consumer research: in search of identity', *Annual Review of Psychology*, Vol. 52, No. 1, pp.249–275, DOI: 10.1146/annurev.psych.52.1.249.
- Spangenberg, E.R., Crowley, A.E. and Henderson, P.W. (1996) 'Improving the store environment: do olfactory cues affect evaluations and behaviors?', *Journal of Marketing*, Vol. 60, No. 2, pp.67–80 [online] <https://doi.org/10.1177/002224299606000205>.
- Spangenberg, E.R., Grohmann, B. and Sprott, D.E. (2006) 'It's beginning to smell (and sound) a lot like christmas: the interactive effects of ambient scent and music in a retail setting', *Journal of Business Research*, Vol. 58, No. 11, pp.1583–1589 [online] <https://doi.org/10.1016/j.jbusres.2004.09.005>.
- Turley, L.W. and Chebat, J.C. (2002) 'Linking retail strategy, atmospheric design and shopping behaviour', *Journal of Marketing Management*, Vol. 18, Nos. 1–2, pp.125–144 [online] <https://doi.org/10.1362/0267257022775891>.
- Turley, L.W. and Milliman, R.E. (2000) 'Atmospheric effects on shopping behavior: a review of the experimental evidence', *Journal of Business Research*, Vol. 49, No. 2, pp.193–211 [online] [https://doi.org/10.1016/S0148-2963\(99\)00010-7](https://doi.org/10.1016/S0148-2963(99)00010-7).
- Vilnai-Yavetz, I., Gilboa, S. and Mitchell, V. (2021) 'Experiencing atmospherics: the moderating effect of mall experiences on the impact of individual store atmospherics on spending behavior and mall loyalty', *Journal of Retailing and Consumer Services*, Vol. 63, p.102704 [online] <https://doi.org/10.1016/j.jretconser.2021.102704>.
- Watson, G.F., Beck, J.T., Henderson, C.M. and Palmatier, R.W. (2015) 'Building, measuring, and profiting from customer loyalty', *Journal of the Academy of Marketing Science*, Vol. 43, No. 6, pp.790–825 [online] <https://doi.org/10.1007/s11747-015-0439-4>.

- Wen, H., Leung, X. and Pongtornphurt, Y. (2020) 'Exploring the impact of background music on customers' perceptions of ethnic restaurants: the moderating role of dining companions', *Journal of Hospitality and Tourism Management*, Vol. 43, pp.71–79 [online] <https://doi.org/10.1016/j.jhtm.2020.02.007>.
- Wojnarowska, M., Plichta, G., Sagan, A., Plichta, J., Stobiecka, J. and Sołtysik, M. (2020) 'Odour nuisance and urban residents' quality of life: a case study in Krakow's in Plaszow district', *Urban Climate*, Vol. 34, p.100704 [online] <https://doi.org/10.1016/j.uclim.2020.100704>.
- Wolfenbarger, M. and Gilly, M.C. (2003) 'ETailQ: dimensionalizing, measuring and predictingetail quality', *Journal of Retailing*, Vol. 79, No. 3, pp.183–198 [online] [https://doi.org/10.1016/S0022-4359\(03\)00034-4](https://doi.org/10.1016/S0022-4359(03)00034-4).
- Zeithaml, V.A., Parasuraman, A. and Berry, L.L. (1985) 'Problems and strategies in services marketing', *Journal of Marketing*, Vol. 49, No. 2, pp.33–34 [online] <https://doi.org/10.1177/002224298504900203>.
- Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1996) 'The behavioral consequences of service quality', *Journal of Marketing*, Vol. 60, No. 2, pp.31–46, <https://doi.org/10.1177/002224299606000203>.

Appendix

Survey instrument development

Understanding consumers' store loyalty

Behavioural loyalty

- Consumers would prefer to re-purchase or re-visit the same retail outlet (Zeithaml et al., 1996; Jones et al., 2000).
- Consumers would tend to have lower brand-switching intentions (Bansal and Taylor, 1999; Dabholkar and Walls, 1999).
- Consumers would consider making purchases in a particular category from the same retail outlet (Reynolds and Beatty, 1999; Reynolds and Arnold, 2000).

Attitudinal loyalty

- Consumers would tend to recommend the service of a retail outlet to others (Butcher et al., 2001; Javalgi and Moberg, 1997).
- Consumers would tend to show a strong preference for the same retail store (Mittra and Lynch, 1995).
- Consumers would tend to show a strong feeling of bonding/association with the retail outlet (Fournier, 1998).

Cognitive loyalty

- The retail outlet would occupy a strong position in the mind of the consumer (Dwyer et al., 1987).
- The retail outlet would be considered the first preference for purchase (Ostrowski et al., 1993).

- Consumers would be less sensitive toward price fluctuations (Anderson, 1996; De Ruyter et al., 1998).
- Consumers would consider a service provider exclusively for a particular service (Gremler and Brown, 1996).

The respondent's profiles were mainly comprised of three items:

- number of male respondents; number of female respondents
- age group
- family annual income.

The response rate was relatively high (nearly 83%) as the respondents were mostly young having exposure to the concepts and understanding of experiential marketing. The responses do dig out that most of them came from middle-class backgrounds having annual incomes of up to 4–6 lakhs.

Data analysis tools

The coding for SPSS 20.0 was done in the following manner:

- strongly disagree – 1
- disagree – 2
- neutral – 3
- agree – 4
- strongly agree – 5.

Article 5

Chatterjee S., Bryla P., Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India, *International Journal of Indian Culture and Business Management*, 2024, Vol. 31, No. 3, pp. 261-273. <https://doi.org/10.1504/IJICBM.2024.137276>. IF=0.7 according to 2023 JCR. 20 points.

Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India

Shuvam Chatterjee*

Doctoral School of Social Science,
University of Lodz, Poland,
ul. Narutowicza 68, 90-136 Łódź, Poland
Email: UL0270540@edu.uni.lodz.pl

*Corresponding author

Pawel Bryla

Faculty of International and Political Studies,
University of Lodz,
Poland, Składowa 43, 90-127 Łódź, Poland
Email: pawel.bryla@uni.lodz.pl

Abstract: Olfactory marketing is a phenomenon that is in the current trend of usage by marketing experts to ensure that consumers are more involved in the purchase decision-making process. Past studies have revealed that customers today look for more than the product and give a lot of importance to the atmosphere where the product or service is being consumed. The study surveyed 190 shoppers across a shopping mall in Kolkata, India. The study further uses the SPSS software program to test the regressions between different variables and build a new understanding of the impact of fragrance cues on consumer purchase decisions under the influence of control variables. This is the first study to demonstrate the effects of fragrance cues on retail shopping stores in Kolkata, India. The study would help managers to fathom the essence behind the importance of olfactory marketing in the retail marketing area.

Keywords: fragrance marketing; impulse buying; consumer attitude; atmospheric cues, service innovation; Indian retail market, cognitive theory; India.

Reference to this paper should be made as follows: Chatterjee, S. and Bryla, P. (2024) 'Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India', *Int. J. Indian Culture and Business Management*, Vol. 31, No. 3, pp.261–273.

Biographical notes: Shuvam Chatterjee had completed his MBA from India and worked in academics full time for the last 12 years as an Assistant Professor Marketing. Currently, he is a full-time Doctoral student with Doctoral School of Social Science, University of Lodz, Poland. He has several publications with Scopus indexed and ABDC listed journals. His area of interest for the researcher is mainly olfactory marketing.

Pawel Bryla is a Professor at the University of Lodz in the Department of International Marketing and Distribution at the Faculty of International and Political Studies. He is a graduate of International Relations at the University of Lodz and post-graduate studies in European integration at the College of Europe in Bruges. He has obtained his Doctorate and Habilitation at the Faculty of Management at the University of Lodz.

1 Introduction

Sense of fragrance happens to be one of the ancient and remarkable senses as it directs us in our entire journey of life guiding us constantly which objects to be approached and which one to be avoided (Axel, 1995). It has not only supported humans to merely survive but made a constant effort to evoke emotions (Hertz, 1997). It has further paved the way to influence the sense of beauty and pleasantness. Luca and Botelho (2020) study explains how consumers' associative and affective behaviour makes room for product recognition and recall when exposed to fragrance under retail settings. However, the major concern was always that, the power of smell was under-valued compared to other senses like sight, auditory cues, and cutaneous senses (Morrin, 2010). Marketers started anticipating the power of scent, dug in revealing olfactory literature from different disciplines such as anthropology and psychology for the past last decade. Surprisingly, 75% of all the emotions we generate every day are due to what we smell (Bell and Bell, 2007). Our sense of smell is the strongest of all human senses and the closest sense linked to memory and emotion. It is our most accurate level of recall. A study conducted by Lindstrom and Kotler (2005) claims to attract almost 84% of consumers more inclined to purchase shoes or favour them when presented in a scented room. Similarly, Silva et al. (2021) demonstrate how fragrance when successfully imposed in public transport does create an emotional attachment with travel memories and strong intentions for re-experience. A lot of marketers today use olfactory marketing as a tool to stimulate a consumer's relationship with a brand to enable a long-lasting emotional connection and build brand loyalty through that connection (Lecomte, 2015). However, at the same time, over-exposed to atmospheric sensory stimuli could reduce affability towards that store (Douce and Adams, 2020).

Against this backdrop, the present study shall try to understand the impact of olfactory marketing (fragrance) on consumer purchase decisions (considering 'money' spent and 'time' spent inside the retail departmental store outlets).

The research question is in line with Knasko's (1989) study which suggested that customers spent more time in a retail shop (jewelry) and sales rose by 300% in a bakery shop due to the right implementation of aroma within a retail store. Hulten's (2013) study presented that the implementation of optical and sensory cues along with other atmospheric cues do influence shoppers' attention resulting in increased time spent inside the store. Xiao et al. (2020) in their study discussed how aromatic environment contributes to generating an individual's sensation and cognitive drivers contribute in making responses following certain perceptual patterns.

Table 1 Key variables defined for the study

<i>Dependent variables</i>	<i>Independent variables</i>	<i>Control variables</i>
Purchase behaviour intention of consumers considering	<ul style="list-style-type: none"> ▪ Environmental cue – fragrance 	<ul style="list-style-type: none"> ✓ Age of the consumers ✓ Sex of the consumers
<ul style="list-style-type: none"> • Time spent inside the retail outlet 	<ul style="list-style-type: none"> ▪ Environmental cue – music 	
<ul style="list-style-type: none"> • Money spent inside the retail outlet 	<ul style="list-style-type: none"> ▪ Environmental cue – store layout ▪ Environmental cue – temperature 	

2 Background and theoretical framework

Emotions are unique individual feelings that could not be guided by only visual and rhetorical domains alone Anderson and Smith (2001). Precisely this creates room for retail marketers to exploit fragrance as a crucial marketing tool to exploit individual feelings and overall retail shopping experience as it the demand from the younger generations to perceive prominent influential factors for decision making as observed in the case of health and wellbeing sector like spas (Jain et al., 2019). Again, Chatterjee and Shukla (2020) argues that retail dynamics consisting of atmospherics along with proper hygiene conditions does impact retail shoppers' engagement towards the retail store and as a key tool in identifying and engaging key drivers for customer retention (Kumar et al., 2021) and framing long term customer relationship (Singh and Gupta, 2020; Chatterjee, 2015).

2.1 *Fragrance as an environmental cue in consumer's decision-making considering time spend and money spent inside a retail store*

Store atmospherics is defined as the weapon through which marketers usually try to attract prospective buyers mainly by the five human senses, i.e., sight, sound, touch, taste, or smell which could be designed by retailers to attract and influence consumers' purchasing mood and intention. Customers' attitudes and reactions in a retail environment are important parameters since these reactions would pave way for determining future shopping choices (Woodruff et al., 1982). Wee and Tong (2005) also pointed out that many factors like location, accessibility, décor, planning and design, building strategy, etc. could create a positive or negative impact on shoppers' buying decisions (Chatterjee and Kundu, 2020). Chebat (2009) discovered that a certain amount of lemon used as a scent increased store sales by 63%. Hirsch's (1991) study showed that a pleasant ambient smell within a casino invited 45% more revenue to the store within two weeks compared to non-scented slot machines within its vicinity. Hirsch (1991) study also observed that when the smell of coconut was introduced with higher intensity through a nightclub's interior, the sale of a specific rum drink got more than doubled. Barahona et al. (2019) discussed in their study how fragrance impacts consumer purchase intentions with a special focus on price. Leenders et al. (2019) study brought in significant insights where consumers tend to underestimate the time spent in the retail store and end up having both unplanned and actual purchases when exposed to high-

intense aromatic conditions than what gets demonstrated under no or less intensified aroma conditions (Chatterjee and Bryła, 2022).

- Hence, we propose H1 and H2: fragrance as an environmental cue alone does influence consumers' decision-making considering time spend and money spent inside a retail store.

