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**The sensory dimension of tourist experiences:  
Capturing meaningful sensory-informed themes in Southwest Portugal**

**Abstract**

Sensory aspects of destinations have recently been in focus as an important dimension in the process of facilitating positive tourist experiences. The countryside embraces local resources rich in multi-sensory stimuli that could be utilized in the planning and marketing of appealing tourist experiences addressed to segments of tourists, while fitting sustainable local development. This study follows a holistic approach to the five external human senses, aiming to capture meaningful sensory-informed themes adequate for segmenting rural tourists. A self-administered survey in four languages was collected from 181 tourists in Southwest Portugal. A multiple correspondence analysis suggests four sensory-informed themes, tentatively named generic beach-related experience, nature-based experience, balanced experience, and rural experience. The proposed themes correspond to a four-solution cluster of tourists presenting different profiles. The largest segment (73 tourists) corresponds to the rural experience, regarding which tourists mainly refer to the taste of local food and the smell of fresh air.

Keywords: theme; sensory tourist experience; multiple correspondence analysis, segmentation

## 1. Introduction

The sensory dimension has been posed by recent tourism literature as key to understanding, planning, and marketing tourist experiences (Agapito, Mendes, & Valle, 2013; Crouch, 2002; Dann & Jacobsen, 2002, 2003; Ellis & Rossman, 2008; Everett, 2008; Gretzel & Fesenmaier, 2003, 2010; Heide & Grønhaug, 2006; Jacobsen, 1997; Kastenholz, Carneiro, Marques, & Lima, 2012; Markwell, 2001; Middleton, 2011; Mossberg, 2007; Oh, Fiore, & Jeoung, 2007; Pan & Ryan, 2009; Quan & Wang, 2004; Small, Darcy, & Packer, 2012; Veijola & Jokinen, 1994; Walls, Okumus, Wang, & Kwun, 2011a, b). The idea that the unique character of a destination can be imparted by sensory-informed themed experiences appealing to visitors is couched in recent findings of research on consumption experience framed by contemporary approaches, such as the *experience economy* (Pine & Gilmore, 1998) and *experiential marketing* (Addis & Holbrook, 2001; Holbrook & Hirschman, 1982; Schmitt, 1999), which are especially relevant to tourism given its inherent experiential nature (Oh et al., 2007; Quan & Wang, 2004; Ryan, 1997; Williams, 2006).

Indeed, a wide range of academic areas has reflected on the contribution of the senses to human knowledge and understanding of the world by providing information on the surrounding environment and mediating everyday experiences (Howes, 2005; Krishna, 2010; Rodaway, 1994). In this context, researchers and practitioners agree that contemporary destinations should attract not only by vision (Dann & Jacobsen, 2003; Daugstad, 2008; Gretzel & Fesenmaier, 2003; Kastenholz et al., 2012a; Pan & Ryan, 2009) but also by devising the right sensory stimuli in the process of creatively facilitating the emergence of appealing tourist experiences, aiming to contribute to the competitiveness and sustainability of destinations (Mossberg, 2007; Tung & Ritchie, 2011). Specifically rural destinations, commonly considered more vulnerable to negative impacts of tourism in view of the related environmental, social, and cultural values, as well as economic particularities, have been calling for a sustainable marketing approach (Fuller, 1999; Lane, 1994a). The sustainable approach for tourism aims to optimize the use of the local assets and harmonize the current and future needs of local stakeholders, while simultaneously focusing on the high satisfaction of tourists by ensuring a meaningful experience (Kastenholz, Carneiro, & Marques, 2012; UNEP & UNWTO, 2005). Accordingly, considering that the rural tourism supply is growing

rapidly and that tourists seek multiple experiences even on short holidays, rural destinations should articulate their endeavors in facilitating diversified, quality tourist experiences (Feifer, 1985; Lane, 2009). However, a lack of empirical research with a holistic approach to the so-called five external human senses – sight, hearing, smell, taste, and touch – with respect to tourist experiences, particularly focusing on rural areas, is evinced by the literature (Agapito et al., 2013).

By referring to ‘tourist experiences in rural areas’ this research intends to focus on individual and subjective evaluations of events related to tourist activities (Tung & Ritchie, 2011) performed in rural areas. What characterizes *rurality* is not consensual among either authors or countries; however, it generally refers to a non-urban location that can be a stretch of inland or coastal countryside associated with low population density and small settlements, maintaining some agrarian land use and traditional social structures, and/or strongly related to nature environments (Lane, 1994b; Roberts & Hall, 2001). This widespread characterization has influenced the social construction of the countryside and its representation, which has been reinforced in literature, contributing to tourists’ perceptions of the countryside (Butler, Hall, & Jenkins, 1998).

Despite Portugal frequently being associated with seaside tourism, especially the South, where the Algarve region accounts for the largest amount of tourists’ overnight and lodging accommodation (Statistics Portugal, 2012a), the country is a destination of contrasts. These contrasts are characterized by a diversity of culture, physical geography, and biology that can be managed in order to invigorate the tourism offerings, prolong the main product life cycle, and address efforts toward different segments of tourists (Kastenholz, Davis, & Paul, 1999). Specifically, Southwest Portugal (SP) is an eclectic area, where the west coast and the inland of the Algarve and Alentejo regions meet, offering diverse, rural endogenous resources (e.g. gastronomy, handicraft, fauna, and flora) with the potential to generate multi-sensory effects attracting tourists with diverse motivations. The natural values stand out; these are the reason underlying the creation of the Southwest Alentejo and Vicentina Coast Natural Park, extending approximately 100 km along the coast of four municipalities (Vila do Bispo, Aljezur, Odemira, and Sines). A multiplicity of natural resources with over 700 species of plants, many of which are native to Portugal, can be found in the surrounding area, which is also an important stopover for migrating birds. Moreover, dozens of

species of mammals and aquatic fauna, some of which are protected species, coexist in the area. Geologically, a variety of landscapes can be found, converging in coastal and inland scenarios (Instituto de Conservação da Natureza, 2005), appealing to rural tourists.

By focusing on SP as a pragmatic case, the purpose of this study is to approach the five human senses holistically, with respect to tourist experiences, and specifically to understand how tourist sensory experiences in the countryside are portrayed by visitors.

## **2. Conceptual framework**

### *2.1. Destination sensory experiences*

The tourism experience can be seen as a global consumption experience of a destination (Andersson, 2007; Crouch, Perdue, Timmermans, & Uysal, 2004; Lewis & Chambers, 2000; Morgan, Elbe, & de Esteban Curiel, 2009; Mossberg, 2007; Neuhofer, Buhalis, & Ladkin, 2012; Oh et al., 2007; Quan & Wang, 2004; Ritchie & Hudson, 2009). In this sense, destinations – the core of the tourism system (Fyall & Leask, 2007) – are a composite product, i.e. an amalgam of tourism products and services, comprising lodging, food, transportation, souvenirs, and leisure activities (Buhalis, 2000; Otto & Ritchie, 1996). Bearing this in mind, destinations are perceived as a whole by tourists; the perception of a destination is a combination of factors, comprising a “collection of experiences gained by the traveler” (Gunn, 1997, p. 32). While tourist encounters are personal to each visitor, tourism planners can facilitate the development of the right environment, enhancing the likelihood that positive and memorable tourist experiences will emerge (Tung & Ritchie, 2011), benefiting and involving tourists, the tourism industry, and the local community (Manente & Minghetti, 2006). This idea assumes that, in order for destination marketing and management strategies be fully successful, creative opportunities should be sought to encourage the co-creation of positive, unique, and quality tourist experiences that can attract visitors efficiently (Binkhorst & Dekker, 2009; Jennings & Nickerson, 2006; Mossberg, 2007; Prahalad & Ramaswamy, 2004) and contribute to the competitiveness and sustainability of destinations (Ritchie & Crouch, 2000).

Against this background, the relevance of the experiential paradigm for conceptualizing, planning, and marketing the tourist experience is evinced by the current literature (Cutler & Carmichael, 2010; Ellis & Rossman, 2008; Gilmore & Pine, 2002; Mossberg, 2007; Oh et al., 2007; Ritchie & Hudson, 2009; Tung & Ritchie, 2011; Volo, 2009; Walls et al., 2011a; Williams, 2006). Experiential approaches outline the importance of hedonic consumption for individuals and, accordingly, stress that attention should be paid to the activity of devising the right multi-sensory environment, contributing to the value creation for both customers and companies (Addis & Holbrook, 2001; Gentile, Spiller, & Noci, 2007; Holbrook & Hirschman, 1982; Pine & Gilmore, 1998). As a result, sensory stimuli (visual, aural, olfactory, gustatory, and tactile) have been highlighted as a crucial tool for marketing unique and appealing holistic consumer experiences (Krishna, 2012; Schmitt, 1999; Schmitt & Simonson, 1997). In fact, sensations (the activation of sensory organs – eyes, ears, nose, skin, and taste receptors) act as the initiator of the individual’s perception of the surrounding world, a process through which sensory inputs are selected, organized, and interpreted, resulting in a “conscious sensory experience” (Goldstein, 2010, p. 8). Furthermore, empirical studies consolidate the importance of the sensory dimension of consumer experiences when compared with other components (e.g. physical, intellectual, emotional, and social) stressed as key in engaging and co-creating value with consumers (Brakus, Schmitt, & Zarantonello, 2009; Gentile et al., 2007).

