

## **Title page**

TOURISTS' MEMORIES, SENSORY IMPRESSIONS AND LOYALTY:  
*IN LOCO* AND POST-VISIT STUDY IN SOUTHWEST PORTUGAL \*

**Dora Agapito** (corresponding author)

**Affiliation:** Research Center for Spatial and Organizational Dynamics (CIEO),  
University of Algarve, Portugal

**Email:** [dlagapito@ualg.pt](mailto:dlagapito@ualg.pt)

**Tel.** +351 289 800 915

**Fax** +351 289 800 064

**Address:** Faculty of Economics, University of Algarve  
8005 - 139 Gambelas – Faro, Portugal

**Patrícia Pinto**

**Affiliation:** Research Center for Spatial and Organizational Dynamics (CIEO),  
University of Algarve, Portugal

**Email:** [pvalle@ualg.pt](mailto:pvalle@ualg.pt)

**Address:** Faculty of Economics, University of Algarve  
8005 - 139 Gambelas – Faro, Portugal

**Júlio Mendes**

**Affiliation:** Research Center for Spatial and Organizational Dynamics (CIEO),  
University of Algarve, Portugal

**Email:** [jmendes@ualg.pt](mailto:jmendes@ualg.pt)

**Address:** Faculty of Economics, University of Algarve  
8005 - 139 Gambelas – Faro, Portugal

## **\*ACKNOWLEDGMENT**

This paper is financed by National Funds provided by FCT- Foundation for Science and Technology through project UID/SOC/04020/2013.

HIGHLIGHTS:

- Conducts a two-step study, *in loco* and post-visit, with the managerial perspective to facilitate positive destination experiences.
- Suggests that diversified sensory impressions as perceived by tourists impact the long-term memory of destination experiences.
- More diversified sensory impressions recalled in the post-visit phase enhance favorable tourist behavior towards destinations.
- Reveals a link between richer sensory tourist experiences and destination loyalty.

## **Tourists' memories, sensory impressions, and loyalty:**

### ***In loco* and post-visit study in Southwest Portugal**

#### **Abstract**

This study aims to offer some insights on the contribution of sensory diversity as perceived by tourists to memorable destination experiences and to explore the connection between long-term memory of sensory impressions and destination loyalty. The vital role of the sensory dimension of tourist experiences is stressed by current tourism research and supported by a multidisciplinary view on the role of the five external senses in human perception, memory, and behavior. While the marketing management approach highlights the importance of considering multisensory information in the process of facilitating positive and memorable destination experiences, there is a lack of empirical research to validate the theoretical literature. A two-step [exploratory](#) study was conducted *in loco* and six months after tourists' visits to Southwest Portugal. The findings suggest that perceived richer sensory tourist experiences may have a significant role in the long-term memory of individuals' experiences, encouraging favorable tourist behavior towards destinations.

Keywords: sensory tourist experiences; *sensescapes*; long-term memory; destination loyalty; Southwest Portugal

## 1. Introduction

Current tourism literature highlights the relevance of the sensory component of tourist experiences while stressing that destinations should attract tourists by more than visual elements alone (e.g. Agapito, Mendes, & Valle, 2013; Agapito, Valle, & Mendes, 2014; Dann & Jacobsen, 2003; Ellis & Rossman, 2008; Everett, 2008; Govers, Go, & Kumar, 2007; Gretzel & Fesenmaier, 2003, 2010; Isacsson, Alakoski, & Bäck, 2009; Kastenholz, Carneiro, Marques, & Lima, 2012; Kirillova, Fu, Lehto, & Cai, 2014; Middleton, 2011; Mossberg, 2007; Oh, Fiore, & Jeoung, 2007; Pan & Ryan, 2009; Quan & Wang, 2004). From the marketing perspective, this idea puts forward the assumption that efforts to explore sensory aspects associated with destinations contribute to the process of facilitating positive and memorable tourist experiences and generating positive outcomes such as tourists' loyalty, leading to destinations' competitiveness (Kirillova et al., 2014; Ritchie & Crouch, 2003; Tung & Ritchie, 2011). Furthermore, it is acknowledged that tourist experiences involve complex psychological processes, with a special focus on memory (Larsen, 2007) and that remembered experiences may be better predictors of future behavior than the experiences reported *in loco* (Mitchell, Thompson, Peterson, & Cronk, 1997; Wirtz, Kruger, Scollon, & Diener, 2003). As a result, a connection between recalled experiences and destination loyalty has been revealed in tourism literature (Lehto, O'Leary, & Morrison, 2004).

Furthermore, the idea that senses other than sight can be spatially ordered or place-related is connected with the construct of *sensescapas* (Porteous, 1985), which underpins the appropriateness of the study of *smellscapes*, *soundscapes*, *tastescapes*, and *hapticscapes* with respect to tourist destinations, in addition to *visualscapes* (Dann & Jacobsen, 2003; Rodaway,

1994). Currently, this idea has also been related to the concept of *tourist gaze* as a bodily experience (Urry, 2002; Urry & Larsen, 2011), which considers that the interaction between people and places involves multisensory-encounter experiences (Crouch, 2002; Kastenholtz et al., 2012; Markwell, 2001). In fact, the so-called five senses are responsible for receiving sensory information from the external environment that is crucial for individual perception, memory, and behavior (Damásio, 2009; Goldstein, 2010; Krishna, 2010, 2012).

However, empirical research on tourist experiences taking into consideration both the so-called five senses and the multiphasic nature of the tourist experience (including the recollection phase) remains scarcely explored (Agapito et al., 2013; Kirillova et al., 2014; Pan & Ryan, 2009). Despite working holistically to contextualize tourist experiences and being interrelated with other components of the experience such as emotions (Mossberg, 2007; Pine & Gilmore, 1998; Schmitt, 1999), senses can be analyzed in a separate manner in order to depict sensory features of destinations, for managerial purposes (Agapito et al., 2014; Gretzel & Fesenmaier, 2003, 2010; Krishna, 2010; Pan & Ryan, 2009; Rodaway, 1994). For example, places have unique sensory qualities that can be used in market segmentation, destination communication, and the process of structuring a coherent destination offer (Agapito et al., 2014; Isacsson et al., 2009), making it important for destination management organizations to know how people perceive the sensory make-up of places (Dann & Jacobsen, 2003; Degen, 2008). In this regard, Heide and Grønhaug (2006, p. 277) argue that “because the atmosphere of a particular environment can be sensed, it can be described in sensory terms.”

In fact, despite there not being many studies on the effective usage of multisensory marketing within the tourism sector, research pinpoints the importance of the sensory dimension of consumer experiences when compared with other dimensions—whether physical, intellectual,

emotional, or social—as key in engaging and co-creating value with consumers (Brakus, Schmitt, & Zarantonello, 2009; Gentile et al., 2007). While tourism studies remain focused on traditional visual cognitive attributes, recent research holistically approaches the sensory dimension and focuses on the contribution of each sense to the overall destination experience, for managerial purposes (Agapito et al., 2014; Gretzel & Fesenmaier, 2003, 2010; Isacsson et al., 2009).

Against this background, some research topics remain scarcely explored, such as the importance of the five senses for individuals' likelihood of achieving a positive tourist experience, the differences between the reported sensory impressions *in loco* and after the tourists' stay at a destination, the contribution of sensory impressions to the long-term memory of tourist experiences, and the connection between the long-term memory of destination sensory aspects and destination loyalty. By focusing on the Southwest Portugal region as a pragmatic case, this [exploratory study addresses these topics, aiming to offer some insights](#) on the contribution of sensory diversity as perceived by tourists to memorable destination experiences and to explore the connection between long-term memory of sensory impressions and destination loyalty, [for managerial purposes](#). With these concerns in mind, the literature review is divided into three sections. In the first part, the role played by the senses in the perception and memory of tourist experiences is discussed by focusing on the literature of psychology and following a managerial approach. The connection between the tourists' memories of their experiences and destination loyalty is explored in the following section. The study objectives and research questions are highlighted in the third section.

## **2. Theoretical background**

### *2.1. Sensory stimuli and memorable tourist experiences*

The crucial role of the external human senses (*exteroceptive* senses) in human experience and knowledge of the surrounding world has been a topic of discussion since the early days of philosophy (Synnott, 1991), continuing to more recent developments in the field (Merleau-Ponty, 2002) and contemporarily in a variety of disciplines (for a review, see, e.g., Howes, 2005; Krishna, 2010), particularly in psychology. In this context, the relationship between sensations and perception has been a recurring focus of research. Sensation refers to the process of triggering the sensory organs by sensory stimuli (e.g., light, vibration, pressure, and chemical substances), which are converted into electrical signals and transmitted to the brain, placing sensations at the beginning of the individual's perception of the surroundings (Goldstein, 2010; Zurawicki, 2012). In fact, the perceptual process through which sensory inputs are selected, organized, and interpreted results in a "conscious sensory experience" (e.g., colors, odors, sounds, textures, and tastes; Goldstein, 2010, p. 8). It follows from this that the factual knowledge required for reasoning and decision-making comes to mind in the form of images that are of all sensorial varieties (Damásio, 2009). In fact, whether by using information from current events or by bringing previously learned information to a specific sensory experience, knowledge is present throughout this dynamic process. As a result, it is possible to distinguish the bottom-up process from the top-down process, two processes that often work together to create perception and influence decision-making and behavior. The former is based on incoming sensory data as the starting point of perception. The latter refers to processing based on the recalled knowledge (memory) involved in the perceptual process (Goldstein, 2010). This aspect is vital in tourism studies, given the phasic nature of the tourist

experience—anticipation, *in loco*, and recollection—during which the perception of the experience can change and influence future behavior (Cutler & Carmichael, 2010; Larsen, 2007).

