

# **Making Sense of Sensory Brand Experience: Constructing an Integrative Framework for Future Research**

## **Abstract**

This study asserts that conceptualising sensory brand experience (SBE) as an independent construct is critical to expanding our understanding of experiences provided by brands. To achieve this goal, a rigorous examination of its foundational knowledge structure underpinning the construct is urgently required. Using co-citation analysis examining 151 SBE-related articles with 4,038 citations over more than two decades (1994–2019), six knowledge fields deemed to have constitutive influence on SBE literature have been identified - atmospherics, product evaluation, sensory marketing, service marketing, experiential marketing and brand experience. Combining the results of a hierarchical cluster analysis and a metric multidimensional scaling analysis, the authors located three fundamental premises: (1) brand settings are arbiters of brand meaning; (2) the intrinsic processing of SBE involves the entrainment of exteroceptive and interoceptive processes; and (3) SBE outcomes are non-representational. At the end of the paper, these findings are organised into an integrative framework, highlighting research concerns and research gaps at the antecedent, processing and outcome stages. In doing so, this paper contributes to the conceptual development of SBE by constructing a doctrinal schema for future research undertakings.

*Keywords:* Sensory brand experience; knowledge structure; co-citation analysis; sensory marketing; experiential marketing; brand meaning.

## Introduction

Understanding the sensory experience is critically important for successful brand management and research, as the sensory aspects of customer experience are central to brand competitiveness (Moreau 2020; Hultén 2015; Fürst *et al.* 2020). In 2020, *Intel* announced a major overhaul of its corporate image, including changing its logo, but insisted that it would keep the three-second audio mnemonic, heard every time an *Intel Inside* computer was switched on. This simple five-note jingle, an auditory cue, has helped *Intel* become one of the most recognisable brands in the world. In 2016, when *Visa* (NYSE:V) attempted to communicate the brand's ethos of speed and convenience, it re-tooled its brand setting by including sound, animation and haptic vibration in the point-of-sale to highlight completed transactions; this multisensory add-on added 18% to the firm's brand value between 2019 and 2020 (Forbes 2020).

As an emerging marketing topic, research interest within academia has also gathered pace under the umbrella of the construct "sensory brand experience" (SBE) has gained traction in both branding (Castillo-Villar and Villasante-Arellano 2020; Feiereisen *et al.* 2020; Iglesias *et al.* 2019) and consumer research (Hadi and Valenzuela 2020; Krishna 2012; Yamim *et al.* 2020). However, this trend poses considerable challenges for SBE research, because to date very little progress has been made in theory and conceptual development. Since Brakus *et al.* (2009) proposed SBE as one dimension of brand experience, this concept has remained the standard model for the last decade. No published paper has yet offered a fresh definition of SBE; almost all have chosen to extrapolate on Brakus *et al.*'s (2009) definition and see their work as an extension of the parent construct. For example, Hepola *et al.* (2017) and Iglesias *et al.* (2019) examined SBE as a sensory dimension on brand experiences. Similarly, Castillo-Villar and Villasante-Arellano (2020) refer to SBE as how brands stimulate consumers' five senses. In the same way, Hultén's (2011) conceptualisation of the SBE focuses on the

generation of marketing values through the use of the five types of sensory stimulation. It would seem that in the absence of new conceptual development, SBE researchers have simply transcribed features and characteristics of the parent concept – brand experience – onto the SBE concept without re-visiting the ontological architecture of the sub-construct. In our view, this methodology is inadequate and hinders the development of SBE as an emerging concept (Jaakkola 2020).

Unlike brand experience, conceptualising SBE requires the assembly of a much wider range of intellectual resources including those from sensory marketing (Krishna 2012), brand management (Khan and Fatma 2017), ecological psychology (Elder *et al.* 2017) even as far afield as biopsychology (Smith 2008). In view of the complexity, any attempt at developing a SBE framework has to take into account this diversity of research domains, which in turn is served by a rich college of research traditions and thoughts, with its own set of propositions, theoretical orientations and paradigmatic perimeters. At this foundational level of research, however, no such discourse is available. This deficit in the SBE literature hinders the further development of the research field as research is undertaken without a complete understanding of the underlying theoretical foundations and knowledge development. Therefore, a rigorous investigation of its foundational intellectual structure is urgently required to achieve a boarder and deeper conceptualisation of the SBE literature. This represents, in our view, a critical research gap in SBE literature.

To fill this research gap, co-citation analysis is applied in the current study because of its well-known empirical ability to identify critical subfields embedded in the intellectual structure (Foroudi *et al.* 2020; Samiee and Chabowski 2021; Subramony *et al.* 2021). While literature reviews provide researchers with an overview of the thematic flow of thoughts based on the authors' judgements, but they are limited by their inability to pinpoint with quantitative certainty the suppositions and sources underlying these ideas. A co-citation analysis, on the

other hand, allows the researcher to delve into the deeper layers of the intellectual discourse to locate commonalities of ideas linking the knowledge fields. Since SBE is a compound construct, identifying the constitutive knowledge fields that make up its intellectual structure is critical, to expand the knowledge of theories and rationales that enable researchers to arrive at a more informed understanding of the construct, that can help identifying unexplored research areas to guide future research. Thus, we start with a hierarchical cluster analysis (HCA) to identify the key clusters of knowledge that make up the SBE intellectual structure, then proceed to a metric multidimensional scaling (MDS) mapping of the SBE intellectual structure to identify the intricate network of research groups sharing major research themes and literary traditions (Foroudi *et al.* 2020). Combining the results of two co-citation methods (HCA and MDS), the authors identify three premises deemed foundational to conceptualising the SBE construct as the basis for proposing an integrative framework of SBE.

Accordingly, the objectives of this paper are: (1) to examine the intellectual structure of SBE literature through co-citation analysis identifying the key intellectual traditions that have a constitutive influence on the construct; 2) to identify a set of fundamental premises to guide the conceptualisation of SBE as an independent construct, including defining the SBE and distinguishing SBE from related constructs; and (3) to present an integrative framework outlining the antecedents, processes and outcomes of the construct and identify potential research directions for future research undertakings.

The contribution of this review paper to literature is threefold. First, this paper articulates the defining precepts governing the SBE concept based on two co-citation analysis of its intellectual structure. This doctrinal schema provides a theoretical foundation on which further development of the SBE concept can be built. Second, this paper contributes to the marketing literature by conceptualising SBE as an independent construct with a new definition and boundary parameters that differentiates it from other related constructs such as brand

experience and sensory experience (MacInnis 2011; Jaakkola 2020). Based on three fundamental premises identified in this paper, SBE is conceptualised as *the internal processing of brand data from a brand setting via an entrainment of exteroceptive and interoceptive processes resulting in brand sensations, brand affects and subjective feeling states*. Third, beyond the theoretical contributions, this review contributes to managerial practices by highlighting the neuropsychological dimensions underlying a firm's branding operations. If brand data is mined first and foremost as neuropsychological data, then creating multisensory brand sensations that are sensorially stimulating and memorable should be as important as brand designs. If brand affects have the potential to either disrupt or enhance the transfer of brand meaning then managing interoceptive activities should be on the list of essential marketing skills managers need to acquire. Hence, our integrative framework of SBE provides practitioners with new tools to shape a truly multisensory marketing strategy.

## **Overview of sensory brand experience**

While SBE as a theoretical construct is a recent introduction, but its roots can be traced back to the 1970s and cover diverse domains including information processing (e.g., Viswanathan and Lalwani 2020), experiential marketing (e.g., Jiménez-Barreto *et al.* 2020), store atmospherics (e.g., Roggeveen *et al.* 2020), consumption studies (e.g., Longoni and Cian 2020), service marketing (e.g., Biswas *et al.* 2019), brand experience (e.g., Coelho *et al.* 2020) and sensory marketing research (e.g., Elder and Krishna 2021; Schwarz *et al.* 2021). Broadly speaking, these domains represent three core theoretical perspectives to view the various aspects of SBE - namely, the ecological perspective (e.g., consumption studies), embodiment perceptible (e.g., sensory marketing) and phenomenological perspective (e.g., experiential marketing). Table 1 summarised the key arguments and implications of these perspectives. The aim of this section is not to review all of the theories applied in SBE research, but rather briefly

review the three core theoretical perspectives that contribute to developing different facets of the SBE construct.