Within this vein, frameworks aiming to create the desired tourist experiences focus on the external factors influencing tourists’ perception, which can be partially staged by the destination, from a marketing management perspective. These instruments stress the importance of stimulating tourists’ five human senses in order to achieve positive individual responses (Agapito et al., 2013; Ellis & Rossman, 2008; Mossberg, 2007; Oh et al., 2007; Walls et al., 2011a). On one hand, sensory stimuli integrate the environmental factors composing the setting in which the consumption of products (tangibles and intangibles) takes place (Bitner, 1992; Heide & Grønhaug, 2006). On the other hand, the resulting surrounding environment is a facilitator of human interactions between tourists and employees, other tourists, and the community (Bitner, 1992; Mossberg, 2007; Walls et al., 2011a, b). Considering the multi-phase nature of the tourist experience (before, during, and after the travel), experiences *in loco* could be enhanced by exploring the potential of information communication technologies (ICTs)

at different periods during the trip, meaning that the surroundings can be both physical and virtual (Gutenntag, 2010; Neuhofer et al., 2012; Stamboulis & Skayannis, 2003; Tussyadiah & Fesenmaier, 2009). Moreover, some authors suggest that sensory information can be explored in order to identify the core themes around which destinations' experiential offerings can be coordinated (Gretzel & Fesenmaier, 2003, 2010; Pan & Ryan, 2009), aiming to generate tourists' positive emotions, place attachment, satisfaction, long-term memory, and destination loyalty (Agapito et al., 2013; Bitner, 1992; Heide & Grønhaug, 2006; Kastenholz et al., 2012b; Pine & Gilmore, 1998; Walls et al., 2011b).

Apart from the external pull factors, which can be partially managed, Larsen (2007) stresses the importance of addressing the psychological aspects of tourist experiences, since the perceptual process through which individuals shape and add meaning to their experiences is summed up not only by the characteristics of the surrounding environment and the stimulus situations but also by inner psychological processes. Thus, experiences being existential and embodied in people (Ooi, 2005; Pratt & Aspiunza, 2012), they are influenced by individuals' characteristics, such as personality, cultural background, knowledge, self-identity, emotional states, memory (Cutler & Carmichael, 2010), level of familiarity, expertise, involvement (Fluker & Turner, 2010), and physiological specificities (Derval, 2010; Krishna, 2010). These aspects, in addition to situational variables (Walls et al., 2011a), determine individuals' motivations, influencing the choice of activities in the destination and impacting on affective and behavioral responses (Cutler & Carmichael, 2019; Larsen, 2007). As a result, despite being exposed to the same stimuli, tourists attend to different elements, meaning that they experience destinations in a multitude of ways (Agapito et al., 2013; Cutler & Carmichael, 2010; Crouch, 2002; Ooi, 2005; Walls et al., 2011a). Furthermore, individuals' expressions of their own experiences are framed by a symbolic manifestation (Bruner, 1986, p. 6) deriving from the social meanings ascribed to personal experiences (Selstad, 2007). With this view, the role of tourism mediators is to compete for tourists' scarce attention and invoke a strong emotional experience rather than to create experiences (Davenport & Beck, 2001; Ooi, 2005). The challenge is thus to balance "the need for tourists to notice and interpret tourism products in desirable ways, while at the same time allowing them to feel engaged in making choices" (Ooi, 2005, p. 58). In this context, Ooi (2005) suggests that *sculpting* tourist experiences

involves selecting and accentuating specific items for tourism consumption, with particular emphasis on *sensory markers*, offering a framework in which tourists can build their myriad of tourist experiences.

## *2.2. Sensory theming tourist experiences in the countryside*

The existence of a theme is viewed as essential for coherently planning and marketing consumer experiences and as a facilitator of the individual involvement in experiential offerings, by connecting several services and products (Pine & Gilmore, 1998). The concept of themes can be described as the main idea to be learnt from a narrative that is being communicated and that can be used to promote products, services, and brands (Mossberg, 2007). The experiential paradigm suggests that the existence of a central theme allows consumers to organize their impressions, increasing the memory of events, whilst the lack of a theme can make it difficult to recall experiences (Ellis & Rossman, 2008; Mossberg, 2007; Oh et al., 2007; Pine & Gilmore, 1998). In a destination context, the arena in which the global consumption takes place is referred to as the *experiencescape* (Mossberg, 2007; O'Dell & Billing, 2005), with the destination itself being the experience environment. Since stories and themes are seen as critical elements in understanding tourist experiences (Moscardo, 2010), the literature suggests that it is possible to associate several themes with a place without creating conflict (Gattrell & Collins-Kreiner, 2006; Ooi, 2005). In fact, several products can compete among themselves within the same destination, addressing different needs, since they coherently fit the destination's offering system (Manente & Minghetti, 2006). Indeed, some destinations "are attractive precisely because there are many things for tourists to do" (Ooi, 2005, p. 59), responding to increasingly more exigent tourists seeking new experiences and enjoying the movement across different experiences in a single journey (Feifer, 1985; Poon, 1993).

Therefore, several benefits arise as a result of using central themes in the marketing management of destination experiences. Firstly, themes contain useful information for the process of planning and marketing meaningful and memorable experiences (Moscardo, 2010; Mossberg, 2007; Pine & Gilmore, 1998). Indeed, the existence of themes coordinating specific activities contributes to the feelings of tourists that they enjoyed authentic, meaningful, and personal-growth-related experiences: an idea linked

to the concept of existential authenticity (Pratt & Aspiunza, 2012; Wang, 1999). Secondly, some themes may be better used to coordinate destination offerings attracting certain market segments, fitting the destination identity and local sustainable development, by encouraging the involvement of the community and focusing on unique local resources (Donilcar, 2004; Kastenholtz et al., 2012a; Walker, 2008). The existence of central themes and stories supporting the marketing management of tourist experiences influences the places tourists visit and how they behave while at the destination (Moscardo, 2010). Accordingly, the activity of interpretation based on themes is a tool with the potential to draw the attention of tourists to specific areas or activities of local importance, considered as involving the optimal economic, social, and environmental benefits to the destination (Moscardo, 1996).

The advantages of exploring central themes in coordinating tourist experiences are especially relevant in the countryside, since rural areas embrace a myriad of undeveloped resources (e.g. vegetation soil, wildlife, water, or natural landscapes), generating an environment that contrasts with urban areas (e.g. pollution, congestion) and is valued for doing so (Kastenholtz et al., 2012a; Lane, 1994b). Thus, natural environments offer a specific, aesthetic tourist experience (Hepburn, 2004; Todd, 2009), encouraging a multi-sensory mode of appreciation of the surroundings (Carlson, 2004) and, consequently, an aesthetic engagement with nature (Berleant, 2004). In fact, rural destinations are extensively perceived by visitors, who mainly come from urban areas, as a symbol of pure nature in contrast to the utilitarian view of residents of rural areas (Figueiredo, 2009). Furthermore, rural destinations are commonly associated with cultural values, related to local traditions and gastronomy, and linked to agriculture and fishery activities (Roberts & Hall, 2001). These endogenous resources are attractors for visitors (Saxena, Clark, Oliver, & Ilbery, 2007), offering high potential to enhance diverse sensory tourist experiences (Gretzel & Fensenmaier, 2003; Kastenholtz et al., 2012b; Pan & Ryan, 2009) pertaining to the rural idyll sought or the variety of outdoor activities available (Butler et al., 1998; Page & Getz, 1997; Roberts & Hall, 2004).

Given the environmental, social, cultural, and economic concerns associated with the countryside, in addition to the multiplicity of stakeholders interacting in rural destinations (Lane, 1994a), careful management of the demand seems to be adequate (Kastenholtz, 2004) in order to optimize the impacts of tourism development and



contribute to sustainable, local tourism development (Lane, 1994b; Middleton & Hawkins, 1998). In this sense, a managerial approach to rural destination experiences should focus on carefully co-creating positive and memorable tourist experiences by seeking to harmonize local resources' preservation, residents' quality of life, tourists' quality of visit, and tourism providers' benefits (Jennings & Nickerson, 2006; Kastenholz et al., 2012a; Lane, 1994b; Manente & Minghetti, 2006). The efforts to generate synergies with different resources is thus seen as fundamental to the responsible marketing management of an integrated tourist experience in rural destinations (Cawley & Gillmor, 2008; Saxena et al., 2007) and, consequently, to the process of creatively theming rural tourist experiences and strengthening the destination identity (Bercial, 2008; Haven-Tang & Jones, 2010; Kastenholz et al., 2012b). Against this academic background, rural destinations are called to analyze which sensory-informed themes and related tourism activities fit the destination best (Gretzel & Fesenmaier, 2010; Moscardo, 2010).