Memory is “an alliance of systems that work together, allowing us to learn from the past and predict the future” (Baddeley, 1999, p.1). Episodic memories, which involve individuals’ long-term storing of factual memories concerning personal experiences (Schwartz, 2011), are the type of long-term memory thought to be the most interesting to study in relation to tourist experiences (Larsen, 2007), considering that “lived experiences gather significance as we reflect on and give memory to them” (Curtin, 2005, p.3). Indeed, tourist experiences involve complex psychological processes, with a special focus on memory (Larsen, 2007). Although several definitions coexist in the literature, tourist experiences can be considered subjective and individual evaluations of events associated with tourist activities resulting in specific outcomes and involving the anticipation and recollection stages in addition to the activity at the destination (Cutler & Carmichael, 2010; Tung & Ritchie, 2011). Larsen (2007, p. 15) verifies tourist experiences to be past, personal, travel-related events “strong enough to have entered long-term memory.” Considering the importance of marketing management in the planning of environments in which positive memorable tourist experiences are more likely to occur, the concept of positive memorable experiences has been enthusiastically discussed and empirically studied (Tung & Ritchie, 2011). Thus, efforts to facilitate the emergence of tourist experiences characterized as being “positively remembered and recalled after the event has occurred” (Kim, Ritchie, & McCormick, 2010, p.13) are undertaken by destination management organizations in order to be more competitive (Ritchie & Crouch, 2003).



With a managerial approach, Ooi (2005) suggests that tourism mediators are facing the main challenge of competing for tourists' attention, which is a scarce resource (Davenport & Beck, 2001). Hence, in order to help frame tourist experiences, sensory stimuli can be explored by destination management organizations as *sensory markers* (Ooi, 2005). Since a variety of sensory appeals, such as smells or sounds, can assist the activity of recovering memories (Baddeley, Eysenck, & Andersen, 2009), several researchers suggest the effectiveness of using sensory information in eliciting tourists' experiences (Agapito et al., 2014; Gretzel & Fesenmaier, 2003, 2010). In an empirical study, Ballantyne, Packer, and Sutherland (2011) recorded visitors' memories of wildlife tourism experiences four months after the visit, and in addition to emotional affinity and reflective and behavioral responses, the participants reported vivid visual, auditory, olfactory, or tactile memories. Accordingly, several frameworks aiming to stage tourist experiences (Agapito et al., 2013; Ellis & Rossman, 2007; Mossberg, 2007; Oh et al., 2007; Walls, Okumus, Wang, & Kwun, 2011) highlight sensory stimuli as environmental factors. These atmospherics compose the physical/virtual scenery in which the consumption takes place and facilitate social interactions (Bitner, 1992; Heide & Grønhaug, 2006; Walls et al., 2011).

Despite the complexity of the aesthetics concept, the original Greek meaning of the word "aesthetics" supports its broad definition as the "perception of the external world by the senses" (Degen, 2008, p. 38). Furthermore, Cupchik (2002) argues that aesthetic perception involves a variety of sensory elements, and refers not only to human-made objects, such as works of art, but also to natural environments, both of which can be appreciated by an individual process of aesthetic evaluation (Charters, 2006). In this sense, the body can be seen as the vehicle of the travel art (Adler, 1989), and both natural environments (Hepburn, 2004; Todd, 2009) and urban environments (Kirillova et al., 2014) are triggers for rich and

rewarding aesthetic tourist experiences. Moreover, the findings of the empirical study by Kirillova et al. (2014) stress that destination planners should employ existing aesthetic inventory in the destination strategic planning and that the assessment of the beauty of the destination goes beyond the visual aspects and engages all senses. The authors conclude that “tourism aesthetics” may “exert influence over long-term attitudinal and behavioral attributes of tourists, such as loyalty” (Kirillova et al., 2014, p. 290). This management approach is supported by other empirical studies suggesting that beautiful aesthetic scenery impacts the perception of the [overall quality of the destination experience](#), which in turn contributes to satisfaction, making aesthetics one of the key attributes influencing tourists’ decision to visit the destination (Lee, Jeon, & Kim, 2011).

[Campos et al. \(2015\)](#) stress that multisensoriality leaves a permanent imprint on memory and that the sensory dimension has a vital importance in co-creation experiences, asserting that more research is required on the “impact of the sensory dimension of co-creation experiences on memorability, but also exploration of the multiple senses as attention capturers and maintainers during these experiences” (p. 22). In some experiences, for instance those occurring in natural settings, the process of appealing to the senses is particularly relevant for building strong positive emotions and as the substance of future memories. Memorability is described as the property of something that endures in long-term memory and is easily recalled in detail.

## *2.2. Memories versus destination loyalty*

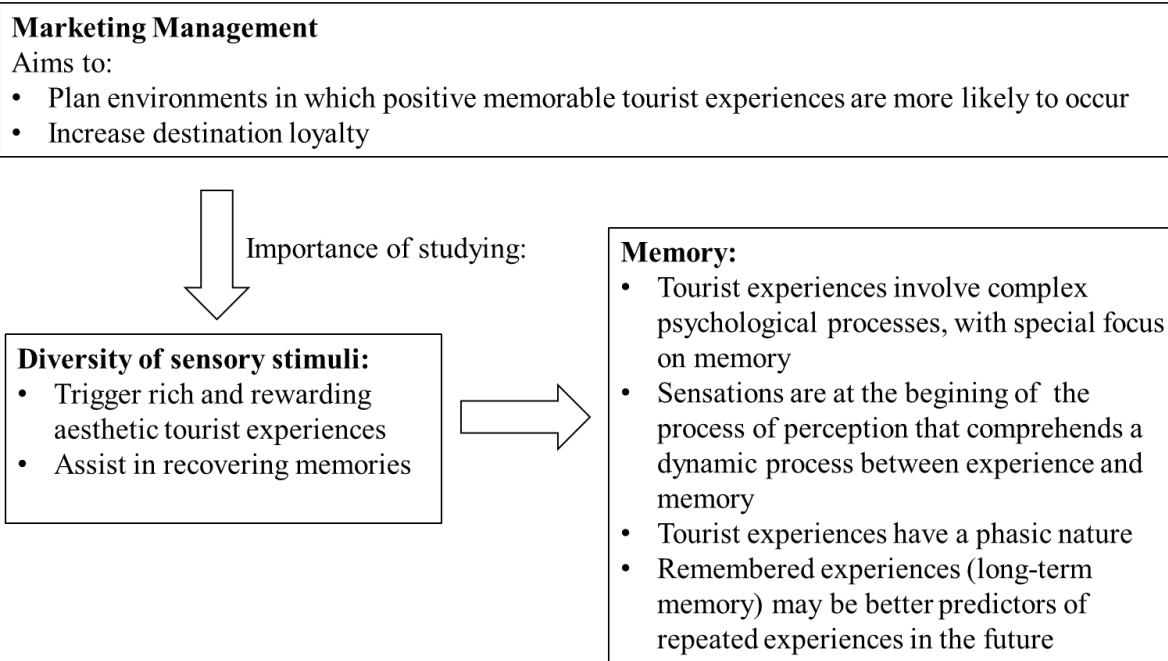
Larsen (2007, p. 7) argues that remembered experience is a retrospective global evaluation, making tourist memories central to the study of tourist experiences, forming the basis for new

preferences and expectancies, and affecting decision-making. Facing the challenge of engaging tourists fully and enhancing customer loyalty (Tung & Ritchie, 2011), some efforts have been undertaken in order to understand the impact of tourists' memories of destination experiences on the individuals' future choices. Empirical studies have shown that remembered experiences may be better predictors of repeat experiences in the future than the reported experiences during the visit, despite the latter being more accurate regarding the *in loco* experience (Mitchell et al., 1997; Wirtz et al., 2003). Furthermore, since memory is dynamic, involving the processes of encoding, storage, and retrieval, the post-experience could alter consumers' memory of sensory impressions (Braun-LaTour & Latour, 2005, p. 20). Nevertheless, positive remembered tourist experiences do not always lead to repeat tourists. This possible outcome does not necessarily mean dissatisfaction, but rather the need of some tourists to seek novelty and thus their desire to visit other destinations (Jang & Feng, 2007; Williams & Soutar, 2009), financial issues, or simply not wanting to risk repeating an extraordinary experience and ruining its memory (Tung & Ritchie, 2011; Zauberan, Ratner, & Kim, 2009). In fact, after returning home, tourists continue to enjoy the pleasure of their choice in the form of memories that last with a symbolic value in the presentation of the self to friends, colleagues, and family (Crouch, Perdue, Timmermans, & Uysal, 2004, p. 4).