Table 1: Reviews of theoretical perspectives and implications for SBE research

Theoretical perspectives	Key arguments	Key Implications for SBE	Key contributors to SBE
Ecological perspective	Experiences are generated through the dynamic interdependence of living systems in the environment (e.g., Barker 1968; Gibson 1986)	<ul style="list-style-type: none"> <li>• Approach SBE as an ecological process</li> <li>• Environment stimuli composed of actors (human and non-human) has an extra-individual and enforcing effect on SBE in a brand setting (Grewal <i>et al.</i> 2003; Roggeveen <i>et al.</i> 2020; Mattila and Wirtz 2001)</li> </ul>	<ul style="list-style-type: none"> <li>• Ecological models (Barker 1968; Gibson 1966)</li> <li>• Stimulant-Organism-Response (S-O-R) model (Mehrabian and Russell 1974)</li> </ul>
Embodiment perspective	Experiences are grounded in bodily states (e.g., Lakoff and Johnson 1999; Krishna and Schwarz 2014; Schwarz 2012) Affective activities are responses to perturbations in the biological stratum (e.g., Barrett and Russell 2014)	<ul style="list-style-type: none"> <li>• Approach SBE as a biopsychological process</li> <li>• The body mines neurophysiological data afforded by the brand-related stimuli</li> <li>• Brand data are dispatched to the brain via neural circuits to command centres in the brain to be processed, appraised and realised as SBE (Williams and Pochlman 2017)</li> </ul>	<ul style="list-style-type: none"> <li>• Sensation/perception studies (Krishna 2011)</li> <li>• Feelings-as-information model (Schwarz 2012)</li> <li>• Hedonic experience (Hirschman and Holbrook 1982)</li> </ul>
Phenomenological perspective	Experiences are grounded in the subjective <i>lifeworld</i> (e.g. needs, desires, motivations or fantasies) of the consumer (Grace 2021)	<ul style="list-style-type: none"> <li>• Approach SBE as a phenomenological process</li> <li>• Provides a better understanding of the role of consumer subjectivities in an SBE (Dollbec and Chebat 2013; Kumar and Kaushik 2020; Thomason <i>et al.</i> 2006)</li> <li>• View SBE as brand-related construct influencing the transfer of brand branding</li> </ul>	<ul style="list-style-type: none"> <li>• Brand-self connection (Cheng <i>et al.</i> 2012)</li> <li>• Self-extension projects (Tian and Belk 2005)</li> <li>• Consumer brand relationship (Fournier and Alvarez 2019)</li> </ul>

## Ecological perspective

The ecological perspective is concerned with all experiences including SBEs that are generated through the dynamic interdependence of living systems in the environment. This perspective has its roots in the early ecological models exemplified by the works of Barker (1968) and Gibson (1966). Gibson (1986) focused on explaining how the environment affords information

to guide organismic behaviour, while Barker (1968) focused on how a behaviour setting composed of actors (human and non-human) has an extra-individual and enforcing effect on behaviour. Mehrabian and Russell's (1974) Stimulant-Organism-Response model is a core contribution to SBE literature and conceptualise the agentic role of the environment in initiating a sequence of organismic reactions and behavioural response (Roschk *et al.* 2017). Researchers in atmospherics and *servicescapes* origins within this research tradition from which SBE has evolved (Grewal *et al.* 2003; Roggeveen *et al.* 2020; Mattila and Wirtz 2001). At its root, SBE is an ecological process. Accordingly, this perspective recognises the interaction of an organism with its environmental stimuli as the praxis for research which also shapes the epistemological boundaries for understanding the SBE. Recently, the ecological perspective has evolved into new frontiers of inter-disciplinary research such as actor-network theory (Bajde 2013) generating a broader understanding of the role of brand environment in SBE research.

### **Embodiment perspective**

The embodied perspective recognises all experiences including SBEs are grounded in bodily states (Lakoff and Johnson 1999; Krishna and Schwarz 2014; Zha *et al.* 2020). The key argument of this perspective is that affective activities are as responses to perturbations in the biological stratum (Barrett and Russell 2014). As the body interacts with touchpoints along a customer journey, it is busy collecting neurophysiological data afforded by the brand (visual, auditory, haptic, scent or taste sensations). These brand data are to be dispatched via neural circuits to command centres in the brain, where they are processed, appraised and realised as SBE (Williams and Poehlman 2017). Research in sensory marketing and hedonic experience have origins with this research tradition from which SBE has evolved. At its root, SBE is a biopsychological process. Recently, the embodied perspective has merged with new development in neuroscientific research theory of constructed emotion (Barrett 2017). The

embodiment perspective provides deep implications for understanding the psychological processes underpinning SBE.

### **Phenomenological perspective**

The phenomenological perspective focuses on experiences that are grounded in the subjective *lifeworld* (e.g. needs, desires, motivations or fantasies) of the consumer (Grace 2021). Among the many strands of phenomenological studies, existential-phenomenology serves as a guiding perspective in SBE literature. In this view, the *self* and the consumption of meaning become the locus of examination (Dollbec and Chebat 2013; Kumar and Kaushik 2020; Thomason *et al.* 2006). Within the circulation of brand meaning, the individual canvasses for signs and symbols for self-construction projects resulting in phenomena such as brand-self connection (Cheng *et al.* 2012), self-extension projects (Tian and Belk 2005) and all types of consumer-brand relationships (Fournier and Alvarez 2019). At its root, SBE as a brand-related construct is a phenomenological process. The significance of the phenomenological perspective is to provide a better understanding of the role of consumer subjectivities in an SBE.

Our review of three theoretical perspectives that underpin the SBE literature implies that SBE is a “multi-paradigmatic body of research” (Rabetino *et al.* 2020, p.1), and the perspectives vary in their view of how SBE can be explained. Accordingly, any meaningful conceptualisation of SBE requires a multi-paradigmatic approach and mindset. To understand the complex layers of knowledge underlying the SBE construct, the next section presents the approach and method used to investigate the foundational knowledge of SBE literature to identify potential directions for future research (Kuhn 1996).

### **Research approach and methodology**

The present research uses a co-citation method aiming to provide a rigorous examination of SBE and its intellectual structure. Co-citation analysis permits the researcher to define the specific knowledge fields based on an examination of the most cited publications and their



interrelationships (Wilden *et al.* 2017). Two co-citation methods - a hierarchical cluster analysis (HCA) and a metric multidimensional scaling analysis (MDS) - have been known to be used conjointly to address validity concerns and, more importantly, to provide different perspectives on the co-citation data (Chabowski *et al.* 2018). In the first analysis the HCA identifies subgroups and research cohorts based on the similarities of each object. As such, HCA provides us with a visualisation of the thematic connectivity in SBE intellectual structure. MDS, on the other hand, enables us to determine with greater exactitude the particular relationships between authors and contributors. It allows researchers to visualise the network of published work by examining the similarities, dissimilarities or distance between researchers who have written on the specific topic through identifying the key dimensions contained in the text (White and McCain 1998).

For the purpose of this paper, both HCA and MDS methods were employed, which have apparent benefits of complementarity. HCA provides a macro-overview of major thematic relationships, offering useful generalisations not easily captured by MDS. MDS provides a micro-view highlighting correlations at the textual level to distinguish between research groups and their elite counterparts, such as research cliques, to indicate the topics receiving more concentrated attention. Taken together, a simultaneous comparison of results generated through both methods clearly provides a more informed perspective for researchers, which is not possible when examined in isolation (Chabowski *et al.* 2018; Foroudi *et al.* 2020).