In order to understand tourists' perception of their sensory experiences, it seems to be important to consider their motivations for visiting the countryside. One of the main motivations for individuals to travel to rural areas is contact with a traditional way of life and with nature (Hernández, Muñoz, & Santos, 2007). Indeed, apart from culturally related values, the romantic idea of being connected with nature is entwined with the practice of tourism in rural areas. In their research on the white water rafting experience, Arnould and Price (1993) reveal the idea of *communion with nature* as a key dimension of extraordinary experiences. However, whilst the tourist activities in the countryside were more closely related to the rural character of the place and to individuals' preference for more passive participation until around the 1970s, the countryside has recently witnessed an increased demand for more active, engaging, and, sometimes, competitive recreational activities. The latter assumes that, in some cases, the countryside may be merely the location for outdoor activities, such as survival and geocaching games with technological devices, jet boating, surfing, or adventure tourism, for which the rural character of the setting may not be central to the visit (Butler et al., 1998; Lane, 1994a; Roberts & Hall, 2001). From this viewpoint, the importance of the countryside itself is currently viewed as relative to the purpose of the tourists' visit and satisfaction (Roberts & Hall, 2004). In fact, rural areas have increasingly become spaces for the consumption of leisure and tourism activities, as opposed to spaces for

production, as agriculture is losing its dominant position, and social structures are changing dynamically (Cavaco, 1995; Roberts & Hall, 2001). Although the rural character of the destination is claimed to be vital to the process of planning and marketing an integrated rural tourism experience (Kastenholz et al., 2012b; Lane, 1994a; Saxena et al., 2007), each destination should analyze its specificities and the existing opportunities to find a balance between the development and the conservationist perspectives by achieving industry, community, and tourist satisfaction (Lane, 1994b).

Given the diversity of tourists seeking rural destinations (Cai & Li, 2009; Devesa, Laguna, & Palacios, 2010; Frochot, 2005; Kastenholz et al., 1999; Molera & Albaladejo, 2007; Park & Yoon, 2009), niche markets might be identified in order to gain a competitive advantage and efficiently allocate marketing efforts towards strategic profiles that afford greater attraction to the destination (Clemenson & Lane, 1997; Lane, 2009). Also, neighboring local regions may use their limited budgets to explore niche markets cooperatively (Morgan, 2010; Pan & Ryan, 2009). Nevertheless, Roberts and Hall (2004) stress that since consumers are increasingly interested in participating in a wide range of activities, the identification of a product's core value might be somewhat difficult; therefore, this should be a cautious process. Considering that some researchers advise that demographic information is an insufficient means of market division that does not underlie the motivations for travel (Plog, 1994; Witt & Moutinho, 1989), other bases ascribed to the psychological nature have been proved useful in the process of segmenting rural tourists for marketing management purposes (Kastenholz et al., 1999; Park & Yoon, 2009). Reintroducing to the discussion the central importance of the sensory dimension of tourist experiences and the potential sensory appeal of rural destinations, the idea of analyzing reported, sensory tourist experiences seems to be adequate not only for finding central, sensory-informed themes in order to market positive rural tourism experiences creatively and cooperatively but also for identifying different visitor segments (Gretzel & Fesenmaier, 2003, 2010).

Indeed, considering the inner psychological characteristics of perception, individuals' perceptions of destination experiences implicitly incorporate personal interests, which play a significant role in the activities performed, during which sensory inputs are selectively attended to (Cutler & Carmichael, 2019; Goldstein, 2010; Larsen, 2007; Ooi,

2005). Being the core of the tourism experience (Cutler & Carmichael, 2010; Larsen, 2007), perception also determines tourists' experience evaluation, satisfaction, and memory of events (Ryan, 2003; Selstad, 2007). The theoretical arguments sustaining the relevance of using the individuals' perception of sensory experiences to profile tourists is reinforced by the empirical research conducted by Gretzel and Fesenmaier (2010). The researchers performed a case study on a rural destination in Northern Indiana, in the Midwest United States, which reveals that multi-sensory information (taste, color, scent, and sound) extracted from perceived tourist sensory experiences is suitable for segmenting sensory experiences. In order to perform the empirical study, Gretzel and Fesenmaier (2010) developed the *Sensory Experience Elicitation Protocol* to elicitate the sensory association networks present in the mind of consumers. The authors show that although demographic variables do not significantly differentiate sensory impressions, activities performed in the destination present some connection to the reported sensory experiences. In an earlier work, Gretzel and Fesenmaier (2003) discover that it is possible to find bundles from sensory impressions (color, scent, and sound) of desired tourist experiences that are useful for designing tourist experiences and creating effective marketing tools to promote them, by exploring the potential of ICTs. By analyzing journalists' travelogues, Pan and Ryan (2009) also identify shifts of sensory impressions regarding destination experiences, which were mainly induced by spatial changes (e.g. rural *versus* urban). The research demonstrates the potential for wittingly managing the sensory appeals of destination experiences by outlining specific activities and designing sensory itineraries addressing different tourists' profiles, characterized by specific motivations.

### ***2.3. Study objectives and research questions***

The first aim of this empirical study is to identify meaningful sensory-informed themes through the analysis of sensory experiences reported by tourists in SP. The second objective is to segment rural tourists using the sensory-informed themes extracted from the tourists' reports in SP. The third goal is to analyze the connection between the activities performed in SP and the identified segments of tourists corresponding to the sensory-informed themes. The fourth aim is to understand the connection between tourists' travel motives for experiencing a rural lifestyle, as well for having an active

nature-based experience, and the identified segments of tourists corresponding to the sensory-informed themes. The last goal is to analyze the connection between the sociodemographic variables and the identified segments of tourists corresponding to the sensory-informed themes. The resulting six core research questions are highlighted in **Figure 1**.

**Figure 1 here**

### **3. Methods**

#### *3.1. Instruments*

This study uses a survey approach based on a self-administered questionnaire. Four groups of questions were used with the purpose of capturing aspects such as tourists' sensory impressions, motivations, main activities performed in the destination, and general information. Five open-ended questions based on direct elicitation were used in order to capture sensory impressions (Gretzel & Fesenmaier, 2010) with respect to the tourists' experience in SP. Tourists' motivations for visiting the destination were assessed using a five-point Likert scale varying from 1 (strongly disagree) to 5 (strongly agree). Additionally, the participants were required to indicate the main activity performed in the destination and provide sociodemographic and general information regarding their holidays in SP. The questionnaire was prepared in four languages: English, Portuguese, German, and Spanish. The survey was submitted to a pre-test with 12 visitors and three academic experts in the field, resulting in minor adjustments regarding vocabulary and design.

#### *3.2. Data collection*

The target population included tourists visiting SP who spent at least one night in a rural lodging in the area, from July 15 to December 15, 2011. In Portugal, tourism in rural areas (TER-Turismo no Espaço Rural) is defined as a paid set of activities and lodging services provided in rural areas, in establishments with a family character. The aim should be to offer visitors a complete and diversified tourism product in rural areas, with a view to preserving, restoring, and valuing the region's architectonic, historical, natural, and landscape heritage (Dec.-Lei nº 54/2002). According to recent Portuguese

legislation (Dec.-Lei n° 39/2008), tourism in rural areas can be classified into the following forms: countryside cottages (“casas de campo”), agro-tourism (“agroturismo”), and rural hotels (“hotéis rurais”). The collection of data was conducted in Odemira, Aljezur, and Vila do Bispo, since these municipalities are simultaneously the most representative with respect to the portion of the area included in the Southwest Alentejo and Vicentina Coast Natural Park (Hidroprojecto, 2008), regarding the existing agricultural area, and they present the lowest population densities of SP (< 30 persons per square kilometer) (Statistics Portugal, 2012b, c). From these areas, 35 rural places of accommodation were considered to meet the conditions for participating in the study. Of these, 11 (30%) voluntarily agreed to act as venues in which to administer the questionnaire. A sample of 195 tourists was determined using the most conservative estimate for a single proportion (0.5), a confidence level of 95%, and a margin of error of 7%. Tourists older than 17 years were invited to participate in the study. Moreover, only 1 person from each family completed the questionnaire in order to avoid the risk of quasi doubling a specific answer. The owners and/or managers of the accommodation were informed about the aims of the survey and received instructions on its application. From the 204 collected surveys, a total of 181 valid questionnaires were obtained, corresponding to 92.8% of the selected sample.