2.2 *Composite environmental cue (fragrance, music, store layout and temperature) in consumer's decision-making considering time spend and money spent inside a retail store*

Spangenberg et al. (2006) showed that scent and music when taken together acted as a strong influencer for higher footfalls in retail shops. Also, consider if music is playing in the environment and is matching with the pleasant ambiance fragrance. Such congruency digs deep in the literature showing that consumers respond more positively under the influence of music which matches with the ambient fragrance in terms of the tempo (being fast) or relaxing (slow) compared with a mismatch (Mattila and Wirtz 2001). This study was further supported by Rit et al. (2019) study which suggests that consumers tend to identify products under a high arousal aromatic environment clubbed with a high stimulating musical environment. Also, Spangenberg et al. (2006) study shows similar results for the cross-modal congruency of music theme (Christmas based) with scent quality (pine fragrance). Finally, as consumers behave holistically within a shopping environment mismatch (Mattila and Wirtz 2001), thus the presence of an incongruent fragrance interferes and diminishes the overall impact of the purchase decision. Lefebvre and Biswas (2019) study examines how fragrance utilised with optimum temperature inculcates correct food intake habits resulting in improved human health and wellbeing. Stein et al. (2009) study further clarify that the presence of congruent music might amplify or simply fail to relate with the effects of the ambient fragrance.

- Hence, we propose H3 and H4: composite environmental cue does influence consumer's decision-making considering time spend and money spent inside a retail store.

2.3 *Control variables and its impact on consumer decision-making considering time and money spent inside a retail store*

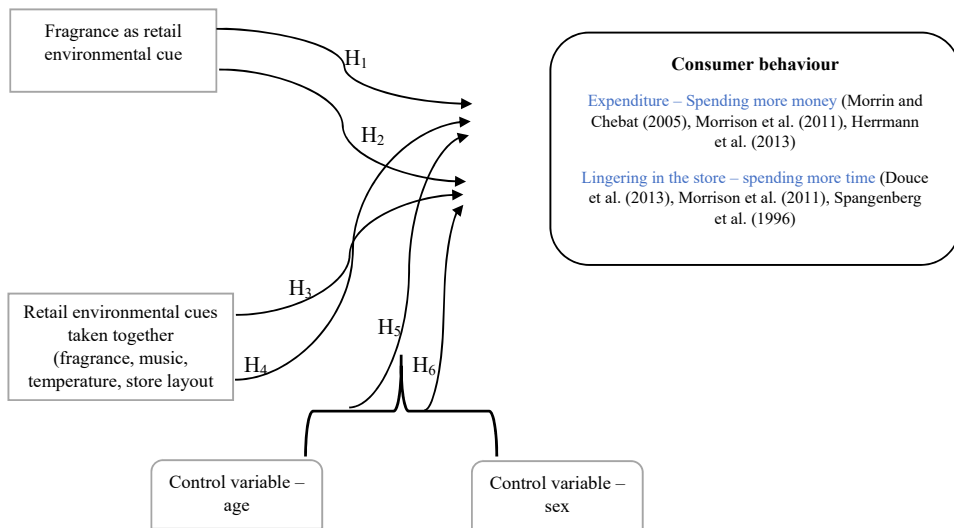
Doty et al. (1985) study reveals that if a particular retail store has a specific segment of the target group in terms of sex discretion, then they should consider the fact that females are more prone to get influenced than their male counterparts in response to sensitivity towards the scent. Considering physiological evidence, women have a greater level of sensitivity and outperform men in fragrance detection and response (considering detection, identification, discrimination and memory) and more response to fragrance than men (Doty and Leslie, 2009; Herz and Engen, 1996). Lehrner et al. (2000) study discuss that fragrance results in women exhibiting a more positive mood than men. However, not many tests are there discriminating gender differences in response to ambient fragrance (Baron 1997; Krishna et al., 2010) which might be a result of lower power in aggregate analysis. Chebat et al. (2009) fragrance facilitates expenditure for young consumers less than 35 years of age and does not have a significant impact on older consumers. At the same time, considerable differences in respondents'

susceptibility to ambient fragrance could be related to olfactory capacity which continues to change with age during an individual's lifespan, where significant loss of olfaction happens for older generations (Correia et al., 2016). Corrie et al. (2016) study also determined that olfactory performance is best visible within the age group of 20 to 40 years and considerably declines afterward.

- This leads us to propose H5 and H6: control variable gender and age influence consumer's decision-making considering time spend and money spent inside a retail store.

Considering the hypotheses framed, the following conceptual framework has been proposed.

Figure 1 Conceptual framework understanding the impact of fragrance on consumer behaviour under the influence of control variables (self-constructed) (see online version for colours)



3 Research objectives and hypotheses constructed for the study

3.1 Objectives

The below objectives are constructed for the study considering the extensive literature on fragrance marketing and its association with consumer decision making.

- 1 To explore the impact of fragrance independently on consumers' decision-making process contributing to time spent inside a retail outlet.
- 2 To investigate the impact of fragrance independently on consumers' decision-making process contributing to money spent inside a retail outlet.

- 3 To investigate the impact of fragrance along with other environmental cues (music, temperature and store layout) on consumers' decision-making process contributing to both time and money spent inside a retail outlet.
- 4 To investigate the impact of control variables 'age' and 'sex' on consumers' decision-making process contributing to both time and money spent inside a retail outlet.

3.2 *Hypotheses*

- H1 Fragrance independently influences consumers' decision-making considering the money spent inside a retail outlet.
- H2 Fragrance independently influences consumers' decision-making considering time spent inside a retail outlet.
- H3 Fragrance along with other environmental cues (music, temperature and store layout) taken together to influence consumer's decision-making considering time spent inside a retail outlet.
- H4 Fragrance along with other environmental cues (music, temperature and store layout) taken together to influence consumer's decision-making considering the money spent inside a retail outlet.
- H5 Control variables (age and sex) influence consumer's decision-making considering the money spent inside a retail outlet.
- H6 Control variables (age and sex) influence consumer's decision-making considering time spent inside a retail outlet.

4 **Research methodology**

The concerned study was carried out in shopper's stop shopping mall in Kolkata City, India covering widespread age distribution of the respondents to have a balance on the responses received. The sampling unit were residents of Kolkata City.

A total of 228 survey responses were received out of which 38 were needed to be discarded because of incomplete responses. Finally, 190 responses were considered for the study using a mall intercept survey. The sampling techniques rely on choosing confidence intervals of 95% with a margin error of 5%, and the average of retail consumers on the place we distributed the survey was less than 6,000. So, 190 samples are sufficient to run the analysis.

The survey involved administering a research questionnaire based on the research question of the study. The researcher has conducted several mall intercept surveys across three locations of Shoppers Stop retail shop in Kolkata to ensure that the variability within the population of interest is represented. The questionnaire blueprint happens to be close-ended with the usage of the 5-point likert scale (ranging from strongly disagree to neutral and further strongly agree) and at the same time respected the ethical standards for personal rights.

5 Data analysis and interpretation

The study uses Cronbach's alpha to measure reliability; the scale reliability is .72, indicating that the items on the measurement scale are reliable.

Table 2 Correlation amongst the environmental cues (fragrance, music, store layout and temperature)

	<i>Environmental cue fragrance</i>	<i>Environmental cue music</i>	<i>Environmental cue store layout</i>	<i>Environmental cue temperature</i>
Environmental cue fragrance		0.089	−0.209**	0.139
Sig. (2 tailed)		0.221	0.004*	0.056
Environmental cue music	0.089		0.002	0.204**
Sig. (2 tailed)	0.221		0.973	0.005*
Environmental cue store layout	−0.209**	0.002		0.154*
Sig. (2 tailed)	0.004*	0.973		0.033*
Environmental cue temperature	0.139	0.204**	0.154*	
Sig. (2 tailed)	0.056	0.005*	0.033*	

Note: β Standardised path; * $P \leq 0.05$, ** $P \leq 0.01$ and *** $P \leq 0.001$.

From Table 2, the results show that there is a weak positive correlation between environmental cue fragrance and music inside a retail store setup (0.089) having a p-value of 0.221. As the p-value is not less than 0.05, the two variables do not have a statistically significant association.

Also, the results depict a weakly negative correlation between environmental cue fragrance and environmental cue store layout (−0.209) and the p-value is 0.004, which is less than 0.05 and hence the variables have a statistically significant association.

The results also show that there is a weak positive correlation between environmental cue fragrance and environmental cue temperature (0.139) and the variables are not statistically significant having a p-value of 0.056 which is higher than 0.05.

The table also suggests that environmental cue music and environmental cue store layout are weakly positively correlated (0.002) but they are not statistically significant as the p-value came out to be 0.973 which is higher than 0.05.

The variables environmental cue music and environmental cue temperature indicated a weak positive correlation (0.204) having a p-value of 0.005 which is lower than 0.05 and hence both the variables are statistically significant.

Finally, environmental cue store layout and environmental cue temperature are weakly positively correlated (0.154) having a p-value of 0.033. Hence the relationship is statistically significant as the p-value is less than 0.05.

From Table 3, the first equation that has been formed is

$$\text{Consumer purchase intention_money spent (CPI_MS)} = \beta_0 + \beta_1 (\text{Fragrance}) + \varepsilon_1$$

Here, fragrance is the independent variable that affects the dependent variable consumer purchase Intention_Money spent and ε_1 represents the various aspects of the individual human behaviour which come into play during a purchase process.

Table 3 Regression output

<i>Regression</i>	<i>P. value</i>	<i>B</i>	<i>T-value</i>	<i>Testing</i>
Fragrance on Consumer_Purchase_Intention_Money spent	0.000	0.37	5.4	Supported
Fragrance on Consumer_Purchase_Intention_Time spent	0.000	0.46	7.1	Supported
Environmental_Cue_Fragrance on time spent	0.000	0.48	7.3	Supported
Environmental_Cue_Music on time spent	0.24	-0.075	-1.2	Not supported
Environmental_Cue_Store layout on time spent	0.41	0.053	-0.81	Not supported
Environmental_Cue_Temperature on time spent	0.007	-0.18	-2.7	Supported
Environmental_Cue_Fragrance on money spent	0.000	0.39	5.7	Supported
Environmental_Cue_Music on money spent	0.403	-0.056	-0.83	Not supported
Environmental_Cue_Store layout on money spent	0.215	-0.085	-1.24	Not supported
Environmental_Cue_Temperature on money spent	0.002	-0.216	-3.15	Supported

Note: β standardised path; * $P \leq 0.05$, ** $P \leq 0.01$ and *** $P \leq 0.001$.

The result in Table 3 shows that the correlation between the fragrance (independent variable) and consumer purchase Intention_Money spent (dependent variable) is statistically significant with $p < 0.05$ and $\beta = 0.37$, accepting the H1, i.e., fragrance has a significant impact on money spent inside retail outlet thus, with one unit increase in the level of fragrance, the consumer purchase Intention_Money spent would increase by 37%.

The second equation has been formulated as

$$\text{Consumer purchase intention_money spent (CPI_TS)} = \beta_0 + \beta_1 (\text{Fragrance}) + \varepsilon_1$$

The equation refers to fragrance as the independent variable which affects the dependent variable consumer purchase Intention_Time spent and ε_1 represents the various situational aspects of human individual behaviour which come into play during a purchase process.

Results in Table 3 shows that the correlation between the fragrance (independent variable) and consumer purchase Intention_Time spent (dependent variable) is statistically significant with $p < 0.05$ and $\beta = 0.46$, thus, accepting the H2, i.e., fragrance has a significant impact on time spent inside retail outlet thus, with one unit increase in the level of fragrance, the consumer purchase Intention_Time spent would increase by 46%.

The third equation which was formulated was

$$\text{Consumer purchase Intention_Time spent (CPI_TS)} = \beta_0 + \beta_1(\text{Fragrance}) \\ + \beta_2(\text{Music}) + \beta_3(\text{Store_Layout}) + \beta_4(\text{Temperature}) + \varepsilon_1$$

The equation refers to environmental cues fragrance, music, Store_Layout and temperature as the composite independent variable which affects the dependent variable consumer purchase Intention_Time spent and ε_1 represents the various situational aspects of the human behaviour which comes into consideration during a purchase process.

The results in Table 3 show that the correlation between all the independent variables taken together, only fragrance and temperature is statistically significant with the dependent variable consumer purchase Intention_Time spent (DV) with $p < 0.05$ and $\beta = 0.48$ and -0.18 , whereas p-value for music and store layout are more than 0.05 (0.24 and 0.41) and hence it is not statistically significant. Thus, the overall model is statistically significant thereby accepting H3, i.e., composite environmental cues (fragrance, music, temperature and store layout) taken together have a significant impact on time spent inside a retail outlet. However, individually, music and store layout does not have any significant impact on the dependent variable consumer purchase Intention_Time spent (CPI_TS).

$$\text{Fourth, consumer purchase Intention_Money spent (CPI_MS)} \\ = \beta_0 + \beta_1(\text{Fragrance}) + \beta_2(\text{Music}) + \beta_3(\text{Store_Layout}) \\ + \beta_4(\text{Temperature}) + \varepsilon_1$$

The equation refers to fragrance, music, Store_Layout and temperature as the composite independent variable which affects the dependent variable consumer purchase Intention_Money spent and ε_1 represents the other behavioural aspects of the humans that get noticed during a purchasing process.