As with all research endeavours, choosing a particular research methodology comes with limitations. In the present study, the use of HCA and MDS offers the benefit of a rear-view mirror perspective with the ability to rigorously examine past literary patterns embedded in the co-citation pools (Ramos-Rodríguez and Ruíz-Navarro 2004). However, the ability to focus on uncovering past intellectual traditions can also tarnish the contemporaneity of its database as greater attention is given to what has preceded rather than what is happening now. In spite of

this limitation, we are of the view that the application of HCA and MDS does offer a sufficiently broad platform on which we can assimilate a wide range of theoretical resources to analyse a compound construct as SBE.

### **Search strategy and method**

The data was collected from the Web of Science (WOS) database, which has been previously successfully deployed in a number of co-citation analyses in business and marketing research (Ramos-Rodríguez and Ruíz-Navarro 2004; Foroudi *et al.* 2020; Zha *et al.* 2020). Compared to other databases such as Scopus and Google Scholar, this database is well-attested and has proven to be a reliable source of data for literary analysis, particularly for investigations of intellectual structures (Balstad and Berg 2020; Chabowski and Samiee 2020; Zupic and Čater 2015).

Next, we considered the identification of relevant articles starting with a search for keywords. The following keywords were shortlisted: sensory experience or sensory brand experience. This process reduced internal researchers' biases, to ensure that publications with all possible iterations of the term *sensory brand experience* would be included. For instance, this ensured that records with the terms 'ambient', 'visual', 'haptic', 'aesthetic', 'taste', 'atmospheric' etc. would be included in the database. The articles were selected based on a keyword found in one of the four fields in the *WOS* database: author keywords, abstract, reference-based article identifiers, and title. Our objective was to emphasise the *multifaceted nature of SBE topics* from a wide range of journals in marketing and management-related research.

### **Co-citation analysis**

The search resulted in 316 articles from a sample of 161 journals and books with 5,970 citations covering a 25-year period of SBE publications from 1994 to 2019. Articles with an ancillary focus on SBE were excluded. As a rule, only published articles in business and management journals were selected. Book reviews, biographical items, editorials and method-related articles were excluded. This use of a selected search term has established precedence in co-citation studies

examining specific aspects of the literature (Schildt *et al.* 2006). To improve the rigour and validity of our study, two independent researchers were invited to perform the exact same search procedure and reviewed the papers to decrease the bias (Foroudi *et al.* 2020). This intervention narrowed down the original number of documents retrieved from 316 to 151, citing papers with 4,038 citations.

To identify the most frequently cited articles, the articles in the data pool (N= 4038) were coded for consistency in BibExcel. Using frequency counts, 25 articles were subsequently collated (summarised in Appendix 1). Next, a co-citation matrix was developed to rationalise the raw co-citation data. Typically, to obtain a fair or good model for bibliometric analysis, the use of around 25 documents is optimal (Chabowski *et al.* 2013; Ramos-Rodríguez and Ruiz-Navarro 2004; Samiee and Chabowski 2012).

### ***Hierarchical cluster analysis and multi-dimensional scaling***

In the first analysis (HCA), Ward's method was chosen to focus on the similarity between publications and avoid excessive chaining of articles in a single cluster (Hair *et al.* 1998). Using the bottom-up approach, HCA builds layers of agglomerated data by merging clusters until they form a pyramidal hierarchy. This way of agglomerating identifies discrete research subsets accrued at different thresholds (Charvet *et al.* 2008), enabling us to reflect on major past and current knowledge fields that have constitutive influence on the SBE intellectual structure.

In the second co-citation analysis, MDS was used to determine the stress values (or goodness-of-fit) of the model. This ability is a distinguishing feature of the MDS methodology. In line with research-wide practice, whereby stress values that are good (less than .10) or fair (between .10 and .20) are seen as an acceptable standard (Ramos-Rodríguez and Ruiz-Navarro 2004), a good stress value of .013 was obtained in the origination period. A maximum standardised distance of .25 or less was then applied to determine which research groups were explicable and lucid (Hair *et al.* 1998), and research groups and cliques were identified on the basis of this assumption. Research

groups are defined as groups consisting of at least two publications, while a research clique refers to three or more influential works grouped together (Wasserman and Faust 1994).

## Results

### Hierarchical cluster analysis

The results of the HCA visualised on the two-dimensional map show five clusters of knowledge that have a constitutive influence on the SBE intellectual structure, and reflect three foundational theoretical perspectives, as previously reviewed (Figure 1): atmospherics (cluster 1), product evaluation (cluster 2), sensory marketing (cluster 3), service marketing (cluster 4), and experiential marketing (cluster 5).

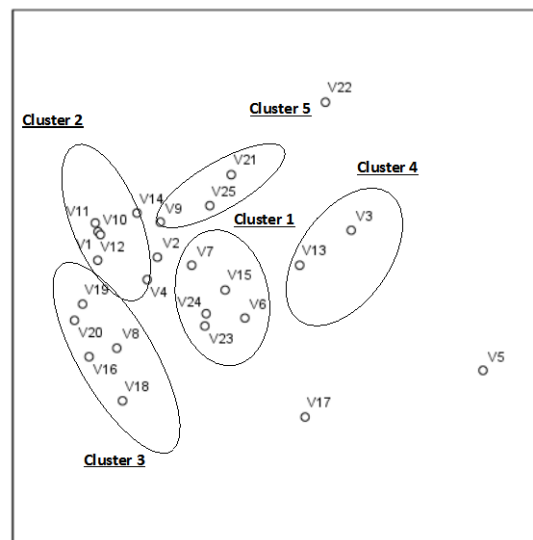


Figure 1. A Hierarchical Cluster Analysis of Sensory Brand Experience (direct oblimin rotation;  $\pm 0.50$  loading; names in bold indicate successor factor)

V1 = Alba and Hutchinson 1987; V2 = Babin *et al.* 1994; V3 = Bitner 1992; V4 = Bloch 1995; V5 = Brakus *et al.* 2009; V6 = Donovan and Rossiter 1982; V7 = Donovan *et al.* 1994; V8 = Grohmann 2007; V9 = Hirschman and Holbrook 1982; V10 = Hoch and Ha 1986; V11 = Hoch and Deighton 1989; V12 = Hoegg and Alba 2007; V13 = Hultén 2011; V14 = Joy and Sherry 2003; V15 = Kotler 1974; V16 = Krishna and Ahluwalia 2008; V17 = Mattila and Wirtz 2001; V18 = Peck and Childers 2003a; V19 = Peck and Childers 2003b; V20 = Peck and Wiggins 2006; V21 = Pine II and Gilmore 1998; V22 = Schmitt 1999; V23 = Spangenberg *et al.* 2005; V24 = Spence *et al.* 2014; V25 = Verhoef *et al.* 2009;

**Cluster 1** (V6, V7, V15, V23 and V24): Atmospherics; **Cluster 2**: (V1, V4, V10, V11, V12 and V14) Product Evaluation; **Cluster 3** (V8, V16, V18, V19 and V20) Sensory Marketing; **Cluster 4**: (V3 and V13) Service Marketing; **Cluster 5**: (V9, V21, and V25) Experiential Marketing.