### *3.3 Data analysis methods*

The data analysis was organized in three phases. Firstly, a content analysis of the open-ended questions was conducted using the software IBM – SPSS Text Analytics for Surveys (STAS) 4.0.1 in order to extract meaningful sensory-based categories from the data. IBM Text Analytics for Surveys (STAS) is text coding software prepared to assist researchers in the analysis of survey responses to open-ended questions. This application allows the extraction of key concepts and the categorization of responses based on a combination of linguistic-based text mining with manual techniques (IBM, 2011). Before importing the data to STAS, the responses that were presented by non-English-speaking respondents were translated into English with the assistance of English, Spanish, and German native-speaking teachers and Portuguese native-speaking researchers (the authors themselves). Subsequently, a pre-reading of all the open-ended responses in English was conducted by two researchers in order to perform grammar and spelling uniformization, which was further assisted by the software. In order to

extract sensory categories, the automatic option for a word count of STAS was used, followed by a manual process of aggregating words or expressions that were related to a specific, meaningful sensory impression, having as a reference the external five human senses. The latter process was first conducted by the main researcher and further verified by a second researcher, having as a reference the previous literature and empirical studies on senses in tourism (Gretzel & Fesenmaier, 2003, 2010; Govers, Go, & Kumar, 2007; Pan & Ryan, 2009) and research using the STAS software (Guerreiro, 2012; Sahin & Baloglu, 2011). The latter studies focus on destination image studies using mixed methods and illustrate some of the potential of the software. In the present study, after categorizing the data, STAS's option to export the codified categories as categorical variables was used. This new database was further imported into the software IBM SPSS, which allows the performance of multivariate statistical techniques, such as multiple correspondence analysis (MCA). In this phase of the study, descriptive statistics, such as relative frequencies, were also used in a preliminary analysis of the data.

In the second phase of the study, the sensory coded categories (impressions) resulting from the content analysis were imported to SPSS (17.0) as categorical variables with two categories each (binominal variable): the lack of reference to a sensory impression was recoded as 1 (absence) and the spontaneous reference to a sensory impression was recoded as 2 (presence). The sensory impressions were organized in columns and the respondents in rows. With the purpose of answering **research question 1**, MCA was employed in order to capture meaningful and holistic sensory-informed themes by analyzing the associations between sensory impressions reported by tourists regarding their overall sensory experience in SP. This interdependence and exploratory technique was used since it is considered appropriate for examining multiple qualitative variables quantitatively by capturing the existing patterns between category points (Hair, Black, Babin, & Anderson, 2010) and further allowing their graphical representation through perceptual maps (Greenacre, 2007). In the joint space, the represented category points that are near to each other suggest a strong association between indicators (patterns/themes) and vice versa (dissociation). Moreover, an examination of the angles between categories' points (in this particular case, the interest particularly relies on the spontaneous sensory-based reference, coded as "2") was found useful for supporting the correct interpretation of the distances represented in the graphics, based on the notion

that an acute angle from the origin between two category levels pertaining to different categorical variables (sensory impressions) indicates a positive correlation and vice versa (Greenacre, 2007; Pan & Ryan, 2009). Cross-tabulation tables were also compiled in order to support the interpretation of the perceptual map resulting from the MCA (Carvalho, 2008; Pan & Ryan, 2009; Valle, Mendes, & Guerreiro, 2012). The latter process is explained below.

Thirdly, a k-mean cluster analysis was used as a complementary analysis to the MCA with the purpose of operationalizing the segmentation of tourists based on themes deriving from individuals' perception of tourist sensory experiences resulting from the MCA (Carvalho, 2008; Ribeiro, Valle, & Silva, 2013). This procedure allowed both the reinforcement of the examination of **research question 1** and the assessment of **research question 2**. In fact, MCA as a scaling technique is usually known as a homogeneity analysis since the proximity of the categories of different variables suggests the presence of individuals with similar profiles, resulting in different nuclei corresponding to different groups of individuals (Carvalho, 2008; Greenacre, 2007). Ward's clustering method and the squared Euclidean distance as a measure of dissimilarity were used in the cluster analysis. After obtaining the variable *segment membership* (derived from the dimensions scores identified in the MCA and indicating the cluster in which each respondent was classified), this variable was included as a supplementary variable on the perceptual map provided by the MCA and further crossed (cross-tabulation tables) with the 40 sensory impressions previously used in the MCA. This procedure allowed internal validation of the segments. External validation of the existence of different tourists' profiles was also provided by crossing the variable *segment membership* with other variables included in the questionnaire, such as performed activities and tourists' motivations (Valle, Mendes, & Guerreiro, 2012). This process enabled the evaluation of **research questions 3, 4, 5, and 6**. The chi-square test for independence was used in the process of crossing the referred variables.

## 4. Results

### 4.1. Sample profile

**Table 1** provides a summary of the main socio-demographic characteristics of the questionnaire respondents. As can be observed, the participants are predominantly female (56.9%), married or living as a couple (65.2%), employed (75.7%), and have a university degree (85.6%). A large proportion is from Portugal (58%), followed by Spain (11.6%) and the United Kingdom (8.8%), whose ages range between 31 and 40 years old (43.1%). The socio-demographic profile is in line with previous studies conducted in Portugal (Almeida, Correia, & Pimpão, 2013; Kastenholz et al., 1999; Loureiro & Kastenholz, 2010), as the typical visitor to rural areas is relatively older, well-educated, married, and employed.

#### **Table 1 here**

For most tourists, the holidays under study represented their first time in SP (56.9%), while 24.9% of the participants had already visited the area three or four times. With respect to the situational variables, while most visitors were travelling with their partner (38.1%) or their family (38.1%), others were on holiday with their friends (14.9%) or work company (8.3%) or were on vacation alone (0.6%). The mean for the length of stay was 5 days (minimum: 1; maximum: 15) with a standard deviation of 2.607. Regarding their previous rural tourism experiences, 80.1% of the respondents claimed to have spent holidays in rural areas before.

### 4.2. The content analysis

The results of the content analysis of the open-ended questions, through which tourists were asked to report their sensory experience in the rural area under study, show that all the five external human senses account for a high number of references, with visual descriptions attracting the highest number of references and touch gathering the lowest. Of the total collected sensory-based words or expressions (2128), the sense of sight collected the most references (26%), followed by hearing (23%), taste (19%), smell (17%), and touch (15%). Using the five senses as a reference, the reported sensory-based words or expressions were amalgamated into meaningful sensory categories (see



section 4.3). The sensory categories obtaining at least 10% of respondents' references were retained for further analysis (Govers et al., 2007), as presented in **Table 2**. As can be observed, the categories rated with the highest percentage of responses (by each sense) are: "sight – landscape" (47.0%), "hearing – birdsong" (59.1%), "smell – sea salty air" (37.6%), and "touch – heat" (34.3%). From this point, the 40 sensory categories retained will be referred to as sensory impressions.

**Table 2 here**

#### *4.3. The MCA analysis*

Following the application of MCA to the 40 categorized variables and the process of optimal quantification, a two-dimensional solution was revealed, according to the criteria based on the notion that when the two first dimensions are predominant regarding the variance explained, and a third dimension does not seem to add more relevant information, two dimensions are enough to proceed with the analysis (Carvalho, 2008; Gifi, 1996). In the proposed model (**Table 3**), the two dimensions explain 14.9% of the variance in the data. Some authors alert us to the fact that low inertia (variance) can be evidenced, even in the two first dimensions, and that this type of result does not signify a lack of quality of the analysis (Benzécri, 1982). Accordingly, low inertia may result from the high number of variables used in the study (40 in this case), or it could be related to the fact that some individuals' profiles may be somewhat similar to the mean, but they are not less interpretable for that reason (Benzécri, 1982; Carvalho, 2008). Indeed, it is important to take into account other indicators pertaining to the internal composite reliability, such as Cronbach's alpha, which in the first dimension accounts for 0.741 and in the second dimension loads 0.587, exceeding the recommended threshold of 0.5.

**Table 3 here**

The discrimination measures table (**Table 4**) shows which variables best discriminate each retained dimension. The more heavily loaded points are of central importance since they assist in adding meaning to the dimensions (axes) that support the

representation of categories of variables and objects (individuals) in space by reducing the original data for statistical analysis purposes (Carvalho, 2008; Greenacre, 2007). The discrimination ratings that are higher than the mean, best discriminating each dimension, are highlighted in bold in **Table 4**. Sensory impressions such as “sight – blue,” “sight – beaches,” “sight – sky,” “smell – countryside,” “smell – plants,” “taste – local food,” “touch – heat,” and “touch – sea” discriminate Dimension 1, which is tentatively named “generic beach-related *versus* rural experience.” Thus, impressions pertaining to the sight, taste, and smell senses are prominent in this dimension. In turn, “sight – diversity of colors,” “sight – green,” “sight – landscape,” “hearing – insects,” “hearing – crickets,” “hearing – wind,” “hearing – sea,” and “hearing – silence” are examples of sensory impressions that best contribute to discriminating Dimension 2. Clearly, hearing is the predominant sense, suggesting a “balanced *versus* nature-based experience”, with the term ‘balanced’ being used in the sense of mindfulness and peaceful experience (Tung & Ritchie, 2011). Although some variables show low discriminatory power (e.g. “smell – soil”) and/or present the same loading in both dimensions (e.g. “smell – local food”), they were retained for a further, deeper analysis.