In this context, in addition to the study of behavioral loyalty, by using repeat visitation as a measurement indicator (Oppermann, 2000), research on tourism has been focusing on other variables pertaining to attitudinal loyalty, such as the willingness to recommend and say positive things about a destination to family and friends (Baker & Crompton, 2000; Lehto, O'Leary, & Morrison, 2004). The latter is based on the theory of reasoned action, which suggests that behavior can be predicted from intentions that correspond directly to that behavior—that is, studying behavior through the analysis of intentions seems to be accurate,

if action, purpose, context, and time are identified in a similar way to that which is expected to be the individuals' actual behavior (Ajzen & Fishbein, 1980; Belk, 1975). Based on previous consumer loyalty research, this tendency is reinforced by the study of Chen and Gursoy (2001, p. 79) who operationally define destination loyalty as the "level of tourists' perceptions of destination as a recommendable place." Furthermore, recommendation from relatives and friends has been set as the most credible informative agent in the process of choosing a holiday destination and, as a result, special attention should be paid to this particular variable (Chen, 2003; Chen & Gursoy, 2001). Moreover, considering that tourists' intentions change often over time, few studies have compared behavioral intentions reported towards a destination *in loco* with monitored intentions after the tourists have returned home (Jang & Feng, 2007).

**Figure 1** depicts a summary of theoretical considerations that argues for the importance of both studying the contribution of sensory diversity as perceived by tourists to memorable destination experiences and exploring the connection between long-term memory of sensory impressions and destination loyalty, for managerial purposes.



**Figure 1** – Summary of theoretical considerations

### 2.3. Study objectives and research questions

This study aims to offer insights into the contribution of sensory diversity as perceived by tourists to memorable destination experiences and to explore the connection between long-term memory of sensory impressions and destination loyalty. The research is underpinned by the literature presented above, which reveals the effectiveness of obtaining a description of perceived experiences by using sensory information in eliciting tourists' impressions *in loco* and in the post-visit phase, while acknowledging that, despite working holistically, reported sensory encounters can be assessed separately, with the aim of marketing and managing positive and memorable destination experiences (e.g. Agapito et al., 2014; Gretzel & Fesenmaier, 2003, 2010; Pan & Ryan, 2009). Accordingly, four research questions have been formulated in line with these goals:

*Research question 1* - Are there differences between the importance attributed to each sense, *in loco* and post-visit, for individuals to achieve a positive tourist experience in Southwest Portugal?

*Research question 2* - Are there differences between the tourists' reported sensory impressions of Southwest Portugal by sensory modalities, *in loco* and post-visit?

*Research question 3* - What is the relative contribution of each sensory impression to the long-term memory of tourist experiences in Southwest Portugal?

*Research question 4* - Is there a connection between long-term memory of sensory impressions and destination loyalty?

### **3. Materials and methods**

#### *3.1. Setting*

The study was performed in Southwest Portugal, a [destination of contrasts](#) characterized by its maritime and inland sceneries and known for its rural lodgings. [Here, the west coast and the countryside of the Algarve and Alentejo regions meet, offering diverse endogenous resources which can generate multisensory effects.](#) The setting encompasses the Natural Park of Southwest Alentejo and Vicentina Coast, extending over 100 kilometers through four municipalities: Aljezur, Odemira, Sines, and Vila do Bispo. The area embraces a rich flora with over 700 species of plants, many of which are native to Portugal. The setting is an important stopover for migrating birds and is also home of dozens of species of mammals and

aquatic fauna such as cetaceans, some of which are protected species. Geologically, the park comprises a variety of landscapes, including cliffs, beaches, dunes, temporary lagoons, marshes, rocks, and estuaries (ICNF - Instituto de Conservação da Natureza e das Florestas, 2015).

### *3.2. Data collection and sample*

This study included a two-phase data collection process having as a target population tourists visiting Southwest Portugal and staying overnight at rural lodgings in the area. First, a self-administered survey was conducted from 15 July to 15 December 2011, in the three most representative municipalities of the area—Aljezur, Vila do Bispo, and Odemira. From 35 lodgings that met the conditions for participating in the study, 11 places of accommodation (30%) agreed to act as locations for administering the survey. The owners and/or managers of the accommodations were informed about the purpose of the questionnaire and received instructions on its application. The sample size, 195 tourists, was defined for a 95% confidence interval, a 7% margin of error, and an estimate of 0.5 for a single proportion. Individuals aged at least 18 years old were invited to participate in the study, which was conducted *in loco*. A total of 181 surveys were validated from the 204 collected questionnaires, which correspond to 92.8% of the defined sample.

The data collected *in loco* (n = 181) was the basis for an initial study prior to the present research on solely the sensory impressions perceived *in loco*. Subsequently, the respondents of the first survey (administered *in loco*) were invited to participate in a second phase of the research. For this second data collection, a three-step process was followed: (a) six months after the visit, an initial email was sent to the respondents, which authorized the use of their

personal information in completing a second survey online; (b) one week later, non-respondents were emailed to remind them to complete the survey; (c) three weeks later, a last email was sent, reminding non-respondents of the purpose of the second survey. A “Natural Map of the Algarve” provided by the Algarve Tourism Board was offered to the respondents who participated in this second questionnaire. From the 181 valid questionnaires collected during the first phase of the study, 68 respondents (37.6%) authorized the use of their email addresses. Of these 68 individuals, 31 (45.6%) completed the second survey. For this specific study, the data analysis relied on the two-phase data, that is, the answers of respondents who participated in the research both during their stay (*in loco*) and after returning home (post-visit). This process resulted in two paired samples comprising 31 individuals, which allowed for exploring the four research questions proposed.

Three groups of questions were used simultaneously in the survey presented *in loco* and six months after the tourists’ stay in Southwest Portugal, with the intention of capturing tourists’ sensory impressions, destination loyalty, and sociodemographic and general information. One group included five open-ended questions aiming to capture sensory impressions (Agapito et al., 2014; Gretzel & Fesenmaier, 2010) regarding the tourists’ perception of their experiences in Southwest Portugal. Additionally, the tourists’ perceived level of agreement with the contribution of each one of the five senses to achieving a positive tourist experience was measured by using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree; Agapito et al., 2014). The second group of questions contained six measures of destination loyalty, adapted from Baker and Crompton (2000), Williams and Soutar (2009), and Zeithaml, Berry, and Parasuraman (1996), which used a five-point Likert scale anchored at 1 (strongly disagree) and 5 (strongly agree). These items were intended to assess recommendations, plans to return to the destination, and plans to change holiday destination



(the items are presented in **Table 4**). Surveys administered both *in loco* and in the post-visit phase used the same loyalty measures, except that the verb tense was changed (Wirtz et al., 2003), in order to evaluate intentions in the first phase and effective behavior in the second phase of the study (e.g., “I would recommend a tourist experience in this setting if someone asks for my advice”; “I have recommended a tourist experience in this setting to people who asked for my advice”). The participants were also asked to present information on sociodemographic aspects and general information with respect to their visit to Southwest Portugal. The survey was prepared in English, Portuguese, Spanish, and German and subsequently submitted to a pretest with twelve visitants and three researchers, a process resulting in the refinement of the instrument with respect to vocabulary and design.

### *3.3. Data analysis*

Initially, a content analysis of the five open-ended questions was performed using the software IBM SPSS Text Analytics for Surveys (STAS) 4.0.1. This text-coding software was used for capturing key sensory-based categories from the collected data, based on a process which combines linguistic-based text mining and manual techniques (IBM, 2011). Responses from the non-English speaking respondents were translated into English and data were imported to STAS. The translation process was assisted by native-speaking teachers and researchers. Moreover, the open-ended responses were first subjected to spelling and grammar standardization by two researchers in order to facilitate the use of the software. By using the automatic word count option of STAS, the sensory categories were obtained. Then, based on the previous literature, words or expressions corresponding to a specific meaningful sensory impression were manually aggregated. [The sensory categories obtaining at least 10% of the references were retained for the analysis, as recommended by Agapito et al. \(2014\) and](#)

Govers et al. (2007), considering the total of respondents ( $n = 31$ ) at each phase of the study.

This process was first carried out by the main researcher and then confirmed by another researcher.