### ***Atmospherics (cluster 1)***

From the cluster distribution, we note the medial position of atmospherics (cluster 1) in the HCA map. The strategic grouping of these five publications (Donovan and Rossiter 1982; Donovan *et al.* 1994; Kotler 1974; Spangenberg *et al.* 2005; Spence *et al.* 2014) focuses on how environmental stimuli create atmospheres that affect customers' shopping behaviour. By noting the abilities of perceived sensory qualities to modify buyers' information and emotions in a retail environment, Kotler (1974) ignited the conversation on the processes initiated by sensory stimuli in the consumption environment. Taking inspiration from Kotler (1974), Donovan and Rossiter (1982) and Donovan *et al.* (1994) provided the substantiated study of atmospherics by applying the Stimulant-Organism-Response (S-O-R) model borrowed from environmental psychology (Mehrabian and Russell 1974) to a retail store setting, demonstrating how stimulation (S) evokes an organismic arousal (O) resulting in an automatic behavioural response (R). Furthermore, the investigation of how congruent multisensory cues impact on customer emotions and purchase behaviour has received considerable attention. Spangenberg *et al.* (2005) focused on whether the interaction of scent and music stimuli might influence customers' perception and behaviour, while Spence *et al.* (2014) described the multisensory approach to the study of store atmospherics by providing an alternative checklist with a typology based on multisensory atmospherics. Overall, the cluster 1 process frequently cited articles that focus on the ecological perspective with an environmental psychology approach by designing sensory stimuli in physical brand settings, representing the core of SBE intellectual structure.

### ***Product evaluation (cluster 2)***

Situated to the left of the core is cluster 2, consisting of six articles (Alba and Hutchinson 1987; Bloch 1995; Joy and Sherry 2003; Hoch and Ha 1986; Hoch and Deighton 1989; Hoegg and Alba 2007) focusing on product evaluation in consumer research. Hoch and Ha (1986) identified the significant impact of advertising on direct product experiences. Alba and Hutchinson (1987)

distinguished consumer expertise from product-related experiences, and provided five dimensions of customer expertise that can enhance product familiarity. Furthermore, Hoch and Deighton (1989) proposed a consumer learning framework to manage the consumer learning processing of information from direct product experience; this framework outlines the four-step (hypothesising–exposure–encoding–integration) process. Since interaction with brand is essentially a data processing mechanism, these articles in Cluster 2 contribute to the understanding of processing brand information in the SBE concept.

### ***Sensory marketing (cluster 3)***

Juxtaposed against cluster 2 is sensory marketing (cluster 3), which has five publications (Grohmann *et al.* 2007; Krishna and Ahluwalia 2008; Peck and Childers 2003a; Peck and Childers 2003b; Peck and Wiggins 2006). While the focus of the information processing model is mainly on processing information at the cognitive levels, sensory studies as a whole have moved towards a focus on the precognitive and un-reflexive level where the sensory modalities are perceived to have an implicit role in shaping perception. For instance, Peck's three articles (Peck and Childers 2003a; Peck and Childers 2003b; Peck and Wiggins 2006) and Grohmann *et al.* (2007) examined the relationship between the *need for touch* and consumer response variables, while Krishna and Ahluwalia (2008) highlighted the importance of advertising language effects in the global market. This cluster reflects the embodiment perspective exemplified by the works of Krishna (2012), articulating a theory of processing situated within the body's sensory architecture.

### ***Service marketing (cluster 4)***

Cluster 4 comprises two papers - Bitner (1992) and Hultén (2011). Bitner's (1992) concept of *servicescape* redefined the conversation on consumers' interaction with the environment. Unlike the environmental psychology model, this model integrates the physical and social characteristics of a commercial environment into the concept of service settings, while Hultén's (2011) explored

the SBE in a service process related to brand image, experience and customer value. This cluster reflects the importance of service experience literature in SBE intellectual structure.

### ***Experiential marketing (cluster 5)***

Situated above the core is experiential marketing (cluster 5) comprising three events. We suggest expanding the cluster to include Schmitt (1999), in view of its thematic association and proximity to the cluster. This cluster, though small in number, nevertheless contains two important literary sources critical to SBE intellectual structure: hedonic consumption and customer experience.

In spite of SBE's nascence, the roots of the construct are deep, going back to the consumption literature of the early 1980s, evidenced by the presence of Hirschman and Holbrook (1982). Experiential marketing translates the concept of hedonic consumption into managerial practices, noting how the recognition of hedonic motivations, wants and needs shapes our understanding of customer experience, customer journey and customer experience management (Cova and Cova 2012). Pine and Gilmore's (1999) economy experience model emphasises the manipulation of symbolic resources to stage a memorable customer experience. Verhoef *et al.* (2009) listed seven factors— retail brand, alternative channels, price, assortment, retail atmosphere, service interface and social environment – crucial to the evocation of customer experience in a retail setting.

### **Multidimensional scaling analysis**

As shown in Figure 2, the results of the MDS visualised on the two-dimensional map show eight research groups of publications which have influenced SBE literature. Four research cliques: consumer learning (Group 3), store ambience (Group 4), haptics (Group 6) and multisensory marketing (Group 7) - highlight the centrality of the consumer environment concept in SBE intellectual structure. Two interrelated research groups - aesthetics (Groups 1) and hedonic experience (Group 2) - comprising two publications each, highlight the close research relationship between aesthetics and hedonics. Two unconnected groups with two publications each - product

evaluation (Group 5) and customer experience (Group 8) - show the importance of understanding brand data processing in the context of customer experience.

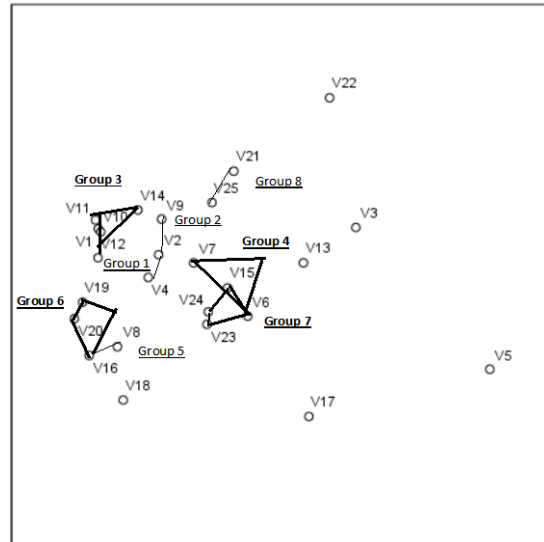


Figure 2. Sensory Brand Experience Literature Intellectual Structure (stress value: 0.01295; standardised distance used: 0.25; Research cliques are shown in bold and underlined below

V1 = Alba and Hutchinson 1987; V2 = Babin *et al.* 1994; V3 = Bitner 1992; V4 = Bloch 1995; V5 = Brakus *et al.* 2009; V6 = Donovan and Rossiter 1982; V7 = Donovan *et al.* 1994; V8 = Grohmann *et al.* 2007; V9 = Hirschman and Holbrook 1982; V10 = Hoch and Ha 1986; V11 = Hoch and Deighton 1989; V12 = Hoegg and Alba 2007; V13 = Hultén 2011; V14 = Joy and Sherry 2003; V15 = Kotler 1974; V16 = Krishna and Ahluwalia 2008; V17 = Mattila and Wirtz 2001; V18 = Peck and Childers 2003a; V19 = Peck and Childers 2003b; V20 = Peck and Wiggins 2006; V21 = Pine II and Gilmore 1998; V22 = Schmitt 1999; V23 = Spangenberg *et al.* 2005; V24 = Spence *et al.* 2014; V25 = Verhoef *et al.* 2009

Group 1 (V2, V4) Aesthetics; Group 2 (V2, V9) Hedonic Consumption; **Group 3** (V1, V10, V11, V12 and V14) Consumer Learning, **Group 4** (V6, V7 and V15) Store Ambience, Group 5 (V8, V16) Product evaluation, **Group 6** (V16, V19 and V20) Haptics, **Group 7** (V6, V15, V23 and V24) Multisensory Marketing, Group 8 (V21, V25) Customer Experience.