#### **Table 4 here**

While the discrimination measures table shows which variables best discriminate each dimension, these indicators do not illustrate how the corresponding categories of sensory impressions (absence/presence) are distributed along the dimensions. These relationships are revealed by the joint category quantification plot in which the variables are depicted. Since the focus of the study is the associations between the sensory impressions that were effectively reported by respondents (presence), only these point categories are illustrated in **Figure 2**, simplifying the graphic and facilitating its interpretation.

#### **Figure 2 here**

As observed in **Figure 2**, the perceptual map suggests the existence of four meaningful sensory-informed themes, which are composed of sensory impressions represented closely together in the graphic, forming acute angles. The proposed bundles are manually circled on the map. Two groups of sensory impressions are displayed far apart along the horizontal axis, suggesting the existence of two distinguished groups related

to this dimension. The theme on the left is tentatively named “generic beach-based experience,” since it not only includes sensory impressions related to beach holidays but also shows clearly some general contact with the surrounding countryside. This is exemplified as the respondents make reference to the smell of plants and flowers, the taste of local beverages, cheese, sweets, and aromatic plants, as well as the sight of animals. The theme portrayed on the right side of the perceptual map is termed “rural experience,” comprising references to the taste of local food, the smell of fresh air, and the light of the area. The coexistence of two groups of sensory impressions is also spread along the vertical axis. Accordingly, at the top of the graphic is evidenced a theme related to a “balance-based experience,” including sensory impressions such as the sensation of wind (touch) and the sound of silence, wind, and sea. At the bottom of the plot is displayed a theme entitled “nature-based experience,” since it embraces references to green colors, the sound of farm animals and crickets, and the taste of bread.

As expected, the sensory impressions that weakly contribute to discriminating the sensory dimensions (**Table 4**) are portrayed in the perceptual map near to the origin, showing that they do not clearly integrate one of the identified themes. This is the reason why the researchers decided not to include five variables in the circled themes (“hearing – birdsong,” “smell – local food,” “smell – soil,” “smell – trees,” and “taste – seafood”). Additionally, the variable “taste – salty” is not incorporated into a theme, since it does not contribute to the discrimination of a particular dimension (Dimension 1: 0.077; Dimension 2: 0.078) and is not clearly related to a specific theme on the perceptual map. Bearing in mind **research question 1**, these results suggest the existence of four meaningful and holistic sensory-informed themes based on tourists’ perception of their sensory experience in SP and also indicate that there is no evidence of a dominant sense. The suggested sensory-informed themes and the corresponding sensory impressions are presented in **Table 5**.

**Table 5 here**

#### *4.4. The cluster analysis*

Using the individual scores in the two dimensions produced by MCA as input variables, a k-mean cluster analysis was performed in order to validate the themes suggested by

MCA and to operationalize the segmentation of tourists (see section 4.3). A four-cluster solution was tested since the MCA suggests the existence of four sensory-informed themes resulting from the tourists' reports (Carvalho, 2008). The centroids (centers) for each cluster (segment) and the number of tourists integrated into each segment are presented in **Table 6**.

#### **Table 6 here**

The results show that the four-segment solution seems to be adequate, since the centroids of the segments are significantly different regarding the variables resulting from the MCA used for segmentation (ANOVA tests:  $p$ -value = 0.000). **Table 6** also depicts the number of tourists enclosed in each segment. As is evident, *segment 1* is the largest one (40.3% of respondents), followed by *segment 4* (28.7%) and *segment 3* (21.6%), with *segment 2* being the smallest (9.4%). Additionally, the variable *segment membership* was displayed in the joint category quantification plot as a supplementary variable (**Figure 2**). As can be observed, each of the four clusters' points (C1, C2, C3, and C4) is portrayed close to one of the four sensory-informed themes identified by the MCA (dark squares).

#### *4.5. The profile of tourist segments*

Two procedures were used in order to determine whether the segments are significantly different, as regards the sensory impressions used in the MCA, and to provide internal validity to the four-segment solution. All forty sensory impressions were crossed with the four segments (cross-tabulation tables). Due to limitations of space, these tables are not provided in this study. However, as expected, a significant dependence relationship (chi-square tests of independence:  $p$ -value = 0.000) was established between the *segment membership* and the sensory impressions used in the MCA. The exception is the five sensory impressions that previously were omitted from the themes due to low discriminatory power (see section 5.3). For these five intersections, the  $p$ -value of the chi-square test was higher than **the significance level of 0.05**. Also, the four segments seem not to be differentiated regarding the sensory impressions "smell – countryside" (chi-square = 1.934,  $p$ -value = 0.586) and "hearing – animals" (chi-square = 6.864,  $p$ -value: 0.076). Thus, of the forty variables originally used in the MCA, thirty-two sensory impressions clearly both differentiate sensory-informed themes perceived by

tourists in SP and profile corresponding tourist segments. These results allow us to reinforce the answer to **research question 1** and to validate the existence of different segments of tourists based on their sensory experience in SP (**research question 2**).

In the second phase, the segments were analyzed with the purpose of verifying whether they differ according to the activities performed in the destination and tourists' motivations, a process that was aimed at providing external validation to the segments and evaluate **research questions 3, 4, 5, and 6**. **Table 7** shows the intersection (cross-tabulation table) between the activities performed in the destination and the variables' *segment membership*. Since more than 20% of the cells have expected values lower than 5, the chi-square test for independence cannot be used. Nevertheless, as observed in **Table 7**, for each activity, the percentages of respondents who indicated it as the main activity performed in the destination are higher within a specific segment and, accordingly, in a specific sensory-informed theme. The table includes the activities referred to by at least 5% of the respondents. An analysis by activity (rows) shows that individuals mainly participating in farm-related activities (66.7%) and hiking/trekking (36.5%) are integrated into the segment related to the sensory-informed theme "rural experience." The segment associated with a "generic beach-related experience" comprises the respondents who mainly performed beach-related activities (27%). Hiking and trekking (20.6%) are activities performed mostly by individuals included in the segment related to a "nature-based experience." The segment of tourists perceiving their sensory experience as a "balanced experience" consists mainly of surfers (50%) and hikers/trekkers (36.5%). Also worth noting is the fact that hiking and trekking are the activities most commonly performed by tourists, showing high frequencies in all the segments, except in the group corresponding to the "generic beach-related experience". With respect to **research question 3**, although these results cannot be generalized, some clues are presented that are in line with the idea that the outdoor activities performed in SP are connected with particular tourist sensory experiences.

#### **Table 7 here**

With respect to tourists' motivation for having a rural lifestyle experience, **Table 8** reveals the differences among segments (chi-square test for independence = 13.830;  $p$ -value = 0.032), answering **research question 4** positively. To follow the assumptions necessary to perform the chi-square test for independence, it was considered necessary

to group some response categories of the 5-point Likert scales applied in the questionnaires, since they achieved a low frequency in some of the response categories. As can be observed, the desire to experience a rural, traditional way of life during vacations is specifically evidenced in segments 1 and 3, which correspond to different sensory-informed themes such as “rural experience” (strongly agree = 13.7%; agree + strongly agree = 65.8%) and “nature-based experience” (strongly agree = 10.3%; agree + strongly agree = 71.8%), respectively. Furthermore, **Table 8** shows no difference among segments with respect to tourists’ holiday motive to participate in an active, nature-based activity (chi-square test for independence = 1.814;  $p$ -value = 0.936). Bearing in mind **research question 5**, the results indicate the inexistence of a connection between this motivation and the tourists’ sensory experience in SP.

#### **Table 8 here**

According to **research question 6**, the relationship between the four tourist segments and the sociodemographic variables were analyzed. At a 5% level of significance, there are no significant connections pertaining to gender (chi-square = 2.706;  $p$ -value = 0.439), education (3.086;  $p$ -value = 0.379), marital status (chi-square = 5.775;  $p$ -value = 0.123), age category (chi-square = 0.175;  $p$ -value = 0.473), and occupation (chi-square = 0.667;  $p$ -value = 0.881). The exception is the variable country of origin (“foreign” and “domestic”), regarding which there is significant difference considering the four sensory-informed segments (chi-square = 8.193;  $p$ -value = 0.042). Nature-based experience is mostly perceived by domestic tourists (74.4%), the segment related to beach-based experience is composed mainly by foreign tourists (64.7%), and rural experience and balanced experience are predominantly perceived by national tourists (54.8% and 57.7%, respectively).