Table 4 Control variable output

	<i>P-value</i>	<i>Testing</i>
Control Variables (age and sex) on D.V. purchase behaviour of consumer (spend more money)	0.048	Supported
Sex as predictor (p-value = 0.631)		
Age as predictor (p-value = 0.018)		
Control variables (age and sex) on D.V. purchase behaviour of consumer (spend more time)	0.372	Not supported
Sex as predictor (p-value = 0.345)		
Age as predictor (p-value = 0.334)		

The results in Table 3 show that the correlation between all the independent variables taken together, only fragrance and temperature is statistically significant with the dependent variable consumer purchase Intention_Money spent (DV) with $p < 0.05$ and $\beta = 0.39$ and -0.216 , whereas p-value for music and store layout are more than 0.05 (0.403 and 0.215) and hence it is not statistically significant. Thus, the overall model is statistically significant thereby accepting H4, i.e., composite environmental cues (fragrance, music, temperature and store layout) taken together have a significant impact on money spent inside a retail outlet. However, individually, music and store layout does

not have any significant impact on the dependent variable consumer purchase Intention_Money spent (CPI_TS).

From Table 4, considering the impact of control variable age and sex on the dependent variable consumer purchase Intention_Money spent, it is observed that the overall p-value is 0.048 which is less than 0.05. Hence, the control variables age and sex together are statistically significant with the dependent variable consumer purchase Intention_Money spent, thereby accepting H5, i.e., control variables (age and sex) have a significant impact on money spent inside a retail outlet. So, they will have an impact on dependent variables combinedly. But independently, the p-values for these two variables are 0.631 and 0.018 respectively, which indicates that sex alone is statistically insignificant on the dependent variable consumer purchase Intention_Money spent since the p-value is greater than 0.05. hence independently it can not control the consumer's purchasing intentions inside a retail store when spending more money is taken into consideration.

From Table 4, understanding the influence of control variable age and sex on the dependent variable consumer purchase Intention_Time spent, it is grounded that the overall p-value is 0.372 which is greater than 0.05. Hence, the control variables age and sex together are statistically insignificant with the dependent variable consumer purchase Intention_Time spent, thereby accepting H6, i.e., control variables (age and sex) have no impact on time spent inside a retail outlet. However, the p values individually for these two variables are 0.345 and 0.334 respectively, which indicates that both sex and age are statistically insignificant on the dependent variable consumer purchase Intention_Time spent since its p values are greater than 0.05 and hence both independently have enough influence on consumer's purchase decision making inside a retail outlet when spending more time is taken into consideration.

6 Conclusions and limitations for the study

The research study addresses a very important understanding of consumers' decision-making process inside retail stores under aromatic conditions. The analysis investigates that fragrance independently inside a retail store does influence consumers' purchase intention regarding both 'time' spent inside the retail store and 'money' spent inside the retail store. It was also observed that when the fragrance is clubbed with other Environmental Cues like music, store layout, and temperature, the composite effect of fragrance and temperature create an impact on consumer purchase decisions inside the retail store. Finally, the control variable 'age' only seems to have an impact on consumer purchase decisions considering 'money' spent, and 'sex' does not have any significant impact on purchase decisions considering both 'money' and 'time' spent.

Past research on the impact of fragrance on understanding consumer decision-making process under a retail setup is mostly conducted considering an experimental group-controlled group setup. Hence it would be interesting to replicate the same study environment having conducted under an experimental group-controlled group setup and see if the same results could be achieved. However, considering the extreme pandemic conditions, the experimental setup could not be executed for this current study. Finally, retail firms are desperately trying to full-proof their in-store innovations with pleasant ambient fragrance, an unpleasant fragrance could yield serious detrimental effects, with severe impact than a pleasant fragrance yielding positive effects (Herz, 2010). Hence an

extensive exploration and understanding of the impact of unpleasant fragrance for sources displayed inside retail spaces need to be explored given the lack of studies conducted.

7 Future scope of research

There is considerable scope for future research. First, with moderate sample size, this study result is limited, and it would be not possible to generalise these findings to the entire Indian population. Future studies are intended to validate the robustness of this study's results by using a larger sample, with more participants per city, across various cities in India. Second, further research should also assess the validity of these conclusions across Asian countries, which share socio-demographic similarities and might lead to similar results.

References

- Anderson, K. and Smith, S.J. (2001) *Emotional Geographies*, Vol. 26, No. 1, pp.7–10.
- Axel, R. (1995) 'The molecular logic of smell', *Scientific American*, Vol. 273, No. 4, pp.130–137.
- Barahona, I., Sanmiguel Jaimes, E.M. and Yang, J.B. (2020) 'Sensory attributes of coffee beverages and their relation to price and package information: a case study of Colombian customers' preferences', *Food Science and Nutrition*, Vol. 8, No. 2, pp.1173–1186.
- Baron, R.A. (1997) 'The sweet smell of... helping: effects of pleasant ambient fragrance on prosocial behavior in shopping malls', *Personality and Social Psychology Bulletin*, Vol. 23, No. 5, pp.498–503.
- Bell, S. and Bell, C.P. (2007) 'Future sense: defining brands through scent', *The Journal of the Marketing Society*, Vol. 38 [online] http://www.marketingsociety.org.uk/About/manifesto/growthdrivers/Documents/ML_Stephen_Bell.pdf, (accessed 15 October 2021).
- Chatterjee, R. and Shukla, Y.S. (2020) 'Examining the role of culture, retail environment, and emotions in determining festival shopping engagement: an emerging market perspective', *International Journal of Indian Culture and Business Management*, Vol. 20, No. 3, pp.385–408.
- Chatterjee, S. (2015) 'Olfactory branding: a new trend for defining brands through smell – a case of ITC Sonar Hotel in Kolkata, India', *International Journal of Trade and Global Markets*, Vol. 8, No. 3, pp.196–206.
- Chatterjee, S. and Bryła, P. (2022) 'Innovation and trends in olfactory marketing: a review of the literature', *Journal of Economics and Management*, Vol. 44, No. 1, pp.210–235.
- Chatterjee, S. and Kundu, A. (2020) 'Sub-conscious decision mapping and network framework for retail market consumption', *Indian Journal of Marketing*, Vol. 50, No. 2, pp.35–51.
- Chebat, J.C., Morrin, M. and Chebat, D.R. (2009) 'Does age attenuate the impact of pleasant ambient scent on consumer response?', *Environment and Behavior*, Vol. 41, No. 2, pp.258–267.
- Correia, C., Lopez, K.J., Wroblewski, K.E., Huisinigh-Scheetz, M., Kern, D.W. and Chen, R.C. (2016) 'Global sensory impairment in older adults in the United States', *Journal of the American Geriatrics Society*, Vol. 64, No. 2, pp.306–313.
- Doty, R.L. and Leslie, E.C. (2009) 'Sex differences and reproductive hormone influences on human odor perception', *Journal of Physiology and Behavior*, Vol. 97, No. 2, pp.213–28.
- Doty, R.L., Newhouse, M.G. and Azzalina, J.D. (1985) 'Internal consistency and short-term test-retest reliability of the University of Pennsylvania smell identification test', *Chemical Senses*, Vol. 10, No. 3, pp.297–300.

- Douce L. and Wim J, (2013) 'The presence of a pleasant ambient scent in a fashion store: the moderating role of shopping motivation and affect intensity', *Environment and Behavior*, Vol. 45, No. 2, pp.215–238.
- Douc  , L. and Adams, C. (2020) 'Sensory overload in a shopping environment: not every sensory modality leads to too much stimulation', *Journal of Retailing and Consumer Services*, Vol. 57, No. 6, p.102154.
- Herrmann, A., Zidansek, M., Sprott, D.E. and Spangenberg, E.R. (2013) 'The power of simplicity: processing fluency and the effects of olfactory cues on retail sales', *Journal of Retailing*, Vol. 89, No. 1, pp.30–43.
- Hertz, R.S. (1997) 'The effects of cue distinctiveness on odor-based context-dependent memory', *Memory and Cognition*, Vol. 25, No. 3, pp.375–380.
- Herz, R.S. (2010) 'The emotional, cognitive, and biological basics of olfaction: implications and considerations for scent marketing', in *Sensory Marketing*, pp.87–107, Aradhna Krishna, ed. Routledge, New York.
- Herz, R.S. and Engen, T. (1996) 'Odor memory: review and analysis', *Psychonomic Bulletin and Review*, Vol. 3, No. 3, pp.300–313.
- Hirsch (1991) *The Effect of Ambient Odour on Slot Machine Usage in a Las Vegas Casino*, Smell and Taste Treatment and Research Foundation Ltd, Chicago, IL.
- Hult  n, B. (2013) 'Sensory cues as in-store innovations: their impact on shopper approaches and touch behavior', *Journal of Innovation Management*, Vol. 1, No. 1, pp.17–37.
- Jain, V., Naik, A. and Ganesh, B.E. (2019) 'Discovering the factors influencing the decision making among Generation Y for luxury and premium spas', *International Journal of Indian Culture and Business Management*, Vol. 19, No. 4, pp.509–528.
- Knasko, S.C. (1989) 'Ambient odor and shopping behavior', *Chemical Senses*, Vol. 14, No. 5, pp.718–719.
- Krishna, A., Lwin, M.O. and Morrin, M. (2010) 'Product scent and memory', *Journal of Consumer Research*, Vol. 37, No. 1, pp.57–67.
- Kumar, S., Garg, R.J. and Saini, C.P. (2021) 'Identification of key drivers to shopping malls: a case of Indore City', *International Journal of Indian Culture and Business Management*, Vol. 23, No. 3, pp.383–393.
- Lecomte, S. (2015) *Sensory Marketing, a New Weapon for Restaurant Owners* [online] <https://www.restoconnection.com/sensory-marketing-new-weapon-restaurant-owners> (accessed 19 October 2020).
- Leenders, M.A., Smidts, A. and Haji, A.E. (2019) 'Ambient scent as a mood inducer in supermarkets: the role of scent intensity and time-pressure of shoppers', *Journal of Retailing and Consumer Services*, Vol. 48, No. 3, pp.270–280.
- Lefebvre, S. and Biswas, D. (2019) 'The influence of ambient scent temperature on food consumption behavior', *Journal of Experimental Psychology: Applied*, Vol. 25, No. 4, p.753.
- Lehrner, J., Eckersberger, C., Walla, P., P  tsch, G. and Deecke, L. (2000) 'Ambient odor of orange in a dental office reduces anxiety and improves mood in female patients', *Physiology and Behavior*, Vol. 71, Nos. 1–2, pp.83–86.
- Lindstrom, M. and Kotler, P. (2005) *Brand Sense: Build Powerful Brands through Touch, Taste, Smell, Sight, and Sound*, Simon and Schuster, New York, NY.
- Luca, R.D. and Botelho, D. (2020) 'Olfactory priming on consumer categorization, recall, and choice', *Psychology and Marketing*, Vol. 37, No. 8, pp.1101–1117.
- Mattila, A.S. and Wirtz, J. (2001) 'Congruency of scent and music as a driver of in-store evaluations and behavior', *Journal of Retailing*, Vol. 77, No. 2, pp.273–289.
- Morrin, M. (2010) 'Scent marketing. An overview', in Krishna, A. (Ed.): *Sensory Marketing. Research on the Sensuality of Products*, pp.75–83, Routledge, New York.