### The comparative perspective (HCA and MDS)

Comparing the findings from HCA and MDS, we assert that six knowledge fields are foundational to the concept of SBE: (1) atmospherics; (2) product evaluation; (3) sensory marketing; (4) experiential marketing; (5) service marketing and (6) brand experience. Taken together, the HCA and MDS results show considerable complementarity demonstrating once again the advantages of deploying two methods versus one.

First, the centralised location of Cluster (1) and the two research cliques (Group 4 and 7) in both HCA and MDS maps attest to the centrality of *atmospherics* as the core of SBE intellectual



structure. Second, the findings show that *product evaluation* as an important knowledge base underpinning SBE intellectual structure in both methods (Cluster 2 and Group 3), the only outlier is Bloch's (1995) paper focusing on consumer response to product design. Third, *sensory marketing* as a key domain has been identified in both methods (Cluster 3) and two Groups (5 and 6). However, it is worth noting that Peck and Childers's (2003a) paper focusing on the impact of haptic information and the internet has been excluded suggesting a research opportunity that has not been fully exploited. Fourth, the differences between the two methods is shown in that *service marketing* is evident in the HCA finding as Cluster 4 (Bitner 1995 and Hultén 2011) but does not appear as a group in the MDS results. One could argue that the finer aspects of service marketing have already been represented in Group 8 with its focus on customer experience. Fifth, the importance of *experiential marketing* is represented across the two methods (Group 8 and Cluster 5). Finally, a special note needs to be made on Brakus *et al.* (2009), represented as an independent event in both methods. Although the paper received the highest citation both in the past (Appendix 1) and present SBE literature (Appendix 4), the paper never found sufficient literary correlates to be agglomerated as a cluster or group. This high citation/low co-citation occurrence can be interpreted as a reflection of the lack of conceptual contributions, a state of affairs attested by Andreini *et al.* (2020) in their review of brand experience literature. Although events from this knowledge field do not make up a cluster or group, the concept of *brand experience* is nevertheless foundational to SBE intellectual structure.

## **Discussion**

Identifying the six knowledge fields - atmospherics, product evaluation, sensory marketing, experiential marketing, service marketing, and brand experience provides us with the content of SBE intellectual structure (see Appendix 2 for an overview of the six knowledge fields). An appraisal of the relationality between the events, research groups and clusters on the other hand, provides researchers with insights into the *dynamics* within the intellectual structure as the

knowledge fields comingle, compete and converge over time (White and McCain 1998; Kim and Barnett 2008). Informed by Zhao and Trotman's (2016) suggestion that the "locations of individual objects within groups and on the entire map may also be meaningful" (p. 51). We analyse the co-citation map based on bibliometric computations such as (1) proximity of events, groups or clusters to the core which measures the competing representation between knowledge fields. For instance, although the concept of SBE was first mentioned in Brakus et al (2009), brand experience literature on the whole is still relatively new compared to the atmospherics studies. Therefore events representing brand experience literature remain at the periphery whilst events representing atmospherics which have coalesced over time into clusters and research groups are located at the core of the map. (2) Proximity between clusters, groups and events which are indicative of strategic alliance and alignment between knowledge fields. (3) Dispersal patterns of events which are indicative of overall changes in research perspective and research orientation. The variance between these bibliometric computations visualises the dynamic relationship between research themes, research priorities and crucially also unfold for researchers the shared tenets and assumptions underlying the knowledge fields. Based on this deeper analysis, this paper identifies three key fundamental premises deemed foundational to SBE conceptualisation (see a summary in Table 2).

Table 2: An overview of three fundamental premises from SBE intellectual structure

Fundamental premises	Knowledge fields	Key contribution to fundamental premises
P1. Brand settings are arbiters of brand meanings	Atmospherics (Cluster 1; Group 4 and 7)	The impact of retail settings on consumption behaviour
	Product evaluation (Cluster 2; Group 3)	Information retrieval and storage is more efficient through direct experience, immersion and learning
	Sensory marketing (Cluster 3; Groups 5-6)	The critical role of sensation in shaping perception
	Service marketing (Cluster 4)	The enlistment of service agents (human and non-human) to form a servicescape
	Experiential marketing (Cluster 5; Group 8)	Brand setting as a co-creation of meaning maker and consumer's subjectivities
	Brand experience (Barkus <i>et al.</i> 2009)	Experiencing a brand sensorially embodies an inherent spatiality
P2. Intrinsic processing of SBE involves the entrainment of exteroceptive and interoceptive processes	Hirschman and Holbrook 1982; Bloch 1995; Babin <i>et al.</i> 1994 (Hedonic experience; Groups 1-2)	SBE comprises a sequence of afferent and efferent processes
	Atmospherics (Cluster 1; Groups 4 and 7)	Stimulants in the environment generate automatic organismic response
	Product evaluation (Cluster 2 and Group 3)	Consumer evaluation of product forms include affective and behavioural response to stimulants in the environment
	Experiential marketing (Cluster 5; Group 8)	The afferent and efferent response in customer experience
P3. SBE outcomes are non-representational	Atmospherics (Cluster 1; Groups 4 and 7)	Non-representational stimulants in the environment are equally complicit in influencing the transfer of meaning
	Sensory marketing (Cluster 3; Groups 5-6)	Sub-conscious response to sensation generate information for action but not for information <i>per se</i>
	Experiential marketing (Cluster 5; Group 8)	Non-representational motivations (e.g. the need for feeling, fun and fantasy) are equally complicit in influencing the transfer of meaning

## Brand setting

Atmospherics (cluster 1) as the core of SBE theoretical infrastructure. Two major research cliques, Group 4 and Group 7, are located within cluster 1. Store ambience (Group 4) contains three pioneering papers – Donovan and Rossiter (1982), Donovan *et al.* (1994), and Kotler (1974). These authors, articulating retail settings as affective psychological spaces, directed attention to the investigation of the impact of a *setting* on consumer intent and consumption behaviour. In multisensory marketing (Group 7), the concept of a setting underlines the work of Spangenberg *et al.* (2005), where the authors test a condition multi-stimuli model in a Christmas setting to

examine an interactive influence of *ambient Christmas scent* and *Christmas music* on consumers' evaluation of products and brands. In a setting, agency is not understood as the sole intention of any one sovereign actant (e.g. brand name or brand logo), but instead, it is seen to be distributed across broad networks of heterogeneous actants (Latour 2005). Spence *et al.* (2014), concluded that "store atmospherics cannot really be understood on a sense-by-sense basis" (p.472), but only in the context of a multisensory setting.

Cluster 3 comprises two research groups, product evaluation (Groups 5) and haptics (Group 6). Krishna and Ahluwalia (2008) examine the impact of language on how young consumers respond to advertisements in a virtual setting, while other authors (Peck and Childers 2003a; Peck and Childers 2003b; Peck and Wiggins 2006; Grohmann *et al.* 2007) investigate how using haptic mechanisms (sense of touch) enhances the evaluation qualities of a retail setting. The product evaluation domain (Cluster 2; Group3) examined how information retrieval and storage is more efficient when consumers participate through direct experience, immersion and learning in a setting.

Research in experiential marketing studies (Group 8 and cluster 5), Schmitt's (1999) experience marketing model, conceptualises brand setting as artifices, managed by producers (manufacturers, firms, store owners) or circulators (e.g. advertisers, marketers, media) to create an intended experience of a brand. Verhoef *et al.* (2009) argue that retail settings are not natural settings; rather, they are manufactured and infused with the intentionality of the brand maker. For Pine and Gilmore (1998), brand settings are also man-made and fraught with referentiality. Firms enlist actors to stage memorable experiences of the brand that customers can remember and take away. Service marketing literature expands on this notion of a firm-based setting based on shared service motivations (Cluster 4). Relationships between actors within a defined service arena, including customer/employee interactions, customer/customer interactions, human density and crowds, are enlisted to form a network of service agents pressed into the service of a servicescape (Bitner 1992).