In order to compare tourists' answers reported *in loco* with those described in the post-visit phase, the Wilcoxon matched-pair signed-rank test for two samples was used to evaluate *research questions 1* and *4*. This is a non-parametric statistical hypothesis test used when comparing two related samples in order to assess whether their populations' mean ranks differ. This test is appropriate for ordinal variables, [small samples](#), and when the data do not follow a normal distribution, since in these cases the paired-samples t-test should not be used (Wilcoxon, 1945). The Z-test for two independent proportions was used to evaluate *research questions 2* and *4*, while the chi-square test for independence was performed as a supplementary analysis for *research question 4*. Descriptive statistics, particularly percentages, were used to explore *research question 3*, and complementary analysis was used for all the research questions. [These statistical analyses were performed using the computer program IBM SPSS Statistics 22.](#)

## **4. Results**

### *4.1. Sample profile*

The sample consisted of 13 males (41.9%) and 18 females (58.1%), making a total of 31 respondents. In terms of country of origin, 71.0% of the tourists were from Portugal and 29.0% were foreign tourists. In this sample, most participants had at least a college degree (87.1%), while the others had completed high school education (12.9%). A large proportion

of the respondents were married or living as a couple (71.0%), and were traveling with family (41.9%), their partner (35.5%), friends (16.1%), or colleagues from work (6.5%). The ages ranged from 26 to 61 years, with a mean of 38.5 years and a standard deviation of 9.712 years. Additionally, 61.3% of the tourists were visiting the destination for the first time, 12.9% for the second time, and 25.8% had visited the destination three or more times before. The average length of stay was 4.71 days, one day being the minimum length of stay and 12 days the maximum. Despite its small size, the sample of tourists included in this study (31) had characteristics quite similar to the tourists included in the first phase of the study (181), suggesting that representativeness was not lost in the process of getting two related (paired) samples. In fact, in both samples, most tourists were female, had at least college degree, were married or living as a couple, were traveling with their family and were first time visitors (56.9%, 85.6%, 65.2%, 38.12%, and 56.9%, respectively, in the sample of the first study). In the two samples, the tourists' average age and length of stay at the destination were also very similar (39.1 years old and 5 days, respectively, in the sample of the first study). Moreover, the sociodemographic profile in the two samples is in line with previous studies conducted in Portugal showing that the typical visitor to rural areas is relatively older, married, and with higher education (Almeida, Correia, & Pimpão, 2013; Kastenholz, Davis & Paul, 1999; Loureiro & Kastenholz, 2010).

#### *4.2. Senses and positive tourist experiences*

**Table 1** shows the results regarding the respondents' level of agreement with respect to the importance of the five senses for achieving a positive tourist experience (*research question 1*). In order to facilitate the analysis, the items of the Likert scale "strongly agree" and "agree" were aggregated in one column ("agreement") and the levels "neither agree nor disagree,"

“disagree,” and “strongly disagree” were grouped in a separate column (“no agreement”). The descriptive statistics reveal that the respondents’ level of agreement attributed to each one of the five senses is always higher at the first phase of the study compared with the results obtained in the post-visit phase (e.g., hearing 1: 93.5%; hearing 2: 74.2%). Accordingly, it is clear in the sample that, after returning home, the tourists give a minimum rating to all the senses that is lower than during the visit (e.g., sight 1: minimum 4; sight 2: minimum 2). The Wilcoxon matched-pair signed-rank test for two samples was used to determine whether there are differences *in loco* and post-visit between the importance tourists attributed to the five senses in achieving a positive tourist experience. **Table 1** presents the results of the test, based on positive ranks, and shows that there are no significant differences at the 1% or 5% significance level between the importance attributed to each sense by tourists *in loco* and post-visit. However, the differences involving sight and hearing are significant at the 10% significance level.

Table 1 about here

#### 4.3. Reported sensory impressions: *In loco* and post-visit

As observed in **Table 2**, the results of the content analysis of the open-ended questions reveal that the conventional five senses achieve a high number of references, both *in loco* (phase 1) and in the post-visit phase (phase 2). In phase 1, the 31 participants referred to 409 sensory-based words or expressions. In phase 2, the same tourists used 328 words or expressions that matched one of the five human senses, 19.8% less than in phase 1. This is an expected result because six months separate the two data collection. For each sense, the significance of the differences between the percentages of reported sensory impressions by sensory modalities, *in*

*loco* and post-visit, was assessed by performing a Z-test for the difference between two proportions (*research question 2*). Despite the reduction in the total number of sensory-based words or expressions, **Table 2** shows that there are no significant differences involving the senses of hearing, taste, touch, or smell at the 1% or 5% significance level. The only significant difference involves the sense of sight at the 5% or 10% significance level.

Table 2 about here

#### *4.4. Memorable sensory impressions in Southwest Portugal*

The reported sensory expressions, *in loco* and in the post-visit phase, were categorized into meaningful sensory impressions (*research question 3*). The sensory categories obtaining at least 10% of the references were retained for the analysis, as recommended by Agapito et al. (2014) and Govers et al. (2007), considering the total of respondents ( $n = 31$ ) at each phase of the study.

Table 3 about here

**Table 3** shows that for the sense of sight, the most common sensory impressions reported *in loco* are the “landscape” (61.3%), the “natural light” of the destination (29.0%), and the “diversity of colors” (25.8%) while six months after the visit the “landscape(s)” of Southwest Portugal is maintained as the top reference (48.4%). Worth noting is the focus on some visual impressions in the first phase of the study that have no expression in the post-visit phase. This is the case for the references to particular details of flora, such as “trees” (19.4%) and “flowers” (16.1%), as well for the “maritime scenery” (16.1%), sky (12.9%), and “beaches” (12.9%). Conversely, in the post-visit phase, tourists report seeing “local people” as a visual

impression (32.5%), a visual impression not mentioned *in loco*. With respect to the sense of hearing, the *soundscape*s mostly mentioned are “birdsong” (58.1%), “wind” (38.7%), and “sea” (32.3%) whereas in the post-visit stage the focus is on “nature” (35.5%), “birdsong” (29.0%), and “people” (25.8%). The *soundscape*s pertaining to “crickets” (25.8%), “animals” (19.4%), “farm animals” (16.1%), and “tree leaves” (12.9%) are mentioned *in loco*, but have no expression in tourists’ long-term memory of the experience.

For the sense of smell, the top three *smellscapes* reported *in loco* are “salty sea air” (58.1%)—an impression that has no expression post-visit, “plants” (48.4%), and “fresh air” (29.0%) while in the post-visit phase of the survey, the focus is on “fresh air” (45.2), “plants” (25.8%), and “flowers” (22.8%). Worth noting is the reference to “trees” *in loco* (12.9%) that is not recalled six months after the visit, as well as the long-term memory of “rain” (12.9%), which is not referred to by the participants while at the destination. With respect to taste, the first three gastronomic impressions mentioned are the same, whether *in loco* or in the post-visit phase of the study: “seafood” (*in loco*: 48.4.6%; post-visit: 29.0%), “local food” (*in loco*: 45.2%; post-visit: 32.3%), and “sweet” (*in loco*: 35.5%; post-visit: 35.5%). The reference to “aromatic plants” is evidenced in the first phase of the research (16.1%), but is not expressed by participants when recalling the experience six months after the visit. Regarding the sense of touch, the *hapticscapes* mostly mentioned *in loco* are “heat” (38.7%), “coolness” (32.3%), and the texture of “sand” (32.3%) while after returning home tourists point out the “heat” (38.7%), the “coolness” (25.8%), and the “water” (25.8%). The touch of “wind” is evinced by participants *in loco*, but this sensory experience has no expression in the long-term memory.

#### 4.5. Memorable sensory impressions versus destination loyalty

In order to evaluate whether there is a connection between tourists' long-term memory of sensory impressions and destination loyalty (*research question 4*), two groups of respondents were formed, based on the average of reported sensory impressions six months after the visit to Southwest Portugal. Considering the total sensory impressions (328) and the total respondents (31), the mean of the references is 10.58. Considering this average, the first group of 18 individuals who reported 11 or fewer sensory impressions was formed, which was tentatively termed "tourists reporting less diversified impressions." The second group of 13 participants who mentioned more than 11 sensory impressions was aggregated as the group of "tourists reporting more diversified impressions."

Table 4 about here

**Table 4** shows the results of the Wilcoxon matched-pair signed-rank test for two samples in order to determine whether there are differences between tourists' behavioral intentions (reported *in loco*) and actual behavior towards the destination (post-visit) with regard to "tourists reporting more diversified impressions" and "tourists reporting less diversified impressions." As can be observed, with respect to the latter group, there are greater differences between the behavioral intentions and the effective behavior, which are statistically significant at a 1% or 5% significance level. The exception is the variable related to the tourists' plans to spend holidays in other settings. For this item, there is no statistical evidence for differences between the tourists' intention and their effective behavior ( $Z = -1.732$ ;  $p\text{-value} > 0.083$ ), except for a 10% significance level. As for the "tourists reporting more diversified impressions," there are smaller differences between behavioral intentions

and effective behavior, and these differences are not statistically significant ( $p$ -value > 0.05). Furthermore, for some items, the level of agreement regarding effective behavior is superior to the willingness to act reported at the destination (e.g., *I would [already have plans to] return to this setting next year or the year after to participate in the same activities. In loco*: 69.3%; after the visit: 84.7%). With respect to the tourists' decision to choose a new location to visit, their level of agreement is higher *in loco* (84.6%) than post-visit (53.9%), suggesting that the respondents' willingness to change their holiday destination diminished after returning home.