- Morrin, M. and Chebat, J.-C. (2005) 'Person place congruency: the interactive effects of shopper style and atmospherics on consumer expenditures', *Journal of Service Research*, Vol. 8, No. 2, pp.181–191.
- Morrison, M., Gan, S., Dubelaar, C. and Oppewal, H. (2011) 'In-store music and aroma influences on shopper behavior and satisfaction', *Journal of Business Research*, Vol. 64, No. 6, pp.558–564.
- Rit, M.P., Croijmans, I. and Speed, L.J. (2019) 'High-tempo and stinky: high arousal sound–odor congruence affects product memory', *Multisensory Research*, Vol. 32, Nos. 4–5, pp.347–366.
- Silva, J., Sá, E.S., Escadas, M. and Carvalho, J. (2021) 'The influence of ambient scent on the passengers' experience, emotions and behavioral intentions: an experimental study in a public bus service', *Transport Policy*, Vol. 106, No. 7, pp.88–98.
- Singh, N. and Gupta, M. (2020) 'Key factors affecting customer relationship management in real estate sector: a case study of national capital region', *International Journal of Indian Culture and Business Management*, Vol. 20, No. 2, pp.194–209.
- Spangenberg, E.R., Crowley, A.E. and Henderson, P.W. (1996) 'Improving the store environment: do olfactory cues affect evaluations and behaviors?', *The Journal of Marketing*, Vol. 60, No. 2, pp.67–80.
- Spangenberg, E.R., Grohmann, B. and Sprott, D.E. (2006) 'It's beginning to smell (and sound) a lot like christmas: the interactive effects of ambient scent and music in a retail setting', *Journal of Business Research*, Vol. 58, No. 11, pp.1583–1589.
- Stein, B.E., Terrence, R.S., Ramnarayan, R., Thomas, J., Perrault, Jr. and Rowland, B.A. (2009) 'Challenges in quantifying multisensory integration: alternative criteria, models, and inverse effectiveness', *Experimental Brain Research*, Vol. 198, Nos. 2–3, pp.113–126.
- Wee, L.K.N. and Tong, K.W. (2005) *The 4Rs of Asian Shopping Centre Management*, Marshall Cavendish, Singapore.
- Woodruff, R.B., Cadotte, E.R. and Jenkins, R.L. (1982) *Modeling Consumer Expectations and Satisfaction Processes Using Experienced-Based Norms*, Working Paper Series, The College of Business Administration, The University of Tennessee.
- Xiao, J., Tait, M. and Kang, J. (2020) 'Understanding smellscape: sense-making of smell-triggered emotions in place', *Emotion, Space and Society*, Vol. 37, No. 4, p.100710.

‘You can close your eyes, cover your ears, refrain from touch, and reject taste, but smell is part of the air we breathe. It’s the one sense you can’t turn off.’ --- Martin Lindstrom, Brand Sense, 2005.

Conclusion

This study combines qualitative and quantitative methods to offer a thorough knowledge of consumer decision-making in retail settings with an emphasis on the interaction of sensory cues, social interactions, and cultural influences.

This study tested the hypotheses for a cross-cultural investigation into the effects of companionship and ambient fragrance on consumer behavior in retail settings. It further investigated the impact of fragrance on consumer loyalty in terms of cognitive, behavioral, and attitudinal dimensions.

Hypothesis 1 was validated, showing that companionship has a more favorable impact on Indian consumers' time, money, and impulsive purchases in scented retail settings than it does on Polish consumers, in line with other research (Leenders et al., 2019; Elmashhara & Soares, 2022; Hofstede, 2001).

The findings for Hypothesis 2 were not entirely consistent. Contrary to predictions, Polish consumers showed higher favorable cognitive responses to the impact of companionship and fragrance, including stronger brand positioning, exclusivity, and decreased price sensitivity. Similar results were seen in behavioral reactions, such as intentions to repurchase and revisit, with Polish consumers showing more significant influences from companionship in perfumed spaces. However, companionship among Indian consumers had a more significant favorable impact on attitudinal responses, such as store choice and referral, in line with the Stimulus-Organism-Response paradigm (Mehrabian & Russell, 1974).

Hypothesis 3 produced mixed results. While Polish consumers did not experience this effect, pleasant ambient smells significantly boosted purchasing among Indian consumers.

The fourth hypothesis was substantiated, confirming that consumers exposed to fragrance in a retail environment cultivate positive cognitive, behavioral, and attitudinal loyalty, enhancing favorable consumer purchase intentions.

The results show how culture, companionship, and demographics play complex roles in reducing ambient scents' impact on consumer behavior.

Using the Zaltman Metaphor Elicitation Technique (ZMET), the qualitative study revealed the symbolic and subconscious associations that customers make by delivering a meaningful cognitive map (Christensen & Olson, 2002) with retail store features such as staff conduct, store layout, and sensory stimulation, which contributes to a better understanding of their decision-making.

These results highlight how important emotionally charged retail tactics are for raising customer happiness and building long-term brand association.

On the other hand, with a comparative focus on culturally different markets—India and Poland—the quantitative component further investigated these dynamics by analyzing the moderating effect of social situations (shopping alone versus with companions) on the impact of ambient fragrances. The results showed that cultural orientation significantly influences consumer reactions, with individualistic Polish consumers displaying more autonomous decision-making tendencies and collectivist Indian consumers showing greater sensitivity to social cues. The results align with the study conducted by Nayeem (2012), which suggested that the Asian respondents inclined more toward a collectivistic approach than their Western counterparts.

This study combines the findings of investigations using qualitative and quantitative approaches to deepen our understanding of how environmental, social, and cultural elements

interact to shape consumer behavior in retail contexts. The combination of qualitative depth and quantitative generalizability provides a strong framework for developing theoretical viewpoints in sensory marketing and cross-cultural consumer behavior.

Apart from adding to the body of current research, these findings highlight the significance of contextually adaptive retail strategies that meet customer expectations and cultural values. In the dynamic field of international retail marketing, this dual-method approach bridges the gap between theoretical investigation and real-world application, providing significant implications for scholars and practitioners alike.

Theoretical & Managerial Implications

Theoretical Contributions to Cognitive Learning Theory

The qualitative study using the Zaltman Metaphor Elicitation Technique (ZMET) extends the Social Learning Theory (Rotter, 2021) by showing how retail consumers internalize and retrieve emotional associations with store attributes. Findings indicate that sensory cues, especially fragrances, store layout, memory revisit, and confidentiality enhance consumers' ability to form mental frameworks that influence satisfaction and loyalty.

Furthermore, the study enriches the Cognitive Learning Theory by highlighting the interactions between semi-conscious emotional responses and conscious evaluations in shaping behavior. It demonstrates that metaphors elicited through ZMET capture implicit learning often overlooked in traditional cognitive models, emphasizing deep-rooted associations in decision-making.

The research introduces a novel approach by applying ZMET to investigate cognitive learning processes among retail consumers. This technique reveals explicit consumer preferences and the semi-conscious framework through which they interpret retail

environments. Integrating qualitative metaphor elicitation into cognitive learning represents significant methodological innovation.

Results underscore the importance of sensory stimuli (tactile, visual, and olfactory) in enhancing experiential learning. They serve as cognitive triggers that affect how consumers encode, store, and retrieve memories related to retail, ultimately impacting brand loyalty.

This study identifies important characteristics that appeal to the target population and shows how Cognitive Learning Theory may direct the design of consumer-centric retail settings. By leveraging sensory cues (mostly olfactory cues) to elicit good emotions, optimizing layouts for ease of navigation, and training employees to align their behavior with consumer expectations, retailers can use the study's results to build environments that increase cognitive engagement.

The study connects the domains of cognitive psychology and retail marketing by demonstrating how metaphors and subconscious associations impact consumers' learning processes. This interdisciplinary contribution expands the theoretical applications of Cognitive Learning Theory and offers a sophisticated comprehension of the convergence of emotional and cognitive elements in consumer behavior.

The advancement of the Theory of Planned Behavior (TPB)

The study results show how social contexts, whether shopping alone or with others, have a major impact on how consumers' attitudes, subjective norms, and perceived behavioral control are formed in retail settings. Companionship enhances our understanding of the interplay between internal motivators and external influences by highlighting how social factors affect decision-making. Additionally, the findings support the TPB framework by demonstrating that ambient smell influences consumer attitudes and intentions as an external environmental element. This realization emphasizes how olfactory signals can affect

behavioral intentions, particularly when combined with culturally appropriate social situations.

Contributions to Schwartz's Theory of Cultural Values

The findings corroborate Schwartz's cultural dimensions—individualism and collectivism—as significant regulators of sensory marketing effects by contrasting Polish and Indian customers. While the independence exhibited by Polish consumers reflects individualistic tendencies, the greater reliance on social cues among Indian consumers aligns with collectivist cultural characteristics.

Furthermore, this study establishes a connection between sensory marketing and Schwartz's value dimensions by illustrating how cultural values influence consumers' perception of environmental stimuli. It emphasizes the culturally conditioned nature of olfactory signals and their influence on decision-making, thus presenting a novel application of the theory within retail contexts.

Advancing Stimulus-Organism-Response (SOR) Theory

The study elucidates the influence of companionship on the relationship between sensory inputs, specifically fragrance, and consumer responses by integrating social context within the SOR framework. These modifications enhance our comprehension of the interplay between social and psychological factors and external cues in shaping consumer behavior. Furthermore, cultural norms and values significantly impact the organismic responses to fragrances, including emotional arousal and cognitive engagement. These findings underscore the importance of considering cultural diversity in developing effective sensory marketing campaigns.

Within the SOR framework, the study presents a dynamic interaction model that underscores the co-creation of consumer responses through environmental cues, such as fragrance, and social context. This nuanced approach offers a more sophisticated understanding of how interpersonal and environmental elements collectively influence retail experiences.

Cross-Theoretical Integration and Practical Implications

The study offers a thorough theoretical framework for comprehending customer behavior in cross-cultural retail settings by combining ideas from TPB, Schwartz's cultural theory, and SOR. This integration demonstrates how psychological, cultural, and environmental elements influence decision-making processes.

The conclusions provide valuable foundations for global marketers and highlight the significance of adjusting fragrance marketing tactics to specific cultural and social conditions. Businesses can improve customer satisfaction and loyalty by coordinating retail initiatives with social dynamics and cultural values.

Managerial implications

The study has several managerial underpinnings.

- The qualitative studies gave marketers practical ideas on improving the in-store strategy by revealing insightful information about retail store features that improve the shopping experience. Semi-conscious consumer needs that lead to a satisfying shopping experience were uncovered using laddering interviews. Customers valued sensory cues—especially smell stimuli—for creating a fun and engaging atmosphere. Additionally, as nostalgia is essential to creating enduring brand ties, re-establishing contact with companies through memory recall worked well. Marketers should use sensory components and nostalgia cues to

encourage customers to relive satisfying experiences and deepen their emotional connections with the brand.

- Enhancing trust and loyalty can also be achieved by providing a "feel-good" factor by ensuring customers are as comfortable as possible through guided help and immersive sensory experiences. When used carefully, fragrances can help customers unwind and have a fulfilling shopping experience, which raises the possibility of measured retail scent therapy.

- Additionally, picture elicitation interviews highlighted the value of customer privacy, indicating that retail managers must prioritize confidentiality in the store setting. Using cutting-edge technologies, such as smart shelving and interactive displays, is also crucial to guarantee convenience and a more engaging shopping experience.

- Significant disparities between the Indian and Polish markets were noted, but the quantitative results support the influence of fragrance on the consumer-retailer interaction. As companionship significantly impacts Indian consumers, retail marketers should concentrate on group-targeted advertising campaigns and tailored tactics to attract a broad range of customers. In addition to helping staff better meet customer needs, customized training programs focusing on developing emotional intelligence can help employees reflect the professional standards that Indian consumers value. To improve their shopping experiences, Polish consumers, for whom companionship is less important, might profit from self-guided technological solutions like virtual reality headsets and interactive gadgets.

Limitations & Future Research Directions

Finally, it is worth considering the limitations of the conducted research that may have reduced the effectiveness of the contribution of the scientific results. Regional constraints were present in both the qualitative and quantitative parts. Only Lodz in Poland and Kolkata in India were selected to conduct the experiments. Hence, respondents from these regions

might be more social or extreme shoppers than those from the other cities of the respective countries. Hence, the proposed model could be tested in other regional contexts or by doing cross-cultural studies to compare results from different cultures. Moreover, the studied malls have their unique characteristics, and therefore, the results cannot be generalized to other shopping areas such as town centers, shopping streets, or factory-outlet malls. Moreover, the qualitative studies focused on ambient fragrance amongst the sensory cues as the key driver for a convenient shopping experience. Hence, further research is needed to determine other environmental cues such as shopping mall locations, weather conditions, and social factors like desirability to stay in the shopping areas.

The quantitative study lacks generalizability, focusing on consumers from India and Poland in the context of cross-cultural companionship and existing fragrances. Hence, further studies should focus on conducting a control group experimental setup under the influence of fragrance across these two studies. Moreover, the quantitative study focused mainly on the age group between 20 and 40. Hence, a future research agenda could focus on older shoppers' understanding of their distinct preferences for companionship under the influence of fragrance. Lastly, the quantitative study used a cross-sectional design, extracting data at a single point in time. Hence, a further longitudinal study could initiate data collection at different times to estimate the involvement of other atmospheric cues.

APPENDIX 1. SURVEY QUESTIONNAIRE (in English) – article 3

Survey Instrument (Questionnaire)

Consumer Attitude and Behavior influenced by Olfactory Marketing: A Cross-Country study of the Retail Industry

Dear Respondent,

I am doing my Ph.D. at the Doctoral School of Social Science, University of Lodz, Poland. I am researching the effects of smell/fragrance inside the stores (retail stores) on consumers' purchasing behavior decision making and how fragrance could contribute to building store-brand loyalty. I would like to ask you some questions about this. Please remain assured that the answers you gave will be kept confidential and used for purely research purposes.