By identifying sensory as one of the four dimensions of *brand experience* (sensory, affective, intellectual, and behavioural), Brakus *et al.* (2009) highlight the distinctive role that senses play in a brand experience process. Experiencing a brand sensorially embodies an *inherent spatiality* (Power and Hauge 2008), grounding the subject in the branding's spatial associations and connotations within the bounds of a brand setting. Given its wide adoption across the knowledge fields, we assert that the concept of a brand setting represents a fundamental premise underlying the SBE intellectual structure:

***Premise 1: Brand settings are arbiters of brand meanings.***

### **Exteroceptive and interoceptive processes**

We note the unique location of the two MDS research groups – hedonic consumption (Group 2) and aesthetics (Group 1), lodged delicately between the major clusters (Clusters 1-3 and 5), their strategic location signals an implicit acknowledgement among contributors that these clusters articulate a fundamental premise shared by the four knowledge fields (atmospherics, product evaluation, sensory marketing and experiential marketing), one pivotal to conceptualising the psychological architecture of SBE.

Hirschman and Holbrook (1982) explain that the processing of hedonic experience involves two sequentially-linked processes (Group 2): an exteroceptive and an interoceptive process. An exteroceptive process collects information about the changes in the external environment mined by the sensory modalities. Interoceptive processes appraise these sensations via automatic reactions in the bodily states and signal to the brain how the body *feels* about these changes. Describing the entrainment of exteroceptive and interoceptive processes as “afferent and efferent experiencing” (p. 92), Hirschman and Holbrook (1982) articulated what is one of the defining characteristics of SBE.

Bloch (1995) alludes to the entrained perspective by differentiating three types of psychological response to product forms - cognitive, affective and behavioural. Besides the familiar cognitive route to information processing, the author points to affective and behavioural pathways based on the ecological perspective which is essentially Mehrabian and Russell's (1974) S-O-R model (Group 1). For the last three decades, the S-O-R model has been the psychological foundation of consumer environmental studies, therefore implicating all publications listed in atmospherics domain (Cluster 1, Groups 4 and 7). In the ecological model, the authors (Mehrabian and Russell 1974) conceptualise the interaction with the environment as a sequence of afferent and efferent processes. Similarly to afferent and efferent processes, the S-O-R processes are automatic and largely precognitive. The term *precognitive* refers to an involuntary or automatic action that is mobilised before it is reflected upon. Alba and Hutchinson (1987) also allude to automatic behaviour, defining it as the "overlearning of very specific skills" (p. 413), and assume the automatic response occurs through the repeated learning of tasks until the body becomes *trained* and is able to execute tasks independently, without mediation of conscious thought or effort (Cluster 2 and Group 3).

In the same way, Babin *et al.* (1994), allude to the afferent and efferent processes by noting how interaction with the shopping environment (exteroceptive) generates interoceptive activities such as "increased arousal, heightened involvement, perceived freedom, fantasy fulfilment and escapism" (p. 646) (Groups 1-2). The application of afferent and efferent experiencing into customer experience implicates experiential marketing publications (Cluster 5, Group 8) suggesting that experiential products are created through some form of entrained processes. Based on the discussion above, we propose the following:

***Premise 2: Intrinsic processing of SBE involves the entrainment of exteroceptive and interoceptive processes.***

## **Non-representational outcome**

A universal view of the map (Figures 1 and 2) indicates a concentration of publications on the left side of the map, and also shows a dispersal of publications away from the left, diffusing towards the right. On the left side of the map (Cluster 2; Group 3), comprising five publications (Alba and Hutchinson 1987; Hoch and Ha 1986, Hoch and Deighton 1989; Hoegg and Alba 2007; Joy and Sherry 2003) examine how the information is retrieved about a product or brand and is reproduced and re-represented in the consumer's mind, These articles represent the three key concepts of the representational model: the hypothesis testing theory (Hoch and Ha 1986), consumer knowledge (Hoegg and Alba 2007) and consumer expertise (Alba and Hutchinson 1987).

The dispersal of articles away from this clique towards the right (Cluster 1; Groups 4 and 7), upper right (Cluster 5) and lower right (Cluster 3) culminating in the scatter of independent publications on the right (e.g. Brakus *et al.* 2009; Mattila and Wirtz 2001) represents a shift from a representational paradigm to paradigm that account for the impact of non-representational outcomes. Non-representational outcomes refers to the *representencing* (Dewsbury 2003) of signals picked up by individuals' bodies that accompanies the transfer of knowledge (Hill *et al.* 2014; Thrift 2008). Therefore, unlike brand experience, SBE does not *represent* the external event but only *re-presence* the sensations, the affects and the feelings associated with the external event (Bettany and Daly 2008; Zwick and Dholakia 2006).

The publications dispersing towards the right congregating around atmospherics (Cluster 1) and service marketing (Cluster 4) represent a shift to an ecological paradigm where non-representational stimulants in the setting are equally complicit in influencing the transfer of meaning. Bitner (1992) from cluster 4 (service marketing) asserts that in a servicescape, customers and employees are not only impacted by the transfer of representational information

but also by the transfer of “physiological information,” producing as a result non-representational outcomes such as “approach and avoidance” behaviour (p. 60).

The publications dispersing towards the upper right congregating around experiential marketing (Cluster 5) represents a shift to an experiential paradigm where non-representational motivations such as the need for good feelings, fun and fantasy are equally complicit in influencing the transfer of meaning. Hirschman and Holbrook (1982) suggest that non-representational outcomes like “emotional arousal, multisensory images and fantasies” are a major motivation in hedonic consumption. Verhoef *et al.* (2009) suggest that customer experience research should “move beyond the focus of a limited set of elements under the control of the retailer” (representational) to include the study of factors “outside retailers’ control” (non-representational) (p.33).

The publications dispersing towards the lower right congregating Cluster 3 sensory marketing (Krishna 2012), represents a shift towards a sensation/perceptual paradigm where sensations instantiated pre-cognitively are equally complicit in influencing the transfer of meaning. In sensory marketing studies, perceptual representation, which is subconscious, is distinguished from mental representation, which is conscious. Schlicht (2018) argues that perception or *appraisals* in biopsychological literature (Frijda 2010) is in essence non-representational because it is part of the entrained sequence of physiological reaction to generate information for action but not information *per se*. According to Metzinger (2003), such representations do not count as mental representations because they lie at the edge of consciousness. They are perceptual representations in a *purely physical sense*, useful as guides to direct behaviour in response to proximal stimuli in the environment, have no content-involving or content-preserving capacity, and hence, are non-representational.

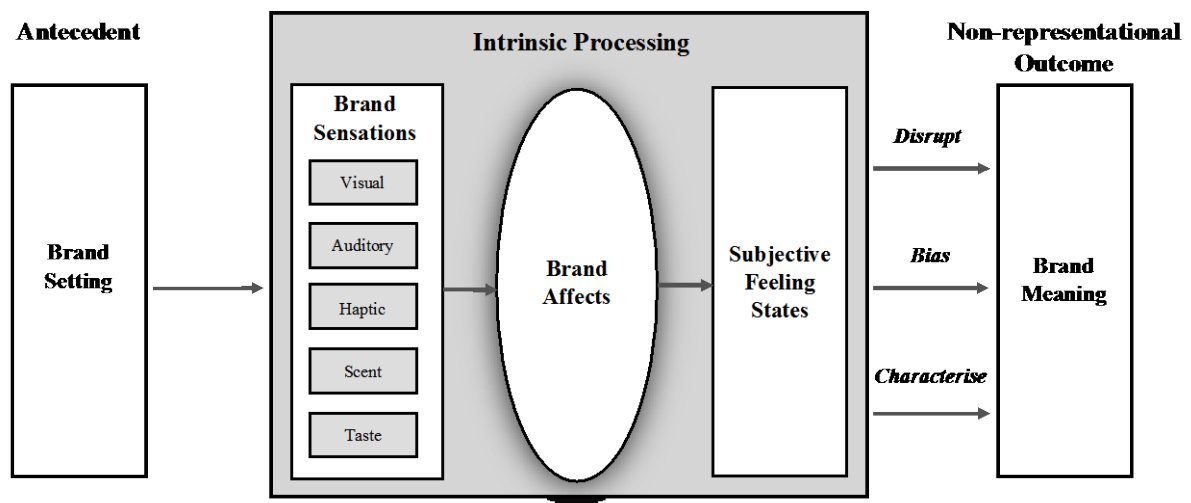


A universal view of research paradigm suggest that non-representational outcome is an important precept underlining SBE intellectual structure. As such we propose the fundamental premise 3 as follow:

*Premise 3: SBE outcomes are non-representational.*

### **Sensory Brand Experience: An Integrative Framework**

In this section, we propose an integrative framework (Figure 3) to represent the SBE process in its component parts based on three fundamental premises of SBE as outlined in the analysis. These fundamental premises provide the boundary conditions on which antecedents (Premise 1), intrinsic processes (Premise 2) and non-representational outcomes (Premise 3) are construed and framed. At the antecedent stage, an SBE is defined by its origins in a brand setting where actants are catalysts for interoceptive activities. At the intrinsic processing stage, an SBE is defined by its unique neuropsychological data characterised by the entrained process that includes brand sensations, brand affects and subjective feeling states. Finally, at the non-representational outcome stage, an SBE is defined by its non-representational influence on the transfer of brand meanings. Articulated as such, we therefore conceptualise SBE *as the internal processing of brand data from a brand setting via an entrainment of exteroceptive and interoceptive processes resulting in brand sensations, brand affects and subjective feeling states.*



*Figure 3. An integrative framework of sensory brand experience*

With the proposed new definition of SBE, this study goes beyond existing conceptualisations where the SBE is still largely defined by its multisensory character, which we assert is inadequate, since all experiences are by definition multisensory (Spence 2014). Appendix 3 comprises a summary of the recent papers in SBE. By characterising the unique attributes of the SBE phenomena, articulating its uniqueness features, this study lays the foundation for the individuation of SBE as an independent construct, differentiating it from related constructs such as brand experience and sensory experience. Whereas brand experience is conceptualised as a multi-dimensional response (sensorial, affective, intellectual, behavioural, and social) to brand-related stimuli, SBE is uni-dimensional, characterised by its interoceptive properties rather than its dimensionality. Whereas sensory experience is a subjective response to all types of sensory stimulation from the external environment, SBE focuses on responses to brand-related stimuli emerging from brand setting.

Next, we present a discussion of potential research directions emerging from the SBE framework (Table 3). To add greater contemporaneity to the database, we used the same procedure and key terms to identify SBE publications since 2009 that had received on average 4.33 citations per year in the *WOS*, in order to further enhance the validity of the study (Burrell 2003; Chabowski *et al.* 2013; Zha *et al.* 2020). This approach yielded a list of 20 articles (see Appendix 4) which indicate contemporaneous research themes in SBE-related research. In fact, two articles appear in both Appendix 1 and Appendix 4: Brakus *et al.* 2009; Spence *et al.* 2014.

Table 3: Sensory Brand Experience: an integrative framework

	Key themes	Definition	Suggested theories to examine	Potential new research areas
<i>Antecedent of sensory brand experience</i>	Brand setting	A heterogeneous network of meaning-encoded actants (human and non-human) where brand relationality is co-authored by the intent of meaning making and consumer subjectivities	<ul style="list-style-type: none"> <li>• Behaviour setting theory (Barker 1968)</li> <li>• Actor-network theory (Belk 2014; Latour 2005)</li> <li>• Brand meaning theory (McCracken 1986; Batra 2019)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine how a firm creates a brand setting by embedding meaning-encoded stimuli in the brand environment</li> <li>• Examining the role of actants as agents of interoceptive activities</li> <li>• Developing a more complete understanding of different actants and their interaction in a brand setting</li> </ul>
	Brand sensations	Neurophysiological data of the brand instantiated and mined at the point of interaction between brand stimuli and an organism's sensory receptor.	<ul style="list-style-type: none"> <li>• Sensory Marketing (Krishna 2012)</li> <li>• Interoception (Pace-Schott et al 2019)</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the mining of interoceptive data at the sensation level</li> <li>• Examine the main theatres of interoceptive activities that implicate different types of SBE</li> <li>• Examine the specificity of neural interfaces for different stimuli</li> <li>• Examine the types of interoceptive agents in a brand setting that are triggers for interoceptive activities</li> </ul>
	Brand affects	Characterised as the brain's ascription of utility value to the neurological data of a brand harvested at the receptor level.	<ul style="list-style-type: none"> <li>• Theory of Constructed Emotion (Barrett and Russell 2014; Barrett 2017)</li> <li>• Valence and Arousal (Yik and Russell 2003)</li> <li>• Core Affect Relations (Kuppens et al 2012; Kron 2019; Haj-Ali et al 2020)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine the dynamic relationship between valence and arousal</li> <li>• Examine the underlying algorithms governing the body's appraisal of neural profiles of brands</li> </ul>
<i>Intrinsic processing of sensory brand experience</i>	Subjective feeling states	Characterised as the pre-cognitive sense of a brand resulting from the coalescing and integrating of related brand affects pertinent to a brand.	<ul style="list-style-type: none"> <li>• Appraisal Theory (Scherer 2005; 2009)</li> <li>• Hedonic consumption (Hirschman and Holbrook 1982; Alba and Williams 2013)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine the nature of brand-based subjective feeling states</li> <li>• Examine the process of synthesis of brand-based subjective feeling states</li> <li>• Examine the impact of brand-based subjective feeling states on brand judgement and brand preference</li> </ul>
	Brand meaning	Emerges when objective brand knowledge is subjectively claimed by the consumer	<ul style="list-style-type: none"> <li>• Non-representational theory (Thrift 2008)</li> <li>• Brand meaning (Batra 2019)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine the impact of sensory brand experience on the transfer of brand meanings operationalised as three potential outcomes: <ul style="list-style-type: none"> <li>- when sensory brand experience disrupts the meaning of the brand</li> <li>- when sensory brand experience biases the meaning of the brand</li> <li>- when sensory brand experience characterises the intended meaning of the brand</li> </ul> </li> </ul>
<i>Non-representational outcome of sensory brand experience</i>	Disrupting the meaning of the brand	When subjective feeling states convey an overall sense of the brand contradicting the intended meaning of the brand	<ul style="list-style-type: none"> <li>• Dynamic Systems Approach (Thelen and Smith 1994; Smith 2015; Samuelson <i>et al.</i> 2015)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine SBE's capacity to bypass rational filters to dominate how meanings of the brand are interpreted</li> <li>• Examine how SBE disrupts transfers of brand meaning by directing bodily attention to its immediate needs and conditions</li> </ul>

	<p>Biasing the meaning of the brand</p>	<p>When subjective feeling states convey a foreign sense of the brand re-traumatizing the intended meaning of the brand</p>	<ul style="list-style-type: none"> <li>• Feelings-as-information theory (Schwarz and Clore 2007; Schwarz 2012)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine how SBE disrupts orderly transfers of brand meaning via non-representational pathways of information processing.</li> <li>• Examine the biasing influence of SBE on the transfer of brand meaning: <ul style="list-style-type: none"> <li>- contamination of brand meanings</li> <li>- interventions of affect residue</li> <li>- distortions of brand meanings through the amplification of sensory cues</li> </ul> </li> </ul>
	<p>Characterising the meaning of the brand</p>	<p>When subjective feeling states convey an overall sense of the brand that collaborates with the intended meaning of the brand</p>	<ul style="list-style-type: none"> <li>• Embodiment theory (Krishna and Schwarz 2014)</li> <li>• Grounded cognition theory (Barsalou 1999, 2008)</li> </ul>	<ul style="list-style-type: none"> <li>• Examine how SBE re-enforces brand meanings: <ul style="list-style-type: none"> <li>- metaphorical correlates</li> <li>- social correlates</li> <li>- spatial correlates</li> <li>- cultural correlates</li> </ul> </li> </ul>