Table 5 about here

**Table 5** uses the Z-test for two proportions in order to determine whether there are differences between the groups of “tourists reporting less diversified impressions” and “tourists reporting more diversified impressions” with respect to their reported behavioral attitudes (*in loco*) and effective behavior (post-visit). As can be observed, there are smaller differences between the two groups regarding attitudinal loyalty mentioned *in loco*, which are not statistically significant at a level of significance of 5% or 10%. With respect to effective behavior reported six months after the visit, there are greater differences between the groups, with the group of “tourists reporting more diversified impressions” showing more favorable behavior towards the destination. The opposite is true for the item related to tourists' plans to spend holidays in other settings, for which the level of agreement is lower for this group than the “tourists reporting less diversified impressions.” However, only one destination loyalty measure pertaining to returning to the destination in order to participate in the same activities is statistically significant ( $p$ -value < 0.01).



## 5. Discussion

When individuals are asked to rank the importance they consider each of the sense modalities has in achieving a positive tourist experience, the responses reported *in loco* and in the post-visit phase are not significantly different, and all senses report positive ranks (Table 1). Furthermore, there is no significant reduction in the number and diversity of sensory impressions reported six months after tourists' visits to Southwest Portugal compared to the reports collected *in loco*. For the sense of sight, the number of perceived sensory impressions even increases significantly (Table 2). This finding could be explained by the fact that a time elapse after the stay is important for tourists to reflect on their experiences and add meaning to them (Ballantyne et al., 2011; Curtin, 2005; Tung & Ritchie, 2011). Moreover, individuals *in loco* may be more eager to enjoy their limited time at the destination, not having the same possibility of being exhaustive in reporting their experiences as after the visit.

With respect to the sensory impressions that most contribute to the long-term memory of tourist experiences in Southwest Portugal (**Table 3**), it is possible to note that regarding the sense of sight the "landscape" is the sensory aspect most referred to by respondents in both phases of the study. This is in line with previous studies that stress the importance of landscapes in experiencing destinations, especially in the countryside, which involves natural and relaxing landscapes contrasting to urban areas (Daugstad, 2008; Kastenholz et al., 2012). This is the case in the Southwest Portugal area, which combines maritime with inland sceneries. An interesting finding is that some sensory impressions reported *in loco* are not mentioned in the post-visit phase, and vice-versa. The mention of local people is only made by tourists after reflecting on their experiences, and it is reported as being sound-related in addition to the visual aspect. This result is in line with recent research on tourism focusing on

the importance of the social dimension for positive tourist experiences that endure in the memory and contribute to the sustainability of tourism in local destinations (Jennings & Nickerson, 2006; Kastenholz et al., 2012). Regarding other reported *soundscape*s, a notable finding is that the sea is reported as part of an episodic memory associated with an aural character and not as a visual aspect. Furthermore, silence is a *soundscape* with considerable expression when tourists recall the destination experience, which has been previously evinced in research conducted in the countryside, revealing the appeal of silence to individuals seeking an absence of noise (Daugstad, 2008; Kastenholz et al., 2012; Pan & Ryan, 2009).

As for *smellscapes*, “fresh air”—sometimes referred to in the literature as “pure air”—is a common *sensescape* associated with natural environments and with its related health benefits (Gretzel & Fesenmaier, 2003). The most memorable gustatory impressions pertain to “sweet,” “local food,” and “seafood,” which are mentioned in both phases of the study. Indeed, local food is greatly appreciated by tourists, especially in rural settings, being addressed in previous research as a sustainable attractor for local destinations, given food’s cultural and social dimensions (Daugstad, 2008; Everett, 2008; Kastenholz et al., 2012; Kivela & Crofts, 2006; Pan & Ryan, 2009). With respect to touch, the impressions are essentially connected to temperatures such as “heat” and “coolness,” but also to the diversity of textures which are memorable sensory impressions for tourists in Southwest Portugal (Table 3).

When exploring the connection between long-term memory of sensory impressions and destination loyalty, the study shows statistical evidence that tourists who perceive more diversification of sensory impressions in the post-visit phase regarding their destination experience are more likely to recommend the destination and revisit it in order to participate in the same activities than the group that recalled less diversified sensory impressions (Tables

4 and 5). These findings are in line with previous studies that acknowledge that richer sensory experiences increase tourists' level of engagement with a destination (Gretzel & Fesenmaier, 2003; Kirillova et al., 2014; Pan & Ryan, 2009; Pine & Gilmore, 1998) and that remembered experiences may be better predictors of future behavior than the experience reported *in loco* (Mitchell et al., 1997; Wirtz et al., 2003).

Regarding managerial implications, this empirical study suggests that apart from visual landscapes, other sensory impressions could be addressed by destinations in order to enhance tourist experiences and consequently contribute to increasing their retention in memory, leading to destination loyalty (Kastenholz et al., 2012; Ooi, 2005; Schwarz, 2013; Tung & Ritchie, 2011). Specifically in Southwest Portugal, policymakers and destination marketing organizations should focus on facilitating rich sensory experiences for tourists by, for example, exploring the sounds of the setting, the scents of nature, the gastronomic specialties of the region, and the opportunities to experience diverse textures with respect to local architectural details, nature, or local products. These could be emphasized by the destination and hospitality firms, through the development of coherent communication strategies and by exploring the potential of technological devices as extensions of the body before, during, and after tourists' visits (Gretzel & Fesenmaier 2003; Neuhofer, Buhalis, & Ladkin, 2012; Rodaway, 1994; Tussyadiah & Fesenmaier, 2009).

Furthermore, sensory-appealing experiences may encourage higher levels of tourists' engagement with sustainable activities at the destination and the purchase of memorabilia (Baddeley, 1999; Kastenholz et al., 2012; Lehto et al., 2004; Mossberg, 2007; Tung & Ritchie, 2011). In this regard, this study shows that, when compared with those reporting their sensory experiences as less diversified, the tourists who recall more diversity of sensory

impressions have significantly more favorable effective behavior with respect to their planning to return to the destination in order to participate in the same activities. Similarly, Kirillova et al. (2014) maintain that the sense of place identity is related to individuals' aesthetic judgment, which can influence the perception of the setting as being more appealing. However, since novelty is also a value sought by tourists, destinations should put efforts into creatively facilitating unexpected experiences using sensory-appealing endogenous resources and reinventing the destination by promoting new experiences (Kastenholz et al., 2012; Kirillova et al., 2014; Tung & Ritchie, 2011; Williams & Soutar, 2009). Synergetic strategies within the destination and neighboring regions with similar or complementary *sensescapes* could be analyzed with the purpose of exploring the potential of market niches or the creation of sensory itineraries addressing tourists' specific motivations and needs (e.g., travel journalists and visually impaired tourists; Pan & Ryan, 2009; Richards, Pritchard, & Morgan, 2010; Small, Darcy, & Packer, 2012). In this regard, efforts to creatively explore all the senses in destinations and the use of creative industries could enhance unique, appealing, and sustainable tourist experiences, encouraging their co-creation between tourists, the tourism industry, and local communities (Jennings & Nickerson, 2006; Kastenholz et al., 2012; Mossberg, 2007).

## **6. Conclusion**

This exploratory research suggests that the study of sensory impressions with regard to destination experiences considering their phasic nature is adequate for the analysis of both the contribution of specific sensory impressions in facilitating memorable tourist experiences and the connection between long-term memory and destination loyalty, from a managerial perspective. By surveying tourists during their stay in Southwest Portugal and six months

after they returned home, this research analyzed the diversity of reported sensory impressions. The findings suggest that impressions related to senses other than sight contribute to the recollection of tourist experiences and that sensorily richer tourist experiences may have an important role in encouraging favorable tourist behavior towards destinations. Hence, from a practical point of view, this study corroborates the idea that in order to support memory recollection, tourism planners could use *sensescapes* of destinations as *sensory markers* (Agapito et al, 2014; Kirillova et al, 2014; Ooi, 2005). Although exploratory, the findings are in line with the theoretical literature, offer some insights with regard to the theme under study (which remains scarcely explored), and have some pragmatic implications.