Thank you.

Shuvam Chatterjee, Full Time Doctoral Researcher, Doctoral School of Social Science, University of Lodz, Poland

Section – 1: Purchase Behavior Determination

a) Please answer the following questions.

S.N.	Questions	Response
1	When did you last visit a supermarket?	<input type="checkbox"/> Within last month <input type="checkbox"/> Within last 2-3 months <input type="checkbox"/> Within the last 4-6 months <input type="checkbox"/> Within last 7-12 months <input type="checkbox"/> Before a year ago
2	Which is the name of the supermarket you have last visited?	
3	How often do you visit this facility in a year?	<input type="checkbox"/> 1 <input type="checkbox"/> 2 to 4 <input type="checkbox"/> 5 to 10 <input type="checkbox"/> above 10
4	What are the attributes that you like about this facility?	<input type="checkbox"/> Store layout <input type="checkbox"/> price <input type="checkbox"/> Smell/fragrance <input type="checkbox"/> location <input type="checkbox"/> Range/variety of Assortments <input type="checkbox"/> Store employee behavior <input type="checkbox"/> Others (temperature, music)
5	How much time have you spent in that supermarket in your last visit (In minutes)?	
6	How much money have you spent in the supermarket that you have visited last (in Rupees)?	
7	Did you make any unplanned/impulse purchase during your last visit to the retail store?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I am not sure

b) Please answer the following questions

S.N.	Questions	Response				
1	Overall, I did feel the presence of fragrance inside the supermarket I last visited (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
2	Overall, did you feel that fragrance inside the retail store made you spend more time in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
3	Overall, did you feel that fragrance inside the retail store made you spend more money in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
4	Overall, did you feel that fragrance inside the retail store made you incur unplanned/impulsive purchase in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5

Section – 2: Olfactory Level Determination: - Planning to use as a pre-test for retail store visit for consumers

The following statements are meant to understand the level of smell/fragrance inside the facility (supermarket)

For each statement you have to either agree or disagree based on the given scale, where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

Please answer the following questions.

S.N.	Questions	Response				
1	Did you experience any specific fragrance inside that supermarket? (Yes / No)	<input type="checkbox"/> Yes <input type="checkbox"/> No				
2	Overall, how pleasant was the environment in terms of fragrance? (1-very unpleasant, 5-very pleasant)	1	2	3	4	5
3	Overall, how intense was the environment in terms of fragrance inside that supermarket? (1-low intense, 5-highly intense)	1	2	3	4	5
4	I can differentiate a particular store with a specific fragrance. (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
5	I believe that smell/fragrance inside that supermarket creates a unique shopping experience. (1-strongly disagree, 5-strongly agree)	1	2	3	4	5

Section – 3: Culture and consumer decision making

The following statements are meant to understand the influence of culture on consumer's decision making inside a retail store. For each statement you must either agree or disagree based on the given scale, where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

1	Overall, do you feel that shopping with a companion made you spend more time in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
2	Overall, do you feel that shopping with a companion made you spend more money in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
3	Overall, do you feel that shopping with a companion had a positive impact in deciding your products in the supermarket (1-strongly disagree, 5-strongly agree)	1	2	3	4	5

Section – 4: Determination of Customer Loyalty

The following statements are meant to understand your loyalty with the facility (Supermarket) For each statement you must either agree or disagree based on the given scale, where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

S.N.	Statements	SD	D	N	A	SA
1	I would repurchase/revisit the same facility (supermarket) in the near future.	1	2	3	4	5
2	I would stick to this supermarket chain in the near future.	1	2	3	4	5
3	I would consider all purchases/services in a particular category from this supermarket.	1	2	3	4	5
4	I would certainly recommend this supermarket to others.	1	2	3	4	5
5	I have a strong preference to this supermarket.	1	2	3	4	5
6	I have a strong feeling of bonding/association with this supermarket.	1	2	3	4	5
7	This supermarket occupies a strong position in my mind.	1	2	3	4	5
8	This supermarket is the first preference for considering purchases/services.	1	2	3	4	5
9	Considering this supermarket, I would have less botheration/negative influence if there is a price fluctuation.	1	2	3	4	5
10	I would consider this supermarket exclusively for experiencing any purchase/service.	1	2	3	4	5

Section – 5: Demographic Profile

Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other
Age (in years)	
Highest Qualification	<input type="checkbox"/> School <input type="checkbox"/> University (Under Graduate) <input type="checkbox"/> University (Post Graduate) <input type="checkbox"/> Doctorate
Relationship status	<input type="checkbox"/> Single <input type="checkbox"/> Living with a partner <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widower/widow
Do you work	<input type="checkbox"/> Full Time <input type="checkbox"/> Part Time <input type="checkbox"/> No
If answer to your question above is “yes”, then what is your Professional situation?	<input type="checkbox"/> Student <input type="checkbox"/> Blue collar worker <input type="checkbox"/> White collar worker <input type="checkbox"/> Self-employed <input type="checkbox"/> Farmer <input type="checkbox"/> Unemployed <input type="checkbox"/> Pensioner <input type="checkbox"/> Other
Personal annual income (in rupees)	
Family annual income (in rupees)	
Email	
Place of Living	<input type="checkbox"/> Rural <input type="checkbox"/> Urban
Number of Children	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> More than 2

Thank you for your co-operation!

Informed Consent and Voluntary Participation Statement

We are conducting research on understanding the impact of fragrance on consumer's buying behavior. If you agree to participate in this research, you will be asked to fill up a simple survey which will not take more than 10 mins to fill. Your participation in this research is completely voluntary and you may choose not to participate or to withdraw from the study at any time without penalty.

By participating in this research, you understand that:

- The purpose of the research and the procedures that will be used have been explained to you.
 - The potential risks and benefits of the research have been explained to you.
 - You have been given the opportunity to ask questions and have received satisfactory answers.
 - Your participation is completely voluntary, and you may choose not to participate or to withdraw from the study at any time without penalty.
 - Any information that is collected about you will be kept confidential to the extent allowed by law.
- The data collected will be used for research purposes only and will not be shared with third parties.
- If you have any questions about this research, please contact

Shuvam Chatterjee

Doctoral Scholar – Doctoral School of Social Science

University of Lodz, Poland

shuvam.chatterjee@edu.uni.lodz.pl

If you agree to participate in this research, please sign this form and return it to Shuvam Chatterjee.

[Name] [Signature] [Date]

By signing this form, I confirm that I have read and understand the information provided and that I voluntarily agree to participate in this research

APPENDIX 2. SURVEY QUESTIONNAIRE (in Polish) – Article 3

Instrument ankiety (kwestionariusz)

Postawy i zachowania konsumentów pod wpływem marketingu zapachowego (międzynarodowe badanie branży detalicznej)

Szanowny Respondencie,

Przygotowuję doktorat w Szkole Doktorskiej Nauk Społecznych Uniwersytetu Łódzkiego. Prowadzę badania, aby zrozumieć wpływ zapachu w sklepach na podejmowanie decyzji zakupowych przez konsumentów, a także w jaki sposób zapach może przyczynić się do budowania lojalności wobec marki sklepu. Chciałbym zadać Pani/Panu kilka pytań na ten temat. Zapewniamy, że udzielone przez Państwa odpowiedzi będą traktowane jako poufne i zostaną wykorzystane wyłącznie do celów badawczych.

Dziękuję.

Shuvam Chatterjee, doktorant w Szkole Doktorskiej Nauk Społecznych Uniwersytetu Łódzkiego

Część 1. Określenie zachowań zakupowych

a) Proszę odpowiedzieć na poniższe pytania.

Nr	Pytanie	Odpowiedź
1	Kiedy ostatnio był(a) Pani/Pan w supermarkecie?	<input type="checkbox"/> W ciągu ostatniego miesiąca <input type="checkbox"/> W ciągu ostatnich 2-3 miesięcy <input type="checkbox"/> W ciągu ostatnich 4-6 miesięcy <input type="checkbox"/> W ciągu ostatnich 7-12 miesięcy <input type="checkbox"/> Ponad rok temu
2	Jak nazywa się supermarket, który ostatnio odwiedził(a) Pani/Pan?	
3	Jak często odwiedza Pani/Pan tę placówkę w ciągu roku?	<input type="checkbox"/> 1 <input type="checkbox"/> 2 do 4 <input type="checkbox"/> 5 do 10 <input type="checkbox"/> powyżej 10
4	Jakie są cechy, które lubi Pani/Pan w tym obiekcie?	<input type="checkbox"/> Układ sklepu <input type="checkbox"/> Ceny <input type="checkbox"/> Zapach <input type="checkbox"/> Lokalizacja <input type="checkbox"/> Zakres/różnorodność asortymentu <input type="checkbox"/> Zachowanie pracowników sklepu <input type="checkbox"/> Inne (temperatura, muzyka)
5	Ile czasu spędził(a) Pani/Pan w tym supermarkecie podczas ostatniej wizyty (w minutach)?	
6	Ile pieniędzy wyda(a) Pani/Pan w ostatnio odwiedzionym supermarkecie (w złotych)?	

7	Czy podczas ostatniej wizyty w sklepie detalicznym dokonał(a) Pan(i) jakiegoś nieplanowanego zakupu lub zakupu pod wpływem impulsu?	<input type="checkbox"/> Tak <input type="checkbox"/> Nie <input type="checkbox"/> Nie jestem pewna/pewien
---	---	---

b) Proszę odpowiedzieć na poniższe pytania

Nr	Pytanie	Odpowiedź				
1	Ogólnie rzecz biorąc, czułam/czułem obecność zapachu w supermarkecie, który ostatnio odwiedziłam/odwiedziłem (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
2	Ogólnie rzecz biorąc, czy czułam/czułem, że zapach w sklepie sprawił, że spędza Pani/Pan więcej czasu w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
3	Ogólnie rzecz biorąc, czy czułam/czułem, że zapach w sklepie sprawił, że wydaje Pani/Pan więcej pieniędzy w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
4	Ogólnie rzecz biorąc, czy czułam/czułem, że zapach w sklepie skłonił Panią/Pana do nieplanowanych/impulsywnych zakupów w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5

Część 2. Określenie poziomu zapachu – planowanie użycia jako testu wstępnego przed wizytą w sklepie detalicznym dla konsumentów

Poniższe stwierdzenia mają na celu zrozumienie poziomu zapachu w obiekcie (supermarkecie). Przy każdym stwierdzeniu proszę odpowiedzieć na podstawie podanej skali, gdzie 5=zdecydowanie się zgadzam, 4=zgadzam się, 3=obojętne, 2 = nie zgadzam się, 1 = zdecydowanie się nie zgadzam

Proszę odpowiedzieć na następujące pytania.

Nr	Pytanie	Odpowiedź				
1	Czy poczuł(a) Pani/Pan jakiś specyficzny zapach w tym supermarkecie? (Tak / Nie)	<input type="checkbox"/> tak <input type="checkbox"/> nie				
2	Ogólnie, jak przyjemne było otoczenie pod względem zapachu? (1-bardzo nieprzyjemne, 5-bardzo przyjemne)	1	2	3	4	5

3	Ogólnie, jak intensywne było środowisko pod względem zapachu w tym supermarkecie? (1-mało intensywny, 5-bardzo intensywny)	1	2	3	4	5
4	Potrafię wyróżnić dany sklep za pomocą określonego zapachu. (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
5	Wierzę, że zapach wewnątrz tego supermarketu tworzy wyjątkowe wrażenia zakupowe. (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5

Część 3. Kultura i podejmowanie decyzji konsumenckich

Poniższe stwierdzenia mają na celu zrozumienie wpływu kultury na podejmowanie decyzji przez konsumenta w sklepie detalicznym. Z każdym stwierdzeniem musisz się zgodzić lub nie na podstawie podanej skali, gdzie 5=zdecydowanie się zgadzam, 4=zgadzam się, 3=obojętnie, 2=nie zgadzam się, 1=zdecydowanie się nie zgadzam

1	Ogólnie, czy uważa Pani/Pan, że zakupy z osobą towarzyszącą sprawiły, że spędzał(a) Pani/Pan więcej czasu w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
2	Ogólnie, czy uważa Pani/Pan, że zakupy z osobą towarzyszącą sprawiły, że wydał(a) Pani/Pan więcej pieniędzy w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5
3	Ogólnie, czy uważa Pani/Pan, że zakupy z osobą towarzyszącą miały pozytywny wpływ na wybór Pani/Pana produktów w supermarkecie (1-zdecydowanie się nie zgadzam, 5-zdecydowanie się zgadzam)	1	2	3	4	5

Część 4. Określenie lojalności klientów

Poniższe stwierdzenia mają na celu zrozumienie Pani/Pana lojalności wobec tej placówki handlowej (supermarketu). Do każdego stwierdzenia proszę się ustosunkować na podstawie podanej skali, gdzie 5=zdecydowanie się zgadzam, 4=zgadzam się, 3=obojętnie, 2=nie zgadzam się, 1= kategorycznie się nie zgadzam