## **5. Discussion and conclusions**

This study suggests that meaningful themes can emerge from an analysis of the sensory impressions of global tourists’ experiences in rural areas, a finding that is consistent with previous studies (Gretzel & Fesenmaier, 2003, 2010). In particular, after performing an MCA, four sensory-informed themes were identified with respect to

tourist experiences in SP, tentatively named: “rural experience,” “generic beach-related experience,” “nature-based experience,” and “balanced experience.” An interesting result to outline is the fact that all the sensory-informed themes embrace references pertaining to at least three external human senses. Indeed, although each central theme is more related to a specific sense, there is no dominance of one sense. This conclusion is in line with the literature evincing the multi-sensory nature of tourist experiences, particularly in rural areas (Kastenholz et al., 2012a; Pan & Ryan, 2009). Since these sensory-informed themes were captured from tourists’ perspective, a cluster analysis was considered adequate for segmenting tourists based on the collected sensory information. The cluster analysis followed by the intersection of each segment with tourists’ motivations and performed activities allowed the assessment and validation of the correspondence of each sensory-informed theme to a segment of tourists with a different profile. The following lines will discuss the main results for each segment.

The segment reporting a “rural experience” focuses on the light of the destination, the scent of fresh air, and the taste of the local food. In fact, the constant presence of natural light throughout the year has been stressed as a unique characteristic of Portugal (Ministry of Economy and Innovation, 2007). The fresh air, also denominated pure air in the literature, has been reported in previous empirical research and pointed out as a key attractor of the countryside, where individuals can restore their energy (Gretzel & Fesenmaier, 2003; Kastenholz & Lima, 2011). Additionally, the local gastronomy is seen as an important endogenous resource that can be used to enhance interactive tourist sensory experiences (Daugstad, 2008; Everett, 2008; Quan & Wang, 2004), simultaneously facilitating the inclusion of rural communities in the process of planning an integrated rural tourist experience (Beer, Edwards, Fernandes, & Sampaio, 2002; Kastenholz et al., 2012b; Saxena et al., 2007). Hiking, trekking, and farm-related activities seem to have the potential to encounter the reported sensory aspects, which is reinforced by the existence of a travel motive for experiencing a rural lifestyle. This segment finds a counterpart in the segment named “traditionalist ruralists” in the study of Kastenholz et al. (1999) or in the “ruralist segment” suggested by Almeida et al. (2013).

The segment corresponding to the theme “generic beach-related experience” is an *all-in-one* experience, comprising a diversity of sensory impressions pertaining to all five

human senses. Although there is clear evidence that the beach is the central aspect of the experience, contact with the surrounding countryside is stressed by the sensory references to the smell of nature, the taste of sweet and salty, local beverages, fruit, and aromatic plants. The references to the sense of touch, with regard to the texture of sea and sand and the sensation of heat, suggest a summer experience. With respect to previous research, this segment can be compared with the groups found in the works by Almeida et al. (2013), Kastenholz et al. (1999), or Park and Yoon (2009), generally termed as “want-it-all” rural tourists. These individuals seem not to be focused on a particular feature but on general contact with a variety of aspects of the destination.

The individuals composing the segment corresponding to a “nature-based experience” highlight the sounds of nature, with emphasis on farm animals, crickets, and insects. The color green and the taste of bread are also mentioned. Hiking and trekking activities are suggested as boosting this variety of sensory experience. Similarly to the segment related to a “rural tourism experience,” the travel motive of having a rural lifestyle experience is related to the perception of this sensory-informed theme. In previous studies, bundles including the color green and the sound of animals are labeled as outdoor and scenic/nature-related themes (Gretzel & Fesenmaier, 2003), evincing the importance of experiencing nature in rural settings (Rodrigues, Kastenholz, & Rodrigues, 2010).

The segment corresponding to a “balanced experience” focuses on the sense of hearing, stressing the sound of silence, sea, and wind. With respect to the haptic sense, the sensory impressions concern wind and coolness. Activities such as surfing, hiking, and trekking are suggested as potentiating these sensory impressions, which seem to be related more to spirituality and mindfulness than those reported previously (Rodrigues et al., 2010; Sharpley & Jepson, 2011; Tung & Ritchie, 2011). In the context of rural settings, the sounds pertaining to nature help to activate the aural sense; silence is especially appreciated since it means an absence of urban noise (Daugstad, 2008; Pan & Ryan, 2009). It is suggested that individuals had the opportunity to experience a sense of communion with some nature-related elements and found a sense of equilibrium (Arnould & Price, 1993).



Worth noting is the fact that the travel motive for having an active nature-based experience does not statistically differentiate the segments, despite 58.6% (agree + strongly agree) of the respondents claiming this as a trigger for choosing SP as a destination for vacations. One possible interpretation of this result could be related to the fact that most of the respondents had performed a nature-based activity while in the rural area under study, such as hiking or trekking (**Table 7**). This made the referred motive insufficient for differentiating segments; instead, it was transversal to the perception of tourists' sensory experience. In fact, the literature stresses that the idea of the enjoyment of nature is common to all segments of rural tourists, since the closeness to nature and the "pastoral image" are strongly connected to the image of the countryside and to the expectation associated with rural holidays (Almeida et al., 2013; Figueiredo, 2009). This result could also indicate that, although active nature-based activities are a clear tourist trigger, the destination under study still lacks an integrated offering creating opportunities for tourists to participate actively in these activities and facilitating differentiable sensory experiences. Furthermore, one should take into account that most of the respondents were travelling with their family (38.1%), partner (38.1%), friends (14.9%), or company groups (8.3%). Hence, the individual experience in the destination depends on other persons' choices and may not correspond to the individual's motives.

Similarly, despite the fact that 58% of the tourists referred to "birdsong" as a dominant hearing sensory impression regarding their experience in SP (**Table 2**), this sensation was not included in any final sensory-informed theme. This was due to the fact that it did not discriminate any dimension clearly; rather, it seemed to be diluted among the different central themes. Despite the potential of the area for birdwatching, an activity boosted by the existence of several endemic, protected species of birds in the Southwest Alentejo and Vicentina Coast Natural Park, this activity was referenced by only a minority of respondents (included in "others" in **Table 7**). This finding may suggest a lack of local infrastructures and an integrated offering creating the conditions for positive tourist experiences to emerge couched in birdwatching-related activities.

The conclusions of this study are in line with the idea that, since the rural world is built upon multiple and complex patterns (Lane, 1994a), individuals can consume and perceive the countryside in many different ways, according to their needs and interests

(Frochot, 2005). The correspondence of sensory-informed themes to different segments is an interesting finding, suggesting that specific marketing strategies can be built more efficiently to address different profiles of tourists. In this context, the use of sensory-informed themes can be used to facilitate the co-creation of rich, unique, and appealing destination experiences (Mossberg, 2007), aiming to achieve the optimal use of the local resources (Saxena et al., 2007) and boosting destination competitiveness and sustainability (Kastenholz et al., 2012b; Lane, 2009). Thus, apart from the emotional and symbolic features, the attempts to facilitate the emergence of memorable tourist experiences in rural areas may focus on sensory elements related to nature (e.g. local fauna and flora, natural landscape) and rural characteristics of place identity (e.g. local products, gastronomy, handicrafts, farm activities, local architecture), enabling a pleasurable aesthetic experience (Kastenholz et al., 2012a).

### *5.1 Marketing and management implications*

This study attempts to reach some conclusions about the use of sensory-themed experiences to segment tourists in rural areas. As a result, specific tourists' profiles based on sensory information could be targeted not only to plan the overall destination experience in order to enhance tourists' experience but also to involve the local community and tourism providers, a process that requires a well-integrated destination managerial approach.

Under this light, the attractiveness of each of the four sensory-informed segments suggested by the MCA should be analyzed by the local destination management organizations and decision-makers with respect to their predisposition in performing specific activities that most economically benefit the destination and have the potential to be maintained throughout the year. Furthermore, the environmental impact and use of unique local resources, the involvement of the community, and the potential for developing co-creation processes are also crucial aspects to consider in the design of sensory-informed tourist experiences. In this context, some questions could be raised: Which sensory-informed themes and corresponding tourists segments better fit the destination identity and goals?; How to preserve and control the use of endogenous resources with respect to each sensory-informed theme, not precluding space for co-

creation?; How to include the community in the process of planning each of the sensory-informed experiences?