Despite the interplay of the senses, this research adopts a managerial perspective and depicts sensory impressions, considering the five senses as reference, aiming to capture specific qualities of the destination both *in loco* and in the post-visit stage (e.g. “natural light,” “animals,” “birdsong,” “silence,” “fresh air” smell, “local food,” and “sand” texture). This type of sensory information could be used by destination management organizations to plan, brand, and communicate the destination, contributing to the consolidation of the destination positioning and image (Kirillova et al., 2014; Lindstrom, 2005; Pike & Page, 2014). Destinations can be approached as aesthetic products—although at different levels—and, as such, experiential consumption could be facilitated (e.g., Kirillova et al., 2014; Schmitt & Simonson, 2009). In fact, at the end of the present research a network of walking trails along the southwest coast of Portugal, named Rota Vicentina, was completed and backed by private and public entities. The itineraries that total about 400 km complement each other, focusing on the diversity of assets in Southwest Portugal, by encompassing natural, historical, cultural, and touristic resources ([www.rotavicentina.com](http://www.rotavicentina.com)). Furthermore, the nonprofit association Casas Brancas is composed of a network of small local businesses such as lodgings,

restaurants, and outdoor activities–related firms intending to engage visitors and the local community in a creative manner, aimed at the sustainable development of the region ([www.casasbrancas.pt/en](http://www.casasbrancas.pt/en)). Hence, the process of analyzing the perceived sensory stimuli that last a long time in tourists' memory is crucial for the marketing and the management of the destination as a composite product. Indeed, destinations including large inland areas like Southwest Portugal are largely based on a diversified collection of endogenous resources such as gastronomy, fauna, and flora that offer multiple sensory stimuli which are diversified throughout the year. This diversity has the potential to mitigate the seasonality problems existing in tourism, a typical phenomenon in destinations mainly associated with seaside tourism, such as Portugal. Against this background, these resources could be explored in order to enhance tourist experiences by considering the aesthetic perspective in addition to the symbolic, emotional, and social dimensions (Kastenholz et al., 2012), consequently contributing to memorable tourist experiences leading to destination loyalty and local sustainable development.

While this study was intended to explore some research gaps identified in the literature, further research is needed in order to gain a deeper understanding of the role of the sensory dimension of tourist experiences in long-term memory and destination loyalty. First, replication of the study in order to compare the present results with other research conducted in different destinations, using larger samples, would be required. Several attempts were made to have more respondents in the post-visit phase of the study; however, the process of reaching the potential participants by email after they returning home proved to be a limitation for more generalized conclusions. Also the valence (positive and negative) of the reported sensory impressions is not addressed in this study since this information was not specified by many respondents and the focus of the present research was on the diversity of

the reported sensory stimuli experienced at the destination. As an exploratory study, this research does not consider other variables that could be related to the results. Future research could also explore the relationship of the sensory component with other dimensions of tourist experiences, such as the emotional or social dimensions, and their interactions in contributing to destination loyalty. In addition, variables related to culture, demographics, and motivation can also be factored tested. Moreover, the process of collecting data during a large period of time seems to be adequate in order to analyze whether different seasons of the year correspond to tourists' perceptions and memories of dissimilar sensory impressions, which could justify specific marketing strategies throughout the year. Finally, it would be interesting to perform a broader study by including data collection during the anticipatory phase of tourist experiences in addition to the activity at the destination and the phase of recollection, with the purpose of comparing the results between these three phases of the tourist experience.

## References

- Adler, J. (1989). Origins of sightseeing. *Annals of Tourism Research*, 16(1), 7-29.
- Agapito, D., Valle, P. & Mendes, J. (2014). The sensory dimension of tourist experiences: Capturing meaningful sensory-based themes in Southwest Portugal. *Tourism Management*, 42(June), 224-237.
- Agapito, D., Mendes, J. & Valle, P. (2013). Conceptualizing the sensory dimension of tourist experiences. *Journal of Destination Marketing & Management*, 2(2), 62-73.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs: Prentice Hall.
- Almeida, A., Correia, A., & Pimpão, A. (2014). Segmentation by benefits sought: the case of rural tourism in Madeira. *Current Issues in Tourism*, 17(9), 813-831.
- Baddeley, A. (1999). *Essential of human memory*. East Sussex: Psychology Press.
- Baddeley, A., Eysenck, M., & Andersen, M. (2009). *Memory*. East Sussex: Psychology Press.
- Baker, D. & Crompton, J. (2000). Quality, satisfaction and behavioral intentions. *Annals of Tourism Research*, 27(3), 785-804.
- Ballantyne, R., Packer, J., & Sutherland, L. (2011). Visitors' memories of wildlife tourism: Implications for the design of powerful interpretative experiences. *Tourism Management*, 32(4), 770-779.
- Belk, R. (1975). Situational variables and consumer behavior. *Journal of Consumer Research*, 2(3), 157-164.



- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(2), 57–71.
- Brakus, J., Schmitt, B., & Zarantonello, L. (2009). Brand Experience: What is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, 73(3), 52-68.
- Braun-LaTour, K., & Latour M. (2005). Transforming consumer experience: When timing matters. *Journal of Advertising*, 34(3), 19-30.
- Campos, A.C., Mendes, J., Valle, P. O., & Scott, N. (2015). Co-creation experiences: Attention and memorability. *Journal of Travel and Tourism Marketing*. DOI: 10.1080/10548408.2015.1118424.
- Charters, S. (2006). Aesthetic products and aesthetic consumption: A review. *Consumption Markets & Culture*, 9(3), 235-255.
- Chen, J. (2003). Market segmentation by tourists' sentiments. *Annals of Tourism Research*, 30(1), 178-193.
- Chen, J., & Gursoy, D. (2001). An investigation of tourists' destination loyalty and preferences. *Journal of Contemporary Hospitality Management*, 13(2), 79-85.
- Crouch, D. (2002). Surrounded by place: Embodied encounters. In S. Coleman, & M. Crang (Eds.), *Tourism between place and performance* (pp. 207-218). New York: Berghahn Book.
- Crouch, G., Perdue, R., Timmermans, H., & Uysal, U. (2004). Building foundations for understanding the consumer psychology of tourism, hospitality and leisure. In G. Crouch,

- R. Perdue, H. Timmermans, & M. Uysal (Eds.), *Consumer Psychology of Tourism, Hospitality and Leisure*, vol. 3, (pp.1-9). Wallingford: CABI Publishing.
- Cupchik, G. (2002). The evolution of psychological distance as an aesthetic concept. *Culture & Psychology*, 8(2), 155-187.
- Curtin, S. (2005). Nature, wild animals and tourism: an experiential view. *Journal of Ecotourism*, 4(1), 1-15.
- Cutler, S., & Carmichael, B. (2010). The dimensions of the tourist experience. In M. Morgan, L. Lugosi, & J.R.B. Ritchie (Eds.), *The tourism and leisure experience: Consumer and managerial perspectives* (pp.3-26). Bristol: Channel View Publications.
- Damásio, A. (2009). *O erro de Descartes: Emoção, razão e cérebro humano* [Descartes' error: emotion, reason and the human brain (1995)] (25<sup>th</sup> ed.). Mem Martins: Europa América.
- Dann, G.M.S., & Jacobsen, J.K.S. (2003). Tourism smellscape. *Tourism Geographies*, 5(1), 3-25.
- Daugstad, K. (2008). Negotiating landscape in rural tourism. *Annals of Tourism Research*, 35(2), 402-426.
- Degen, M. (2008). *Sensing Cities: Regenerating public life in Barcelona and Manchester*. London: Routledge.
- Ellis, G. D., & Rossman, J. R. (2008). Creating value for participants through experience staging: Parks, recreation, and tourism in the experience industry. *Journal of Park and Recreation Administration*, 26(4), 1-20.

- Everett, S. (2008). Beyond the visual gaze? The pursuit of an embodied experience through food tourism. *Tourist Studies*, 8(3), 337-358.
- Gentile, C., Spiller, N., & Noci, G. (2007). How to sustain the customer experience: An overview of experience components that co-create value with the customer. *European Management Journal*, 25(5), 395-410.
- Goldstein, E.B. (2010). *Sensation and perception* (8<sup>th</sup> ed.). Belmont: Wadsworth.
- Govers, R., Go, F., & Kumar, K. (2007). Virtual destination image: a new measurement approach. *Annals of Tourism Research*, 34(4), 977-997.
- Gretzel, U., & Fesenmaier, D. (2003). Experience-based internet marketing: An exploratory study of sensory experiences associated with pleasure travel to the Midwest United States. In A. Frew, M. Hitz, & P. O' Connor (Eds.), *Information and Communication technologies in Tourism 2003* (pp.49-57). Viena: Springer Verlag.
- Gretzel, U., & Fesenmaier, D. (2010). Capturing sensory experiences through semi-structured elicitation questions. In M. Morgan, L. Lugosi, & J.R.B. Ritchie (Eds.), *The tourism and leisure experience: Consumer and managerial Perspectives* (pp. 137-160). Bristol: Channel View Publications.
- Heide, M., & Grønhaug, K. (2006). Atmosphere: Conceptual issues and implications for hospitality management. *Scandinavian Journal for Hospitality and Tourism*, 6(4), 271-286.
- Hepburn, R. (2004). Contemporary aesthetics and the neglected of natural beauty. In A. Carlson, & A. Berleant (Eds.), *The aesthetics of natural environments* (pp.43-62). Toronto: Broadview Press.

Howes, D. (Ed.) (2005). *Empire of the senses: The sensual culture reader*. Oxford: Berg.