1	Chciał(a)bym ponownie zrobić zakupy / odwiedzić ten sam obiekt (supermarket) w najbliższej przyszłości.	1	2	3	4	5
2	Chciał(a)bym trzymać się tej sieci supermarketów w najbliższej przyszłości.	1	2	3	4	5
3	Rozważył(a)bym wszystkie zakupy/usługi w określonej kategorii w tym supermarkecie.	1	2	3	4	5
4	Z pewnością polecił(a)bym ten supermarket innym.	1	2	3	4	5
5	Mam silną preferencję dla tego supermarketu.	1	2	3	4	5
6	Mam silne poczucie więzi z tym supermarketem.	1	2	3	4	5
7	Ten supermarket zajmuje mocną pozycję w mojej głowie.	1	2	3	4	5
8	Ten supermarket jest pierwszym wyborem przy rozważaniu zakupów/usług.	1	2	3	4	5
9	Biorąc pod uwagę ten supermarket, wahanie cen miałoby mniejszy wpływ na moje decyzje.	1	2	3	4	5
10	Rozważał(a)bym wyłącznie ten supermarket do robienia zakupów czy korzystania z usług.	1	2	3	4	5

Część 5. Profil demograficzny

Płeć	<input type="checkbox"/> Mężczyzna <input type="checkbox"/> Kobieta <input type="checkbox"/> Inne
Wiek (w latach)	
Wykształcenie	<input type="checkbox"/> Szkola <input type="checkbox"/> Licencjat <input type="checkbox"/> Magister <input type="checkbox"/> Doktorat
Status związku	<input type="checkbox"/> Samotny(a) <input type="checkbox"/> Mieszkający(a) z partnerem <input type="checkbox"/> Żonaty/zamężna <input type="checkbox"/> Rozwiedziony/a <input type="checkbox"/> Wdowiec/wdowa
Czy Pani/Pan pracuje?	<input type="checkbox"/> Pełny etat <input type="checkbox"/> Część etatu <input type="checkbox"/> Nie
Jaka jest Pani/Pana sytuacja zawodowa?	<input type="checkbox"/> Student <input type="checkbox"/> Pracownik fizyczny <input type="checkbox"/> Pracownik umysłowy <input type="checkbox"/> Samozatrudniony <input type="checkbox"/> Rolnik <input type="checkbox"/> Bezrobotny <input type="checkbox"/> Emeryt/rencista <input type="checkbox"/> Inne
Roczny dochód osobisty (w złotych)	
Roczny dochód rodziny (w złotych)	
E-mail	
Miejsce zamieszkania	<input type="checkbox"/> wieś <input type="checkbox"/> miasto
Liczba dzieci	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> Więcej niż 2

Dziękuję za współpracę!

Świadoma zgoda i oświadczenie o dobrowolnym uczestnictwie

Prowadzimy badania nad zrozumieniem wpływu zapachu na zachowania zakupowe konsumentów. Jeśli zgodzi się Pani/Pan wziąć udział w tym badaniu, zostanie Pani/Pan poproszona/poproszony o wypełnienie prostej ankiety, której wypełnienie nie zajmie więcej niż 10 minut. Pani/Pana udział w tym badaniu jest całkowicie dobrowolny i może Pani/Pan zrezygnować z udziału lub wycofać się z badania w dowolnym momencie bez ponoszenia konsekwencji.

Biorąc udział w tym badaniu, potwierdza Pani/Pan, że:

- wyjaśniono Pani/Panu cel badań i procedury, które zostaną zastosowane;
- potencjalne zagrożenia i korzyści płynące z badań zostały Pani/Panu wyjaśnione;
- otrzymał(a) Pani/Pan możliwość zadawania pytań i otrzymał(a) satysfakcjonujące odpowiedzi;
- Pani/Pana udział jest całkowicie dobrowolny i może Pani/Pan zrezygnować z udziału w badaniu lub wycofać się z badania w dowolnym momencie bez ponoszenia konsekwencji;
- wszelkie zebrane informacje o Pani/Panu będą traktowane jako poufne w zakresie dozwolonym przez prawo.

Zebrane dane zostaną wykorzystane wyłącznie do celów badawczych i nie będą udostępniane podmiotom trzecim.

Jeśli ma Pani/Pan jakiegokolwiek pytania dotyczące tych badań, proszę się z nami skontaktować.

Shuvam Chatterjee

Doktorant w Szkole Doktorskiej Nauk Społecznych, Uniwersytet Łódzki

shuvam.chatterjee@edu.uni.lodz.pl

Jeśli zgadza się Pani/Pan na udział w tym badaniu, proszę podpisać ten formularz i zwrócić go Shuvamowi Chatterjee.

[Imię i nazwisko] [Podpis] [Data]

Podpisując ten formularz, potwierdzam, że przeczytałem i zrozumiałem podane informacje oraz że dobrowolnie wyrażam zgodę na udział w tym badaniu.

APPENDIX 3. Qualitative Interview Open-Ended Question For The ZMET (Zaltman Metaphor Elicitation Technique) Study – Article 2

Retail store attributes that affect consumer thoughts and emotions in their retail purchase decisions.

APPENDIX 4 – Article 4

Survey Instrument Development

Understanding Consumers' Store Loyalty

Behavioral Loyalty

- Consumers would prefer to re-purchase or re-visit the same retail outlet (Zeithaml et al., 1996; Jones et al., 2000)
- Consumers would tend to have lower brand-switching intentions (Bansal & Taylor, 1999; Dabholkar & Walls, 1999)
- Consumers would consider making purchases in a particular category from the same retail outlet (Reynolds & Beatty, 1999; Reynolds & Arnold, 2000)

Attitudinal Loyalty

- Consumers would tend to recommend the service of a retail outlet to others (Butcher et al., 2001; Javalgi & Moberg, 1997)
- Consumers would tend to show a strong preference for the same retail store (Mitra & Lynch, 1995)
- Consumers would tend to show a strong feeling of bonding/association with the retail outlet (Fournier, 1998)

Cognitive Loyalty

- The retail outlet would occupy a strong position in the mind of the consumer (Dwyer et al., 1987)
- The retail outlet would be considered the first preference for purchase (Ostrowski et al., 1993)
- Consumers would be less sensitive toward price fluctuations (Anderson, 1996; de Ruyter et al., 1998)
- Consumers would consider a service provider exclusively for a particular service (Gremler & Brown, 1996)

The respondent's profiles were mainly comprised of three items:

- ❖ Number of Male Respondents; Number of Female Respondents
- ❖ Age Group
- ❖ Family Annual Income

The response rate was relatively high (nearly 83%) as the respondents were primarily young, exposed to the concepts and understanding of experiential marketing. The responses reveal that most came from middle-class backgrounds with annual incomes of 4-6 lakhs.

Data Analysis Tools

The coding for SPSS 20.0 was done in the following manner:

Strongly Disagree – 1

Disagree – 2

Neutral – 3

Agree – 4

Strongly agree – 5

APPENDIX 5. SURVEY QUESTIONNAIRE (in English) – Article 5

Survey Instrument (Questionnaire)

Olfactory marketing as a technological innovation tool for the Indian retail industry – a study of Shoppers Stop retail store in Kolkata, India

Section 1. Demographic profile

Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other
Age (in years)	<input type="checkbox"/> 15-24 <input type="checkbox"/> 25-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> Above 54
What is your Professional situation?	<input type="checkbox"/> Student <input type="checkbox"/> Service <input type="checkbox"/> Self-employed <input type="checkbox"/> Business
When did you last visit a retail outlet	<input type="checkbox"/> In the last 5 days <input type="checkbox"/> Within last 6 days to 15 days <input type="checkbox"/> Within last 16 days to 30 days <input type="checkbox"/> Before a Month
The atmospheric cues that I like about this retail outlet (Multiple Selection is available)	<input type="checkbox"/> Music Inside <input type="checkbox"/> Temperature Inside <input type="checkbox"/> Fragrance Inside <input type="checkbox"/> Store Layout

Section 2. Purchase behavior determination

For each statement, you must either agree or disagree based on the given scale, where 5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree

1	Fragrance inside the retail store made me stay for a longer time than planned (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
2	Fragrance inside the store made me spend more money than planned (1-strongly disagree, 5-strongly agree)	1	2	3	4	5
3	Fragrance combined with other atmospheric cues (music, temperature, store space/layout) creates a greater impact on my purchase decision from this retail outlet (1-strongly disagree, 5-strongly agree)	1	2	3	4	5

References

- Ardelet, C., Fleck, N., & Grobert, J. (2022). When a clean scent soothes the soul: Developing a positive attitude toward sharing service space with strangers. *Journal of Retailing and Consumer Services*, 68, 103051. <https://doi.org/10.1016/j.jretconser.2022.103051>
- Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of retailing*, 79(2), 77-95. [https://doi.org/10.1016/S0022-4359\(03\)00007-1](https://doi.org/10.1016/S0022-4359(03)00007-1)
- Bäckström, K., & Johansson, U. (2006). Creating and consuming experiences in retail store environments: Comparing retailer and consumer perspectives. *Journal of retailing and consumer services*, 13(6), 417-430. <https://doi.org/10.1016/j.jretconser.2006.02.005>
- Barros, L. B. L., Petroll, M. D. L. M., Damacena, C., & Knoppe, M. (2019). Store atmosphere and impulse: a cross-cultural study. *International Journal of Retail & Distribution Management*, 47(8), 817-835. <https://doi.org/10.1108/IJRDM-09-2018-0209>
- Baskentli, S., Hadi, R., & Lee, L. (2023). How culture shapes consumer responses to anthropomorphic products. *International Journal of Research in Marketing*, 40(3), 495-512. <https://doi.org/10.1016/j.ijresmar.2023.06.005>
- Bell, S. and Bell, C.P. (2007) 'Future sense: defining brands through scent', *The Journal of the Marketing Society*, Vol. 38, 60-62. <https://www.marketingsociety.com/the-library/future-sense-defining-brands-through-scent> [accessed 15 April 2024]
- Bosmans, A. (2006). Scents and sensibility: when do (in) congruent ambient scents influence product evaluations?. *Journal of Marketing*, 70(3), 32-43. <https://doi.org/10.1509/jmkg.70.3.032>
- Brady, M. K., & Cronin Jr, J. J. (2001). Some new thoughts on conceptualizing perceived service quality: a hierarchical approach. *Journal of marketing*, 65(3), 34-49. <https://doi.org/10.1509/jmkg.65.3.34.18334>
- Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: what is it? How is it measured? Does it affect loyalty?. *Journal of marketing*, 73(3), 52-68. <https://doi.org/10.1509/jmkg.73.3.052>
- Brianza, G., Cornelio, P., Maggioni, E., Obrist, M. (2021). Sniff Before You Act: Exploration of Scent-Feature Associations for Designing Future Interactions. In: Ardito, C., et al. *Human-Computer Interaction – INTERACT 2021. INTERACT 2021. Lecture Notes in Computer Science()*, vol 12933. Springer, Cham. https://doi.org/10.1007/978-3-030-85616-8_17

- Cachero-Martínez, S., García-Rodríguez, N., & Salido-Andrés, N. (2024). Because I'm happy: exploring the happiness of shopping in social enterprises and its effect on customer satisfaction and loyalty. *Management Decision*, 62(2), 492-512.
<https://doi.org/10.1108/MD-11-2022-1536>
- Carman JM (1970) Correlates of brand loyalty: some positive results. *J Mark Res* 7(1):67–76.
<https://doi.org/10.1177/002224377000700108>
- Carù, A., & Cova, B. (2003). Revisiting consumption experience: A more humble but complete view of the concept. *Marketing theory*, 3(2), 267-286.
<https://doi.org/10.1177/14705931030032004>
- Chatterjee, S., & Bryła, P. (2022). Innovation and trends in olfactory marketing: A review of the literature. *Journal of Economics and Management*, 44(1), 210-235.
<https://doi.org/10.22367/jem.2022.44.09>
- Chatterjee, S., & Kundu, A. (2020). Sub-Conscious Decision Mapping and Network Framework for Retail Market Consumption. *Indian Journal of Marketing*, 50(2), 35-51. <http://dx.doi.org/10.17010/ijom%2F2020%2Fv50%2Fi2%2F150440>
- Chatterjee, S., & Pandey, M. (2019). Consumer satisfaction attribute mapping in hospitality industry through ZMET. *International Journal of Business Innovation and Research*, 20(1), 87-105. <https://doi.org/10.1504/IJBIR.2019.101691>
- Chatterjee, S., & Saleh, M. I. (2024). Tourists' attribution and ambiance scents in tourism destination brands. *Middle East Journal of Management*, 11(3), 322-339.
<https://doi.org/10.1504/MEJM.2024.138330>
- Chatterjee, S., Bryła, P., & Saleh, M. I. (2024). Cross-cultural differences in the effects of the ambient scent on in-store behavior: the role of companionship. *Decision*, 1-16.
<https://doi.org/10.1007/s40622-024-00400-4>
- Chebat, J.C. and Michon, R. (2003) 'Impact of ambient odors on mall shoppers' emotions, cognition, and spending: a test of competitive causal theories', *Journal of Business Research*, Vol. 56, No. 7, pp.529–539. [https://doi.org/10.1016/S0148-2963\(01\)00247-8](https://doi.org/10.1016/S0148-2963(01)00247-8)
- Cheung, M.L., Pires, G.D., Rosenberger, P.J., Leung, W.K. and Sharipudin, M.N.S. (2021) 'The role of consumer-consumer interaction and consumer-brand interaction in driving consumer-brand engagement and behavioral intentions', *Journal of Retailing and Consumer Services*, Vol. 61, 102574.
<https://doi.org/10.1016/j.jretconser.2021.102574>