Following the strategic lines depicted in the national and regional tourism plans in order to mitigate the seasonality problems existing in destinations focused on the sun and beach product, which is the case of Portugal, the tourist experiences related to the ‘rural’, ‘balanced’, and ‘nature-based’ sensory-informed themes could be explored throughout the year. The specific rural trigger is evidenced in two segments – rural experience and nature-based experience – suggesting that these clusters are mainly attracted by rural features, such as undeveloped local resources or the local cuisine. In fact, specific farm-related activities could be performed by local rural lodgings in order to involve tourists, intensify their experience, and wittingly offer specific sensory clues potentiating the long-term memory of the experience. Accordingly, workshops on culinary using local products could not only emphasize specific sensory stimuli but also encourage tourists’ active participation in activities and contact with locals. Specifically, this includes destinations characterized by a long coastal area and the existence of several beaches appropriate for surfing, such as the Southwest Portugal region. It is worth noting that surf tourism is a growing nature-related activity that, if correctly managed, could become an attractive niche market contributing to local sustainable development (Buckley, 2002). Similarly, hiking-related activities have the particular characteristic of bolstering both the therapeutic benefits of nature, contributing to a balanced state of body, spirit, and mind, as well as rural development (Rodrigues et al., 2010). In this respect, the destination marketing organizations operating in the Southwest Portugal region, such as the Alentejo and Algarve Tourism Boards, and the non-profit association Casas Brancas, responsible for a network approach to rural tourism offerings in the area, should concert their efforts in order to analyze the sensory-informed themes/segments that best fit the goals of the destination, considering the interests of tourists, the community, and the tourism industry.

Moreover, sensory-informed themes could be used to creatively stage and communicate tourist experiences by exploring both the idea of the multi-phased nature of tourist experiences and the potential of ICTs. Geographic Information Systems, GPS technology, and other technologies could be adopted in the development of geocaching activities, interactive maps and newsletters, advergames, and sites based on sensory

information. The creation of “maps of sensations” has been already performed by some destinations, as in the case of São Paulo in Brazil, where attraction spots are described in terms of their sensory and emotional features ([www.sensationsmap.com](http://www.sensationsmap.com)). Furthermore, sensory-informed routes can be developed under a network and cooperation perspective specifically addressed to visually impaired tourists, investors, journalists, and tourists with other specific motivations. An interpretation center based on sensory-informed themes, organized in thematic rooms, might potentiate the knowledge with respect to the destination’s endogenous resources, and technological devices enable tourists and other visitors to adapt the information and sensory stimuli to their needs, interests, and moments of the trip.

### *5.2. Limitations and suggestions for future research*

Since MCA is an exploratory form of analysis and is not suitable for testing hypotheses, only research questions were explored in this study (Richards & van der Ark, 2013). Additionally, a review of the extant literature on tourism revealed a lack of empirical studies with a holistic approach to the five human senses. Whilst this study intended to contribute to mitigating this research gap, further research is needed in order to more deeply understand the role of the sensory dimension in tourist experiences. Particularly, it would be interesting to compare the results of studies conducted in different rural areas with regard to the existence of similar, central, sensory-informed themes. Furthermore, the contribution of the resulting segments to the planning and marketing of a destination in terms of achieving the goals of local sustainable development is a stimulating topic for future research. Finally, the use of a small sample made it difficult to analyze the connection between the activities performed in the destination by tourists and the segments of tourists based on sensory information, since some activities presented a low percentage of responses. In fact, a non-respondent bias must be accepted due to our reliance on owners/managers of rural accommodations to distribute the questionnaires to tourists who were eligible to participate in the study. For example, activities such as biking, alternative therapies, birdwatching, horse riding, or walks in nature with donkeys were rated as “others” due to the lower number of responses. Additionally, it is important to note that the answers to open-ended questions rely upon the verbal and writing skills of the respondents, as well as their willingness to provide multiple responses (McDougall & Fry 1974, cited in Govers et al., 2007), a problem

somewhat surpassed by the fact that, in general, rural tourists are characterized by a high level of education. In this context, future research using a large sample and extending the collection of data to an all-year time period would be advised in order to confirm the results, to analyze the influence of these particular activities on sensory tourist experiences, and to verify the extent to which visiting the destination during different seasons of the year influences the resulting sensory-informed themes, from the perspective of tourists.

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Table 1  
Descriptive statistics of the sample

Variables	Distribution of answers
Gender	Male: 43.1%; female: 56.9%
Age	< 21: 2.8%; 21-30: 17.7%; 31-40: 43.1%; 41-50: 22.7%; 51-60: 9.4%; > 60: 4.4%; minimum: 18; maximum:74; mean: 39.08; standard deviation: 10.646
Country of origin	Portugal: 58%; Spain: 11.6%; U.K: 8.8%; Netherlands: 5.5%; Germany: 4.4%; Other:11.6%
Educational qualification	Secondary: 9.4%; university degree: 85.6%; other: 5%
Marital Status	Single: 31.5%; married/living as a couple: 65.2%; divorced: 3.3%
Occupation	Employed: 75.7%; self-employed: 14.9%; student: 4.4%; Retired: 3.9%; domestic: 0.6%; unemployed: 0.6%

Table 2  
Sensory impressions

Categories	Frequency	Categories	Frequency
<i>Sight</i>		<i>Smell</i>	
Landscape	47.0%	Sea salty air	37.6%
Natural light	26.0%	Plants	22.1%
Diversity of colors	21.0%	Trees	18.8%
Maritime scenario	14.9%	Flowers	14.4%
Green	14.4%	Fresh air	13.3%
Beaches	13.3%	Local food	10.5%
Blue	13.3%	Soil	9.9%
Sky	11.0%	Countryside	9.9%
Animals	9.9%		
		<i>Taste</i>	
<i>Hearing</i>		Local food	59.1%
Birdsong	59.1%	Seafood	34.3%
Wind	26.5%	Sweet	18.2%
Sea	24.9%	Fruit	17.1%
Silence	23.8%	Aromatic plants	16.6%
Crickets	20.4%	Cheese	14.9%
Farm animals	19.3%	Bread	13.3%
Waves	16.0%	Salty	12.2%
Animals	15.5%	Local beverage	11.0%
Insects	10.5%		
<i>Touch</i>			
Heat	34.3%		
Coolness	25.4%		
Sand	23.2%		
Sea	18.8%		
Wind	9.9%		

Table 3

MCA model summary

Dimension	Cronbach's alpha	Eigenvalue	Inertia	Proportion explained
1	0.741	3.604	0.090	0.6040
2	0.587	2.338	0.058	0.3893
Total	-	5.942	0.149	1
Mean	0.680	2.971	0.74	-

Table 4

## Discrimination measures

Variables	Dimensions		Mean	Variables	Dimensions		Mean
	1	2			1	2	
<i>Sight</i>				<i>Taste</i>			
Blue	<b>.225</b>	.033	.129	Seafood	<b>.052</b>	.007	.030
Natural light	<b>.041</b>	.035	.038	Salty	.077	.078	.077
Diversity of colors	.006	<b>.047</b>	.027	Bread	.027	<b>.104</b>	.065
Green	.005	<b>.180</b>	.092	Fruit	<b>.237</b>	.007	.122
Landscape	.044	<b>.155</b>	.100	Cheese	<b>.144</b>	.085	.115
Beaches	<b>.143</b>	.000	.071	Sweet	<b>.144</b>	.010	.077
Maritime scenario	<b>.074</b>	.016	.045	Local food	<b>.114</b>	.000	.057
Sky	<b>.273</b>	.039	.156	Aromatic plants	<b>.277</b>	.012	.144
Animals	<b>.119</b>	.049	.084	Local beverage	<b>.063</b>	.008	.036
<i>Hearing</i>				<i>Touch</i>			
Farm animals	.035	<b>.089</b>	.062	Wind	.017	<b>.140</b>	.078
Insects	.001	<b>.096</b>	.048	Heat	<b>.218</b>	.000	.109
Wind	.110	<b>.208</b>	.159	Sand	<b>.143</b>	.019	.081
Crickets	.045	<b>.097</b>	.071	Coolness	.099	<b>.166</b>	.132
Birdsong	<b>.009</b>	.000	.005	Sea	<b>.262</b>	.152	.207
Sea	.049	<b>.146</b>	.098				
Animals	.000	<b>.057</b>	.029				
Waves	<b>.127</b>	.003	.065				
Silence	.002	<b>.147</b>	.074				
<i>Smell</i>				<i>Active Total</i>			
Local food	.001	.001	.001		3.604	2.338	2.971
Soil	<b>.012</b>	.001	.007	<i>% of Variance</i>			
Fresh Air	<b>.023</b>	.000	.012		9.010	5.844	7.427
Flowers	<b>.038</b>	.012	.025				
Countryside	<b>.032</b>	.010	.021				
Trees	<b>.019</b>	.015	.017				
Plants	<b>.156</b>	.006	.081				
Salty Air	<b>.143</b>	.107	.125				

Table 5  
Sensory impressions include in sensory-informed themes

Senses	Sensory-informed themes suggest by MCA			
	Rural experience	Generic beach-based experience	Nature-based experience	Balanced experience
Sight	Natural light	Animals Beach Blue Maritime scenario Sky	Green	Diversity of colors Landscape
Hearing		Waves	Animals Crickets Farm Animals Insects	Sea Silence Wind
Smell	Countryside Fresh air	Flowers Plants Salty air		
Taste	Local food	Aromatic plants Cheese Fruit Local Beverage Sweet	Bread	
Touch		Heat Sand Sea		Coolness Wind