IBM (2011). IBM SPSS text analysis for surveys 4.0.1 user's guide. New York: IBM Corporation. Retrieved March 13, 2013, from [ftp://public.dhe.ibm.com/software/analytics/spss/documentation/tafs/4.0.1/en/Users\\_Guide.pdf](ftp://public.dhe.ibm.com/software/analytics/spss/documentation/tafs/4.0.1/en/Users_Guide.pdf).

ICNF - Instituto de Conservação da Natureza e das Florestas (2015). Parque Natural do Sudoeste Alentejano e Costa Vicentina. Lisbon: ICNF. Retrieved May 8, 2015, from <http://www.icnf.pt/portal/ap/p-nat/pnsacy>.

Isacsson, A., Alakoski, L., & Bäck, A. (2009). Using multiple senses in tourism marketing: The Helsinki expert, Eckerö line and Linnanmäki amusement park cases. *Tourismos*, 4(3), 167-184.

Jang, S. & Feng, R. (2007). Temporal destination revisit intention: The effects of novelty seeking and satisfaction. *Tourism Management*, 28(2), 580-590.

Jennings, G., & Nickerson, N. (Eds.) (2006). *Quality tourism experiences*. Burlington, MA: Elsevier.

Kastenholz, E., Carneiro, M. J., Marques, C. P., & Lima, J. (2012). Understanding and managing the rural tourism experience – The case of a historical village in Portugal. *Tourism Management Perspectives*, 4, 207-214.

Kastenholz, E., Davis D., & Paul, G. (1999). Segmenting Tourism in Rural Areas: The Case of North and Central Portugal. *Journal of Travel Research*, 37(4), 353-363.

- Kim, J., Ritchie, J. R. B., & McCormick, B. (2010). Development of a scale to measure memorable tourism experiences. *Journal of Travel Research*, 51(1), 12-25.
- Kirillova, K., Fu, X., Lehto, X., Cai, L. (2014). What makes a destination beautiful? Dimensions of tourist aesthetic judgment. *Tourism Management*, 42(June), 282–293.
- Kivela, J., Crofts, J. (2006). Tourism and gastronomy: Gastronomy's influence on how tourists experience a destination. *Journal of Hospitality & Tourism Research*, 30(3), 354-377.
- Krishna, A. (Ed.) (2010). *Sensory marketing*. New York: Routledge.
- 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.
- Larsen, S. (2007). Aspects of psychology of the tourist experience. *Scandinavian Journal of Hospitality and Tourism*, 7(1), 7-18.
- Lee, S., Jeon, S., & Kim, D. (2011). The impact of tour quality and tourist satisfaction on tourist loyalty: the case of Chinese tourists in Korea. *Tourism Management*, 32(5), 115-1124.
- Lehto, X., O'Leary, J., & Morrison, A. (2004). The effect of prior experience on vacation behavior. *Annals of Tourism Research*, 31(4), 801-818.
- Lindstrom, M. (2005). *Brand Sense: How to build powerful brands through touch, taste, smell, sight & sound*. London: Kogan Page.
- Loureiro, M., & Kastenholz, E. (2010). Corporate reputation, satisfaction, delight, and loyalty towards rural lodging units in Portugal. *International Journal of Hospitality Management*, 30(3), 575-583

- Markwell, K. (2001). Mediating the tourist-nature experience at three tourist sites in Borneo. *Tourist Studies*, 1(1), 39-57.
- Merleau-Ponty, M. (2002). *Phenomenology of perception* (trans. Colin Smith). London: Routledge and Kegan Paul.
- Middleton, M. (2011). Exploring space, the senses and sensitivities: spatial knowing (pp.215-226). In R. Sharpley, & Stone, P. (Eds.), *Tourist experience: Contemporary perspectives*. Oxon: Routledge.
- Mitchell, T.R., Thompson, L., Peterson, E., & Cronk, R. (1997). Temporal adjustments in the evaluation of events: The “rosy view.” *Journal of Experimental Social Psychology*, 33, 421–448.
- Mossberg, L. (2007). A marketing approach to the tourist experience. *Scandinavian Journal of Hospitality and Tourism*, 7(1), 59-74.
- Neuhof, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising technology enhanced destination experiences. *Journal of Destination Marketing & Management*, 1(1-2), 36-46.
- Oh, H., Fiore, A. M., & Jeung, M. (2007). Measuring experience economy concepts: Tourism applications. *Journal of Travel Research*, 46(2), 119-132.
- Ooi, C. (2005). A theory of tourism experiences: The management of attention. In T. O’ Dell, & P. Billing (Eds.), *Experiencescapes - tourism, culture, and economy* (pp.51-68). Denmark: Copenhagen Business School Press.
- Oppermann, M. (2000). Tourism destination loyalty. *Journal of Travel Research*, 39, 78-84.

- Pan, S., & Ryan, C. (2009). Tourism sense-making: The role of the senses and travel journalism. *Journal of Travel & Tourism Marketing*, 26(7), 625-639.
- Pike, S. & Page, S. J. (2014). Destination marketing organizations and destination marketing: A narrative analysis of the literature. *Tourism Management*, 41(April), 202-227.
- Pine, J., & Gilmore, J.H. (1998). Welcome to the experience economy. *Harvard Business Review*, 76 (4), 97-105.
- Porteous, J. D. (1985). Smellscape. *Progress in Physical Geography*, 9, 356-378.
- Quan, S. & Wang, N. (2004). Towards a structural model of the tourist experience: An illustration from food experiences in tourism. *Tourism Management*, 25(3), 297-305.
- Richards, V., Pritchard, A., & Morgan, N. (2010). Re (envisioning) tourism and visual impairment. *Annals of Tourism Research*, 37(4), 1097-1116.
- Ritchie, J. R. B., & Crouch, G. (2003). *The competitive destination: A sustainable tourism perspective*. Cambridge: CABI Publishing.
- Rodaway, P. (1994). *Sensuous geographies: body, sense and place*. London: Routledge.
- Schmitt, B. (1999). Experiential marketing. *Journal of Marketing Management*, 15(1-3), 53-67.
- Schmitt, B., & Simonson, A. (1997). *Marketing aesthetics: The strategic management of brands, identity, and image*. New York: The Free Press.
- Schwartz, B. (2011). *Memory: foundations and applications*. Thousand Oaks: Sage Publications.

- Schwarz, O. (2013). What should nature sound like? Techniques of engagement with nature sites and sonic preferences of Israeli visitors. *Annals of Tourism Research*, 42, 382-401.
- Small, J., Darcy, S., & Packer, T. (2012). The embodied tourist experiences of people with vision impairment: Management implications beyond the visual gaze. *Tourism Management*, 33(4), 941-950.
- Synnott, A. (1991) Puzzling over the senses: From Plato to Marx. In D. Howes (Ed.), *The varieties of sensory experience: A sourcebook in the Anthropology of the Senses* (pp.61-76). Toronto: University of Toronto Press
- Todd, C. (2009). Nature, beauty and tourism. In J. Tribe (Ed.), *Philosophical issues in tourism* (pp.154-170). Bristol: Channel View Publications.
- Tuan, Yi-Fu (1977). *Space and Place: The perspective of experience*. Minneapolis: University of Minnesota Press.
- Tung, V.W.S., & Ritchie, J.R.B. (2011). Exploring the essence of memorable tourism experiences. *Annals of Tourism Research*, 38(4), 1367-1386.
- Tussyadiah, I., & Fesenmaier, D. (2009). Mediating tourist experiences: Access to places via shared videos. *Annals of Tourism Research*, 36(1), 24-40.
- Urry, J. (2002). *The tourist gaze* (2<sup>nd</sup> ed.). London: Sage Publications.
- Urry, J., & Larsen, J. (2011). *The tourist gaze 3.0* (3<sup>rd</sup> ed.). London: Sage Publications
- Walls, A., Okumus, F., Wang, Y., & Kwun, D. (2011). An epistemological view of consumer experiences. *International Journal of Hospitality Management*, 30(1), 10-12.



- Wilcoxon, F. (1945). Individual comparisons by ranking methods. *Biometrics Bulletin*, 1(6), 80-83.
- Williams, P., & Soutar, G. (2009). Value, satisfaction and behavioral intentions in an adventure tourism context. *Annals of Tourism Research*, 36(3), 413-438.
- Wirtz, D., Kruger, J., Scollon, C. N., & Diener, E. (2003). What to do on spring break? The role of predicted, on-line, and remembered experience in future choice. *Psychological Science*, 14 (5), 520–524.
- Zauberman, G., Ratner, R., & Kim, B. (2009). Memories as assets: Strategic memory protection in choice over time. *Journal of Consumer Research*, 35(5), 715-728.
- Zeithaml, V., Berry, L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31-46.
- Zurawicki, L. (2010). *Neuromarketing: Exploring the brain of the consumer*. Heidelberg, Springer.