- Christensen, G. L., & Olson, J. C. (2002). Mapping consumers' mental models with ZMET. *Psychology & Marketing*, 19(6), 477-501. <https://doi.org/10.1002/mar.10021>
- Connell, L., & Lynott, D. (2016). Do we know what we're simulating? Information loss on transferring unconscious perceptual simulation to conscious imagery. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(8), 1218.
- Correia, C., Lopez, K.J., Wroblewski, K.E., Huisinigh-Scheetz, M., Kern, D.W. and Chen, RC (2016) Global sensory impairment in older adults in the United States. *Journal of the American Geriatrics Society*. 64(2): 306–313. <https://doi.org/10.1111/jgs.13955>
- D'Andrea, F., Tischler, V., Dening, T., & Churchill, A. (2022). Olfactory stimulation for people with dementia: A rapid review. *Dementia*, 21(5), 1800-1824. <https://doi.org/10.1177/14713012221082377>
- Dennis, C., Newman, A., Michon, R., Brakus, J. J., & Wright, L. T. (2010). The mediating effects of perception and emotion: Digital signage in mall atmospherics. *Journal of Retailing and Consumer services*, 17(3), 205-215. <https://doi.org/10.1016/j.jretconser.2010.03.009>
- Dick AS, Basu K (1994) Customer loyalty: toward an integrated conceptual framework. *J Acad Mark Sci* 22:99-113. <https://doi.org/10.1177/0092070394222001>
- Douc  , L., & Adams, C. (2020). Sensory overload in a shopping environment: Not every sensory modality leads to too much stimulation. *Journal of Retailing and Consumer Services*, 57, 102154. <https://doi.org/10.1016/j.jretconser.2020.102154>
- Douc  , L., Poels, K., Janssens, W., & De Backer, C. (2013). Smelling the books: The effect of chocolate scent on purchase-related behavior in a bookstore. *Journal of Environmental Psychology*, 36, 65-69. <https://doi.org/10.1016/j.jenvp.2013.07.006>
- Elmashhara, M. G., & Soares, A. M. (2022). Linking atmospherics to shopping outcomes: The role of the desire to stay. *Journal of Retailing and Consumer Services*, 64, 102744. <https://doi.org/10.1016/j.jretconser.2021.102744>
- Errajaa, K., Dauc  , B., & Legoh  rel, P. (2020). Consumer reactions to olfactory congruence with brand image. *Journal of Retailing and Consumer Services*, 52, 101898. <https://doi.org/10.1016/j.jretconser.2019.101898>
- Esteky, S. (2021). Chirping birds and barking dogs: The interactive effect of ambient sensory cue source and valence on consumers' choice of natural products. *Journal of Retailing and Consumer Services*, 61, 102513. <https://doi.org/10.1016/j.jretconser.2021.102513>
- Fong, L. H. N., Wang, E. Y., Ricaforte, B. G. R., & Costa, R. A. (2024). A meta-analytic comparison of scent effect between retailing and hospitality. *International Journal of*

- Retail & Distribution Management, 52(4), 461-476. <https://doi.org/10.1108/IJRDM-08-2023-0508>
- Ge, X., Xu, C., Misaki, D., Markus, H. R., & Tsai, J. L. (2024, May). How Culture Shapes What People Want From AI. In Proceedings of the CHI Conference on Human Factors in Computing Systems (pp. 1-15). <https://doi.org/10.1145/3613904.3642660>
- Gilmore, J. H., & Pine, B. J. (2002). Customer experience places: the new offering frontier. Strategy & Leadership, 30(4), 4-11. <https://doi.org/10.1108/10878570210435306>
- Gui DY, Liu S, Dai Y, Liu Y, Wang X, Huang H (2021) Greater patience and monetary expenditure: how shopping with companions influences purchase decisions.
- Gupta, C., Jindal, P., & Shamkuwar, M. (2024). Impact of Cultural Marketing on Buying Behaviour of the Consumers. In The Framework for Resilient Industry: A Holistic Approach for Developing Economies (pp. 153-162). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-83753-734-120241011>
- Herrmann, A., Zidansek, M., Sprott, D. E., & Spangenberg, E. R. (2013). The power of simplicity: Processing fluency and the effects of olfactory cues on retail sales. Journal of Retailing, 89(1), 30-43. <https://doi.org/10.1016/j.jretai.2012.08.002>
- Hightower Jr, R., Brady, M. K., & Baker, T. L. (2002). Investigating the role of the physical environment in hedonic service consumption: an exploratory study of sporting events. Journal of Business research, 55(9), 697-707. [https://doi.org/10.1016/S0148-2963\(00\)00211-3](https://doi.org/10.1016/S0148-2963(00)00211-3)
- Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions and organizations across nations. Thousand Oaks. London, UK
<https://www.restoconnection.com/sensory-marketing-new-weapon-restaurant-owners>
[accessed 19 October 2023]
- Hwang, S., Lee, M., Park, E. and del Pobil, A.P. (2021) 'Determinants of customer brand loyalty in the retail industry: a comparison between national and private brands in South Korea', Journal of Retailing and Consumer Services, Vol. 63, 102684. <https://doi.org/10.1016/j.jretconser.2021.102684>
- J Retail Consum Serv 63:102665. <https://doi.org/10.1016/j.jretconser.2021.102665>
- Ji, M., & King, B. (2018). Explaining the embodied hospitality experience with ZMET. International Journal of Contemporary Hospitality Management, 30(11), 3442-3461. <https://doi.org/10.1108/IJCHM-10-2017-0709>
- Johnson, R. (2011). A Brooklyn Grocery Store Is Using Scent Machines to Increase its Sales. Business Insider. July 20. <https://www.businessinsider.com/brooklyn-groce>

- Johnson, R. (2011). A Brooklyn Grocery Store Is Using Scent Machines to Increase its Sales. Business Insider. July 20. <https://www.businessinsider.com/brooklyn-grocery-smells-inaisles-2011-7> [accessed October 2024]
- Jones, M. A. (1999). Entertaining shopping experiences: an exploratory investigation. Journal of retailing and consumer services, 6(3), 129-139. [https://doi.org/10.1016/S0969-6989\(98\)00028-9](https://doi.org/10.1016/S0969-6989(98)00028-9)
- Kauppinen-Räsänen, H., Mühlbacher, H., & Taishoff, M. (2020). Exploring consumers' subjective shopping experiences in directly operated luxury brand stores. Journal of Retailing and Consumer Services, 57, 102251. <https://doi.org/10.1016/j.jretconser.2020.102251>
- Keenan, M. (2021). Scent Marketing for Retail: 11 Strategies & Examples. Shopify blogs.[Online.] Available at: <https://www.shopify.com/retail/scent-marketing>. [Accessed: 2024, October 18.].
- Keenan, M. (2021). Scent Marketing for Retail: 11 Strategies & Examples. Shopify blogs. <https://www.shopify.com/retail/scent-marketing> [accessed: 18 March 2024]
- Koay, K. Y., & Tey, J. (2024). Understanding the influence of physical servicescape on consumers' intentions to revisit dessert stores using the SOR model. Journal of International Food & Agribusiness Marketing, 1-22. <https://doi.org/10.1080/08974438.2024.2362189>
- Kranzbühler, A. M., Kleijnen, M. H., Morgan, R. E., & Teerling, M. (2018). The multilevel nature of customer experience research: an integrative review and research agenda. International Journal of Management Reviews, 20(2), 433-456. <https://doi.org/10.1111/ijmr.12140>
- Krey, N., Picot-Coupey, K. and Cliquet, G. (2022) 'Shopping mall retailing: a bibliometric analysis and systematic assessment of Chebat's contributions', Journal of Retailing and Consumer Services, Vol. 64, 102702. <https://doi.org/10.1016/j.jretconser.2021.102702>
- Krishna, A. (2012). An integrative review of sensory marketing: Engaging the senses to affect perception, judgment and behavior. Journal of consumer psychology, 22(3), 332-351. <https://doi.org/10.1016/j.jcps.2011.08.003>
- Krishna, A. (Ed.) (2011), in , Sensory Marketing: Research on the Sensuality of Products, Routledge, London.

- Krishna, A., Elder, R. S., & Caldara, C. (2010a). Feminine to smell but masculine to touch? Multisensory congruence and its effect on the aesthetic experience. *Journal of Consumer Psychology*, 20(4), 410-418. <https://doi.org/10.1016/j.jcps.2010.06.010>
- Krishna, A., Lwin, M. O., & Morrin, M. (2010b). Product scent and memory. *Journal of consumer research*, 37(1), 57-67. <https://doi.org/10.1086/649909>
- Lashkova, M., Anton, C., & Camarero, C. (2020). Dual effect of sensory experience: engagement vs diversive exploration. *International journal of retail & distribution management*, 48(2), 128-151. <https://doi.org/10.1108/IJRDM-09-2018-0204>
- Lecomte, S. (2015). Sensory Marketing, a New Weapon for Restaurant Owners.
- Leenders, M. A., Smidts, A., & El Haji, A. (2019). Ambient scent as a mood inducer in supermarkets: The role of scent intensity and time-pressure of shoppers. *Journal of retailing and consumer services*, 48, 270-280. <https://doi.org/10.1016/j.jretconser.2016.05.007>
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of marketing*, 80(6), 69-96. <https://doi.org/10.1509/jm.15.0420>
- Li, M.W., Teng, H.Y. and Chen, C.Y. (2020) ‘Unlocking the customer engagement-brand loyalty relationship in tourism social media: the roles of brand attachment and customer trust’, *Journal of Hospitality and Tourism Management*, Vol. 44, pp.184–192. <https://doi.org/10.1016/j.jhtm.2020.06.015>
- Lucia-Palacios, L., Pérez-López, R., & Polo-Redondo, Y. (2018). Can social support alleviate stress while shopping in crowded retail environments?. *Journal of Business Research*, 90, 141-150. <https://doi.org/10.1016/j.jbusres.2018.05.018>
- Mehrabian, A. and Russell, J.A. (1974), *An Approach to Environmental Psychology*, The MIT Press, Cambridge, MA
- Melnyk, V., Carrillat, F. A., & Melnyk, V. (2022). The influence of social norms on consumer behavior: A meta-analysis. *Journal of Marketing*, 86(3), 98-120. <https://doi.org/10.1177/00222429211029199>
- Merrilees, B., & Miller, D. (2019). Companion shopping: The influence on mall brand experiences. *Marketing Intelligence & Planning*, 37(4), 465-478. <https://doi.org/10.1108/MIP-08-2018-0340>
- Miles, D. A. (2017, August). A taxonomy of research gaps: Identifying and defining the seven research gaps. In *Doctoral student workshop: finding research gaps-research methods and strategies*, Dallas, Texas (pp. 1-15).