Table 6  
Final segment centres and number of tourists in each segment

Dimensions from MCA	Segments			
	Segment 1	Segment 2	Segment 3	Segment 4
Dimension 1	0.76	-2.14	-0.44	-0.05
Dimension 2	-0.13	0.38	-1.33	1.05
Number of tourists	73 (40.3%)	17 (9.4%)	39 (21.6%)	52 (28.7%)

Table 7

Frequency distribution of activities by sensory-informed themes/segments

Activities	Sensory-informed themes/segments				Total
	Rural experience (Segment 1)	Generic beach-related experience (Segment 2)	Nature-based experience (Segment 3)	Balanced experience (Segment 4)	
Hiking/Trekking	23 (36.5%)	4 (6.3%)	13 (20.6%)	23 (36.5%)	63 (100%)
Beach-related activities	13 (35.1%)	10 (27.0%)	7 (18.9%)	7 (18.9%)	37 (100%)
Surfing	9 (30.0%)	1 (3.3%)	5 (16.7%)	15 (50%)	30 (100%)
Farm-related activities	8 (66.7%)	0 (0.0%)	4 (33.3%)	0 (0.0%)	12 (100%)
Other	20 (51.3%)	2 (5.2%)	10 (25.6%)	7 (11.2%)	39 (100%)

Table 8  
 Frequency distribution between tourists' level of agreement with motivations and sensory-informed themes/segments

Motivations	Sensory-informed themes/segments				Total
Rural lifestyle experience	Rural experience (Segment 1)	Generic beach experience (Segment 2)	Nature-based experience (Segment 3)	Balanced experience (Segment 4)	
Disagree/Undecided	25 (34.2%)	8 (47.1%)	11 (28.2%)	23 (44.2%)	67 (37.0%)
Agree	38 (52.1%)	3 (17.6%)	24 (61.5%)	19 (36.5%)	84 (46.4%)
Strongly Agree	10 (13.7%)	6 (35.3%)	4 (10.3%)	10 (19.2%)	30 (16.6%)
Total	73 (100%)	17 (100%)	39 (100%)	52 (100%)	181 (100%)
Chi-square = 13.830; <i>p</i> -value = 0.032 (< 0.05)					
Active nature-based experience					
Disagree/Undecided	30 (41.1%)	6 (35.3%)	16 (41.0%)	23 (44.2%)	75 (41.4%)
Agree	28 (38.4%)	6 (35.3%)	17 (43.6%)	19 (36.5%)	70 (38.7%)
Strongly Agree	15 (20.5%)	5 (29.4%)	6 (15.4%)	10 (19.2%)	36 (19.9%)
Total	73 (100%)	17 (100%)	39 (100%)	52 (100%)	181 (100%)
Chi-square = 1.814; <i>p</i> -value = 0.936 (> 0.05)					



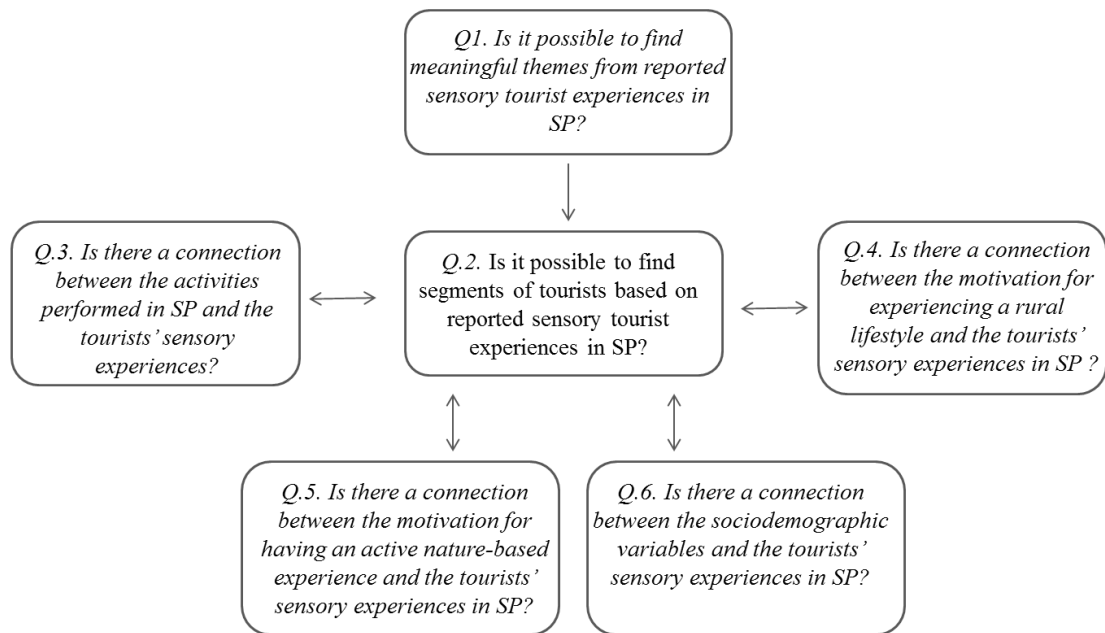


Fig.1. Research questions

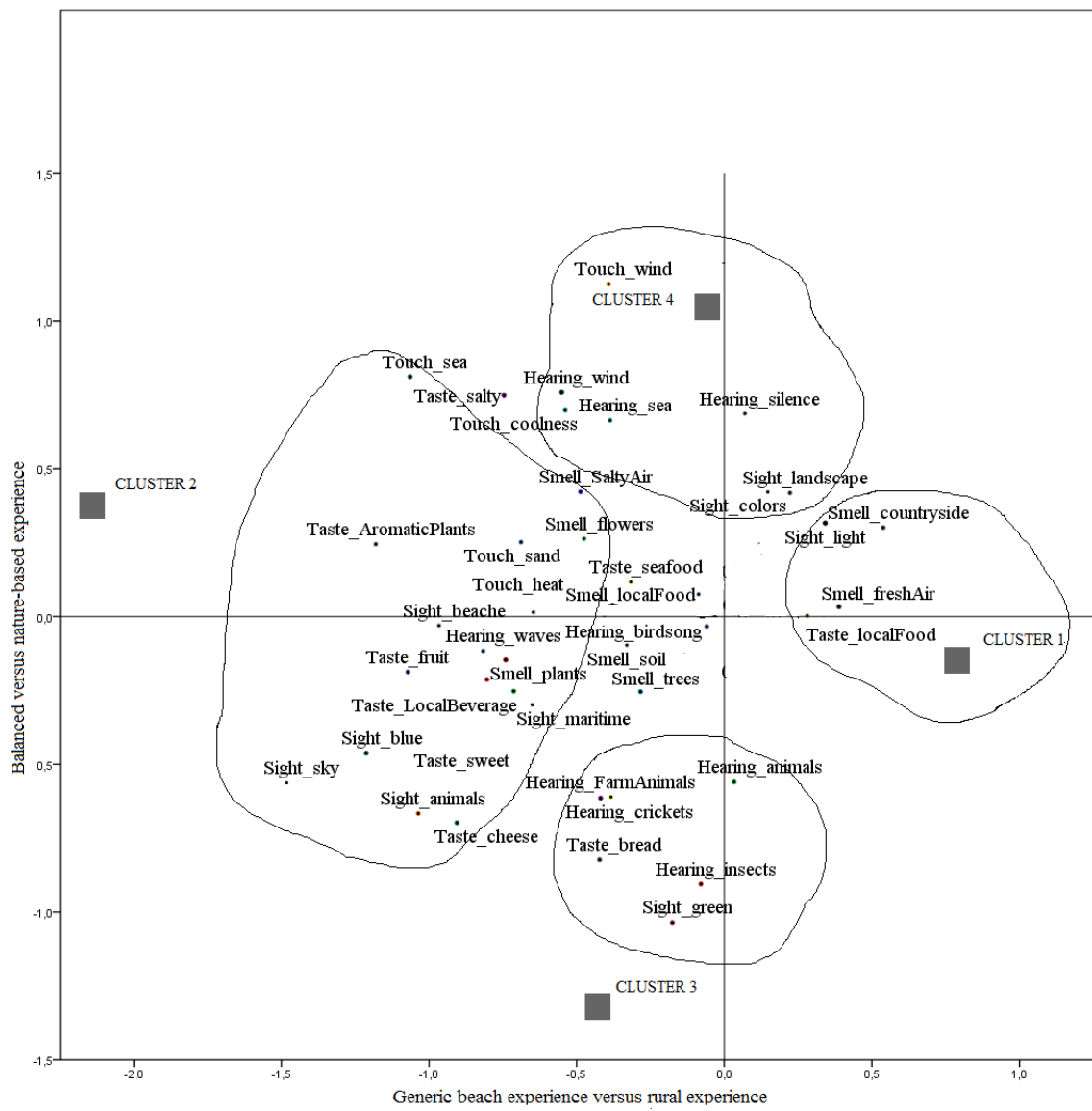


Fig.2. Joint category quantification