**Table 1**  
Perceived contribution of the senses to achieving a positive experience reported *in loco* and post-visit

Senses (phase 1/ phase 2)	Min.	Max.	Median	Mode	No agreement <sup>a</sup>	Agreement <sup>b</sup>	Wilcoxon Signed Rank Test
<i>Sight 1</i>	4	5	5	5	0%	100%	WilcoxonZ = - 1.806;
<i>Sight 2</i>	2	5	4	4	9.7%	90.3%	<i>p</i> -value = 0.071
<i>Hearing1</i>	3	5	4	4	6.5%	93.5%	WilcoxonZ = - 1.713;
<i>Hearing2</i>	2	5	4	4	25.8%	74.2%	<i>p</i> -value = 0.087
<i>Smell 1</i>	3	5	4	4	12.9%	87.1%	WilcoxonZ = -.246;
<i>Smell 2</i>	2	5	4	4	19.3%	80.7%	<i>p</i> -value = 0.806
<i>Touch 1</i>	2	5	4	4	19.3%	80.7%	WilcoxonZ = -.494;
<i>Touch 2</i>	1	5	4	4	19.4%	80.6%	<i>p</i> -value = 0.621
<i>Taste 1</i>	3	5	4	4	22.5%	77.5%	WilcoxonZ = -.632;
<i>Taste 2</i>	1	5	4	4	32.3%	67.7%	<i>p</i> -value = 0.528

<sup>a</sup> Neither agree nor disagree + disagree + strongly disagree  
<sup>b</sup> Agree + strongly agree

**Table 2**  
Sensory impressions *in loco* and post-visit

<b>Senses</b>	<b><i>In loco</i></b> Sensory impressions	<b>%</b>	<b>Post-visit</b> Sensory Impressions	<b>%</b>	<b>Z test</b>
<i>Sight</i>	102	24.9%	104	31.7%	-2.035; p-value = 0.0419
<i>Hearing</i>	91	22.3%	60	18.3%	1.323; p-value = 0.1858
<i>Taste</i>	86	21.0%	59	18.0%	1.031; p-value = 0.3025
<i>Touch</i>	67	16.4%	56	17.1%	-0.25; p-value = 0.8026
<i>Smell</i>	63	15.4%	49	14.9%	0.175; p-value = 0.8611
<b>Total</b>	409	100%	328	100%	-

**Table 3**  
Sensory impressions in *loco* and post-visit

<i>In loco</i>	% of respondents	Post-visit	% of respondents
<i>Sight 1</i>		<i>Sight 2</i>	
Landscape	61.3	Landscape	48.4
Natural light	29.0	Animals	41.9
Diversity of colors	25.8	Natural light	38.7
Architectural details	22.6	Diversity of colors	35.5
Trees	19.4	Local people	32.3
Flowers	16.1	Architectural details	16.1
Maritime scenario	16.1	River	12.9
Animals	12.9		
Sky	12.9		
River	12.9		
Beache (s)	12.9		
<i>Hearing 1</i>		<i>Hearing 2</i>	
Birdsong	58.1	Nature	35.5
Wind	38.7	Birdsong	29.0
Sea	32.3	People	25.8
Crickets	25.8	Wind	25.8
Silence	22.6	Silence	25.8
Animals	19.4	Sea	19.4
Farm animals	16.1		
People	16.1		
Tree leaves	12.9		
<i>Smell 1</i>		<i>Smell 2</i>	
Salty sea air	58.1	Fresh air	45.2
Plants	48.4	Plants	25.8
Fresh air	29.0	Flowers	22.6
Trees	12.9	Rain	12.9
<i>Taste 1</i>		<i>Taste 2</i>	
Seafood	48.4	Sweet	35.5
Local food	45.2	Local food	32.3
Sweet	35.5	Seafood	29.0
Fruit	32.3	Bread	25.8
Cheese	19.4	Local beverage	19.4
Local beverage	19.4	Fruit	12.9
Aromatic plants	16.1	Cheese	12.9
Bread	16.1		
<i>Touch 1</i>		<i>Touch 2</i>	
Heat	38.7	Heat	38.7
Coolness	32.3	Coolness	25.8
Sand	32.3	Water	25.8
Water	25.8	Plants	22.6
Plants	22.6	Sand	22.6
Rough textures	16.1	Diversity of textures	16.1
Wind	12.9		

**Table 4**Diversity of sensory impressions reported in loco *versus* post-visit and destination loyalty

Destination loyalty measures	Tourists reporting less diversified impressions		Wilcoxon test	Tourists reporting more diversified impressions		Wilcoxon test
	<i>In loco</i> *	Post-visit*		<i>In loco</i> *	Post-visit*	
<i>I would (have) recommend (ed) a tourist experience in this setting if someone asks (to people who asked) for my advice.</i>	100%	88.9%	Z = -2.673 p = 0.008 <sup>a</sup>	100%	92.3%	Z = -1.414 p = 0.157 <sup>c</sup>
<i>I would (have) tell (told) positive things about my experience in this setting to others.</i>	100%	88.9%	Z = -3.051 p = 0.002 <sup>a</sup>	92.3%	100%	Z = 0.000 <sup>d</sup> p = 1.000
<i>I would (have) encourage (ed) my family and friends to have a tourist experience in this setting.</i>	100%	66.6%	Z = -2.810 p = 0.005 <sup>a</sup>	92.3%	84.6%	Z = -0.750 p = 0.453 <sup>c</sup>
<i>I would (already have plans to) return to this setting, next year or the year after, to participate in the same activities.</i>	66.7%	33.9%	Z = -2.389 p = 0.017 <sup>b</sup>	69.3%	84.7%	Z = -0.707 p = 0.480 <sup>c</sup>
<i>I would (already have plans to) return to this setting, next year or the year after, to participate in the new activities.</i>	61.1%	33.4%	Z = -2.887 p = 0.004 <sup>a</sup>	61.5%	61.6%	Z = -0.302 p = 0.763 <sup>c</sup>
<i>I would (already have plans to) spend holidays in other setting in the future.</i>	94.4%	77.8%	Z = -1.732 p = 0.083 <sup>c</sup>	84.6%	53.9%	Z = -1.438 p = 0.150 <sup>c</sup>

\* Agree + strongly agree

<sup>a</sup> p-value < 0.01<sup>b</sup> p-value < 0.05<sup>c</sup> p-value > 0.05<sup>d</sup> the sum of negative ranks equals the sum of positive ranks

**Table 5**Less versus more impressions reported *in loco* and post-visit and destination loyalty

Destination loyalty measures	<i>In loco</i> *		Z test	Post-visit*		Z test
	Tourists reporting less diversified impressions	Tourists reporting more diversified impressions		Tourists reporting less diversified impressions	Tourists reporting more diversified impressions	
<i>I would (have) recommend (ed) a tourist experience in this setting if someone asks (to people who asked) for my advice.</i>	100%	100%	n/a n/a	88.9%	92.3%	Z = 0.3 p=0.752 <sup>a</sup>
<i>I would (have) tell (told) positive things about my experience in this setting to others.</i>	100%	92.3%	Z = 1.2 p=0.231 <sup>a</sup>	88.9%	100%	Z = 1.2 p=0.214 <sup>a</sup>
<i>I would (have) encourage (ed) my family and friends to have a tourist experience in this setting.</i>	100%	92.3%	Z=1.2 p=0.231 <sup>a</sup>	66.6%	84.6%	Z = 1.1 p=0.255 <sup>a</sup>
<i>I would (already have plans to) return to this setting, next year or the year after, to participate in the same activities.</i>	66.7%	69.3%	Z=0.2 p=0.878 <sup>a</sup>	33.9%	84.7%	Z=2.8 p=0.005 <sup>b</sup>
<i>I would (already have plans to) return to this setting, next year or the year after, to participate in the new activities.</i>	61.1%	61.5%	Z=0 p=0.982 <sup>a</sup>	33.4%	61.6%	Z=1.6 p=0.119 <sup>a</sup>
<i>I would (already have plans to) spend holidays in other setting in the future.</i>	94.4%	84.6%	Z=0.9 p=0.363 <sup>a</sup>	77.8%	53.9%	Z=1.4 p=0.16 <sup>a</sup>

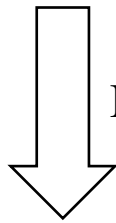
\* Agree + strongly agree

<sup>a</sup> p-value > 0.05<sup>b</sup> p-value < 0.01

## **Marketing Management**

Aims to:

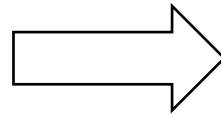
- Plan environments in which positive memorable tourist experiences are more likely to occur
- Increase destination loyalty



Importance of studying:

### **Diversity of sensory stimuli:**

- Trigger rich and rewarding aesthetic tourist experiences
- Assist in recovering memories



### **Memory:**

- Tourist experiences involve complex psychological processes, with special focus on memory
- Sensations are at the beginning of the process of perception that comprehends a dynamic process between experience and memory
- Tourist experiences have a phasic nature
- Remembered experiences (long-term memory) may be better predictors of repeated experiences in the future