- Minkov, M., Vignoles, V. L., Welzel, C., Akaliyski, P., Bond, M. H., Kaasa, A., & Smith, P. B. (2024). Comparative culturology and cross-cultural psychology: How comparing societal cultures differs from comparing individuals' minds across cultures. *Journal of Cross-Cultural Psychology*, 55(2), 164-188.
<https://doi.org/10.1177/00220221231220027>
- Morrin, M., & Ratneshwar, S. (2000). The impact of ambient scent on evaluation, attention, and memory for familiar and unfamiliar brands. *Journal of Business Research*, 49(2), 157-165. [https://doi.org/10.1016/S0148-2963\(99\)00006-5](https://doi.org/10.1016/S0148-2963(99)00006-5)
- Morrin, M., & Ratneshwar, S. (2003). Does it make sense to use scents to enhance brand memory?. *Journal of marketing Research*, 40(1), 10-25.
<https://doi.org/10.1509/jmkr.40.1.10.19128>
- Morrison, M., Gan, S., Dubelaar, C., & Oppewal, H. (2011). In-store music and aroma influences on shopper behavior and satisfaction. *Journal of Business Research*, 64(6), 558-564. <https://doi.org/10.1016/j.jbusres.2010.06.006>
- Mouri, N., Bindroo, V., & Ganesh, J. (2015). Do retail alliances enhance customer experience? Examining the relationship between alliance value and customer satisfaction with the alliance. *Journal of Marketing Management*, 31(11-12), 1231-1254. <https://doi.org/10.1080/0267257X.2015.1011195>
- Muhammad, N.S., Musa, R. and Ali, N.S. (2014) 'Unleashing the effect of store atmospherics on hedonic experience and store loyalty', *Procedia – Social and Behavioral Sciences*, Vol. 130, pp. 469–478. <https://doi.org/10.1016/j.sbspro.2014.04.055>
- Nayeem, T. (2012). Cultural influences on consumer behaviour. *International journal of Business and management*, 7(21), 78-91. <https://doi.org/10.5539/ijbm.v7n21p78>
- Orth, U. R., & Bourrain, A. (2008). The influence of nostalgic memories on consumer exploratory tendencies: Echoes from scents past. *Journal of Retailing and Consumer services*, 15(4), 277-287. <https://doi.org/10.1016/j.jretconser.2007.06.001>
- Otieno, R., Harrow, C., & Lea-Greenwood, G. (2005). The unhappy shopper, a retail experience: exploring fashion, fit and affordability. *International Journal of Retail & Distribution Management*, 33(4), 298-309.
<https://doi.org/10.1108/09590550510593220>
- Paramita, W., Nhu, H.B.C., Ngo, L.V., Tran, Q.H.M. and Gregory, G. (2021) 'Brand experience and consumers' social interactive engagement with brand page: an integrated-marketing perspective', *Journal of Retailing and Consumer Services*, Vol. 62, 102611. <https://doi.org/10.1016/j.jretconser.2021.102611>

- Petermans, A., Janssens, W., & Van Cleempoel, K. (2013). A holistic framework for conceptualizing customer experiences in retail environments. *International Journal of Design*, 7(2). <https://www.ijdesign.org/index.php/IJDesign/article/view/1185/568>
- Pfeifer, P., Hilken, T., Heller, J., Alimamy, S., & Di Palma, R. (2023). More than meets the eye: In-store retail experiences with augmented reality smart glasses. *Computers in Human Behavior*, 146, 107816. <https://doi.org/10.1016/j.chb.2023.107816>
- Phillips, M., Kapitan, S., & Rush, E. (2024). From the store to the kitchen: Herbal scents drive wholesome food choice. *Journal of Retailing and Consumer Services*, 81, 103959. <https://doi.org/10.1016/j.jretconser.2024.103959>
- Pine, B. J., & Gilmore, J. (1999). *The experience economy: work is theatre and every business a stage*, Harvard Business Press Boston.
- Quartier, K., Christiaans, H., & Van Cleempoel, K. (2008). Retail design: lighting as an atmospheric tool, creating experiences which influence consumers' mood and behaviour in commercial spaces. In: *Undisciplined! Design Research Society Conference 2008*, Sheffield Hallam University, Sheffield, UK, 16-19 July 2008. <https://shura.shu.ac.uk/496/>
- Ravn, K. (2007), "Smells like sales", *Los Angeles Times*, p. 20.
- Reynolds NL, Simintiras AC, Diamantopoulos A (2003) Theoretical justification of sampling choices in international marketing research: Key issues and guidelines for researchers. *Journal of International Business Studies*, 34, 80-89. <https://doi.org/10.1057/palgrave.jibs.8400000>
- Roggeveen, A. L., Grewal, D., & Schweiger, E. B. (2020). The DAST framework for retail atmospherics: The impact of in-and out-of-store retail journey touchpoints on the customer experience. *Journal of Retailing*, 96(1), 128-137. <https://doi.org/10.1016/j.jretai.2019.11.002>
- Roschk, H., & Hosseinpour, M. (2020). Pleasant ambient scents: a meta-analysis of customer responses and situational contingencies. *Journal of Marketing*, 84(1), 125-145. <https://doi.org/10.1177/0022242919881137>
- Roschk, H., Loureiro, S. M. C., & Breitsohl, J. (2017). Calibrating 30 years of experimental research: a meta-analysis of the atmospheric effects of music, scent, and color. *Journal of Retailing*, 93(2), 228-240. <https://doi.org/10.1016/j.jretai.2016.10.001>
- Rosenbaum MS, Kelleher C, Friman M, Kristensson P, Scherer A (2017) Replacing place in marketing: a resource exchange place perspective. *Journal of Business Research*, 79, 281–289. <https://doi.org/10.1016/j.jbusres.2017.01.009>

- Rotter, J. B. (2021). Social learning theory. In *Expectations and actions* (pp. 241-260). Routledge, United Kingdom.
- Russo Spena, T., Caridà, A., Colurcio, M., & Melia, M. (2012). Store experience and co-creation: The case of temporary shop. *International Journal of Retail & Distribution Management*, 40(1), 21-40. <https://doi.org/10.1108/09590551211193586>
- Ruta Ruzeviciute, Bernadette Kamleitner, and Dipayan Biswas (2020). Designed to S(m)ell: When Scented Advertising Induces Proximity and Enhances Appeal. *Journal of Marketing Research*, 57 (2).
<https://journals.sagepub.com/doi/10.1177/0022243719888474>
ry-smells-inaisles-2011-7 (accessed October 2024)
- Schab, F. R., & Crowder, R. G. (2014). Implicit measures of odor memory. In *Memory for odors* (pp. 71-91). Psychology Press.
- Schmitt, B. (1999). Experiential marketing. *Journal of marketing management*, 15(1-3), 53-67. <https://doi.org/10.1362/026725799784870496>
- Schwartz SH (2012) An overview of the Schwartz theory of basic values. *Online Read Psychol Cult* 2(1):11. <https://doi.org/10.9707/2307-0919.1116>
- Shahid, S., Paul, J., Gilal, F. G., & Ansari, S. (2022). The role of sensory marketing and brand experience in building emotional attachment and brand loyalty in luxury retail stores. *Psychology & Marketing*, 39(7), 1398-1412.
<https://doi.org/10.1002/mar.21661>
- Spangenberg, E. R., Crowley, A. E., & Henderson, P. W. (1996). Improving the store environment: do olfactory cues affect evaluations and behaviors?. *Journal of marketing*, 60(2), 67-80. <https://doi.org/10.1177/002224299606000205>
- Spangenberg, E. R., Sprott, D. E., Grohmann, B., & Tracy, D. L. (2006). Gender-congruent ambient scent influences on approach and avoidance behaviors in a retail store. *Journal of Business Research*, 59(12), 1281-1287.
<https://doi.org/10.1016/j.jbusres.2006.08.006>
- Srivastava, R. (2023). Will music with or without fragrance in retail stores increase consumer purchase behaviour in emerging markets?. *International Journal of Emerging Markets*, 18(11), 4865-4883. <https://doi.org/10.1108/IJOEM-10-2021-1533>
- Truong, D., Xiaoming Liu, R., & Yu, J. (2020). Mixed methods research in tourism and hospitality journals. *International Journal of Contemporary Hospitality Management*, 32(4), 1563-1579. <https://doi.org/10.1108/IJCHM-03-2019-0286>

- Tyagi, P., Bansal, S., Sharma, A., Tiwary, U. S., & Varadwaj, P. K. (2024). Differences in olfactory functioning: The role of personality and gender. *Journal of Sensory Studies*, 39(2), e12907. <https://doi.org/10.1111/joss.12907>
- Ur Rahman, S., Chwialkowska, A., Hussain, N., Bhatti, W. A., & Luomala, H. (2023). Cross-cultural perspective on sustainable consumption: Implications for consumer motivations and promotion. *Environment, Development and Sustainability*, 25(2), 997-1016. <https://doi.org/10.1007/s10668-021-02059-8>
- Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer experience creation: Determinants, dynamics and management strategies. *Journal of Retailing*, 85(1), 31-41. <https://doi.org/10.1016/j.jretai.2008.11.001>
- Vilnai-Yavetz, I., Gilboa, S. and Mitchell, V. (2021) ‘Experiencing atmospherics: the moderating effect of mall experiences on the impact of individual store atmospherics on spending behavior and mall loyalty’, *Journal of Retailing and Consumer Services*, Vol. 63, 102704. <https://doi.org/10.1016/j.jretconser.2021.102704>
- Vlahos, J. (2007, September 9). Scent and sensibility. *New York Times*. <https://www.nytimes.com/2007/09/09/realestate/keymagazine/909SCENT-txt.html> [accessed March 2025]
- Wang, L. C., & Hsiao, D. F. (2012). Antecedents of flow in retail store shopping. *Journal of retailing and consumer services*, 19(4), 381-389. <https://doi.org/10.1016/j.jretconser.2012.03.002>
- Watson, G. F., Beck, J. T., Henderson, C. M., & Palmatier, R. W. (2015). Building, measuring, and profiting from customer loyalty. *Journal of the academy of marketing science*, 43, 790-825. <https://doi.org/10.1007/s11747-015-0439-4>
- Wen, H., Leung, X., & Pongtornphurt, Y. (2020). Exploring the impact of background music on customers’ perceptions of ethnic restaurants: The moderating role of dining companions. *Journal of Hospitality and Tourism Management*, 43, 71-79. <https://doi.org/10.1016/j.jhtm.2020.02.007>
- Wilken, R., Stimmer, E., & Bürgin, D. (2022). Should retailers encourage couples to shop together?. *Journal of Retailing and Consumer Services*, 69, 103115. <https://doi.org/10.1016/j.jretconser.2022.103115>
- Yu, Z., Yang, S., Liu, Y., & Xie, Y. (2024). Wait time speeds up: effects of scent arousal on time perception in service marketing. *International Journal of Retail & Distribution Management*, 52(3), 327-340. <https://doi.org/10.1108/IJRDM-07-2023-0460>

- Zaltman, G. (2008), "Marketing metaphoria: What deep metaphors reveal about the minds of consumers", Harvard Business Press, Boston, USA.
- Zaman, S. I., & Kusi-Sarpong, S. (2024). Identifying and exploring the relationship among the critical success factors of sustainability toward consumer behavior. *Journal of modelling in management*, 19(2), 492-522. <https://doi.org/10.1108/JM2-06-2022-0153>
- Zhang, T., & Spence, C. (2023). Orthonasal olfactory influences on consumer food behaviour. *Appetite*, 107023. <https://doi.org/10.1016/j.appet.2023.107023>

List of Tables

Description	Page
Article 1 – Table 1. PRISMA Flow diagram of data collection	214
Article 1 – Table 2. Construct a definition for consumer response	217-218
Article 1 – Table 3. Review articles with more than 30 citations	234-235

Description	Page
Article 2 – Table 1. Profile of participants	05
Article 2 – Table 2. Research instruction kit	05
Article 2 – Table 3. Summarized steps of the ZMET process	09

Description	Page
Article 3 – Table 1. Country-wise demographic profile of respondents in India and Poland	07
Article 3 – Table 2. Chi-square differences between the country contexts (India vs Poland)	08
Article 3 – Table 3. Regression analysis of consumers' money spent in the retail store	10

Description	Page
Article 4 – Table 1. Factor Analysis without rotation	06

Article 4 – Table 2. Factor Analysis with Varimax rotation	07
Article 4 – Table 3. Factors evolving from Customer Brand Loyalty	07
Article 4 – Table 4. Correlation coefficient distance, complete linkage	09
Article 4 – Table 5. Final partition in the cluster analysis for the number of factors in consumer loyalty	10
Article 4 – Table 6. Correlations – store brand loyalty & olfactory cues	10
Article 4 – Table 7. Correlations – behavioral loyalty & olfactory cues	10
Article 4 – Table 8. Correlations – attitudinal loyalty & olfactory cues	11
Article 4 – Table 9. Correlations – cognitive loyalty & olfactory cues	11

Description	Page
Article 5 – Table 1. Key variables defined for the study	263
Article 5 – Table 2. Correlation amongst the environmental cues (fragrance, music, store layout, and temperature)	267
Article 5 – Table 3. Regression Output	268
Article 5 – Table 4. Control Variable Output	269

List of Figures

Description	Page No.
Article 1 – Figure 1. The author’s elaboration of the PRISMA flow diagram	214
Article 1 – Figure 2. Distribution of articles by year of publication	215
Article 1 – Figure 3. Distribution of the empirical publications by investigated countries	216
Article 1 – Figure 4. Distribution of the research methodologies used	216
Article 1 – Figure 5. Integrative framework for modeling consumer responses to olfactory marketing	223

Description	Page No.
Article 2 – Figure 1. Selected participant images—collage	06

Description	Page No.
Article 4 – Figure 1. Cluster Analysis for Customer Loyalty	9

Description	Page No.
Article 5 – Figure 1. Conceptual framework: understanding the impact of fragrance on consumer behavior under the influence of control variables (self-constructed)	265