## **Antecedent of Sensory Brand Experience**

### ***Brand setting***

At the antecedent level, we suggest SBE researchers deepen the conceptualisation of a brand setting based on fundamental premise 1. We define a brand setting as a heterogeneous network of actants (human and non-human) co-created by the intent of meaning making and consumer subjectivities to deliver a sense of the brand. Data from the co-citation analysis show that actants in a brand setting can be anything ranging from grapefruit scent (Mattila and Wirtz 2001), art exhibits (Joy and Sherry 2003), a sweater (Peck and Childers 2003) or a coffee mug (Krishna and Morrin 2008). By examining of recent frequently cited studies in Appendix 4, Bolton's (2014) work show how small unobtrusive acts in a *servicescape* accrue in the customer's memory as memorable feeling states differentiating one offering from another. while Spence (2012) shows how even the sound symbolism of brand names generates cross-modal sensations to deliver subtler meanings of the brand (e.g. a French sounding name for an English company).

Informed by actor-network theory (ANT), an actant is an entity that acts and is also being acted upon (Latour 1996; Low and Abdullah 2020). In the context of SBE, actants are conceptualised as agents of stimulation when they act on behalf of meaning makers and agents of interoceptive activities when they are acted upon by the consumer's subjectivities.

Conceptualizing brand setting inevitably leads to a discussion on brand meaning and the role of meaning makers (Allen *et al.* 2008). Our findings show brand setting is a function of the firm's intention, created (Verhoef *et al.* 2009), staged (Pine and Gilmore 1999) and managed (Schmitt 1999) to deliver a brand meaning. To stage a brand setting, a firm designing and managing *actants* affect SBE. Research in this area shows the ambient or design elements as *actants* influence SBE in a physical setting (e.g. Roggeveen *et al.* 2020) or the use of typeface, colour or photographic representations as *actants* have an impact on SBE in a virtual setting

(Jewitt and Mackley 2019). Since a brand setting is co-created by the meaning maker and the consumer's subjectivities, what is eventually represented as a brand setting in the consumer's mind is usually *more* than what is intended. A consumer-based brand setting includes *actants* intended by the meaning maker and actants not intended. For example, when consumer patronise a cafe, the artwork on the wall is an intended actant but the sight of two employees having a heated argument is an unintended actant. A brand setting is dynamic and ever-changing, continuously reconfigured and re-scripted by the intervention of different types of *actants* (intended and unintended) enabling and constraining the outcomes of an SBE.

Data from the analysis show that properties of objects in their setting are potential catalysts of interoceptive activities (Grohmann *et al.* 2007; Bloch 1995; Krishna and Morrin 2008). For example, the colour conditions of orange juice can evoke a sensory response that influences brand preference (Hoegg and Alba 2007) or the texture of a sofa can also arouse tactile sensations inferring the personality of a brand (Mollen and Herm 2013). Through recent studies, scholars (Troye and Supplhellen 2012; Ballantyne *et al.* 2011) view these objects can be physical or virtual, mediated through mediums such as brochures, art and the media. potential agents of interoceptive activities. Furthermore, our findings show that emergent *actants* that intrude into a brand setting have great capacity to disrupt orderly transfers of brand meaning. The natural light coming through a window (an unintended actant) may generate thermo-sensations so memorable, customer's implicit memory pre-disposes when they visit the same cafe every morning. Similarly the sight of a rodent scrambling across the hall may be so aversive, it destroys whatever brand meanings the luxurious hotel brand is trying to project.

Deserving special attention in SBE research is the role digital actants; digitally created entities such as chatbots, robots, avatars or virtual customer assistants (VCAs) that are *trained* to interact with consumers with minimum human intervention. Data from recent papers show that digital actants are potential agents of interoceptive activities (see Appendix 4 : Achrol and

Kotler 2012; Pauwels *et al* 2011). Huang and Rust (2021) propose three types of intervention: mechanical AI, thinking AI or feeling AI. An example of machine learning is the use of in-store robots *trained* to complement the functions of human and non-human actants in a physical setting (Mende *et al.* 2019; Kumar *et al.* 2019). An example of feeling AI is the use of virtual customer assistants (VCAs) with natural language processing abilities trained to interact intelligently with customers over the internet (Puntoni *et al.* 2020; Swaminathan *et al.* 2020).

Crucially, different actants incite different degrees of interoceptive activity and at some critical threshold, they materialise into a phenomenon consumer experience and remember as an SBE. Understanding the complex relationship between meaning makers, the role of different actants, intended or unintended, within the context of a brand setting, represents an important frontier in SBE research. In this respect, we suggest SBE scholars move beyond the traditional ecological psychology model to explore with greater urgency new inputs coming from research models based on actor-network theory (Martin and Schouten 2013).

### **Intrinsic processing of sensory brand experience**

Sensory data elicited from a brand setting trigger a sequence of exteroceptive and interoceptive processes based on premise 2 (Figure 3). We trace the intrinsic processing of brand data where brand information are actualised as brand sensations, brand affects and subjective feeling states outlining as such a psychological architecture of the SBE process.

#### ***Brand sensations***

Brand sensations stand at the intersection between the external brand stimuli and the internal processes where “the stimulus impinges upon the receptor cells of a sensory organ” (Krishna 2012, p.334). In the course of a day, whether on a train or a personal computer, consumer organisms are constantly exposed to a huge amount of brand stimuli. At each exposure, valuable neurophysiological information about brands is harvested from the multiple sensory modalities (Yoganathan *et al.* 2019; Spence and Gallace 2011). Therefore, brand sensation can



be conceived of as a set of neurophysiological data about a brand instantiated and *mined* at the point of interaction between brand stimuli in brand setting and the organism's sensory receptors.

Following premise 2, in an SBE, two types of data are harvested: exteroceptive and interoceptive data. Exteroceptive data (information about the event) is mined through the specialised sense organs such as the eyes and ears, and is fed directly to designated areas of the brain. Interoceptive data (e.g. the condition of the body at the event) on the other hand, is mined through interoceptors embedded all over the body. For example, at the somatosensory level, thermoreceptors in our skin, muscles and viscera report on surface temperature (Zwebner *et al.* 2014) to communicate feelings of warmth and sensuality of touch. Electrodermal receptors report on the state of skin conductance (e.g. sweating) to indicate levels of psychological arousal (Craig and Craig 2009). At the visceral level, baroreceptors report on cardiovascular conditions such as heart rate and blood pressure (Craig 2008). The activation of these processes can be directly triggered by interoceptive agents in the brand setting, or they can be indirect, an afferent response to signals coming through the exteroceptive system (e.g. the sight of a car accident (visual) may elevate the heart rate). Importantly, data from these interoceptive activities emerging from both somatosensory and visceral system forms the neural basis of emotions and feelings.

Advances in interoception research show an ever-widening range of neurophysiological activities implicated with interoceptive sensitivity (Pace-Schott *et al.* 2019). Since interoceptive activities represent the neuropsychological foundation of SBE understanding, the mining of interoceptive data at the sensation level represents a critical area of research for SBE.

### ***Brand affects***

Brand sensations mined at the receptor level are raw neurological data, neutral, devoid of emotive values (e.g. positive or negative? like or dislike? helpful or harmful?). Barrett (2006)

asserts that in order for this “constant stream of transient alterations in an organism’s neurophysiological state” (p 39) to become affectively meaningful, they need to be *re-presented* or translated into a currency suitable for emotive transactions. When sensations imbued with interoceptive activities cross a threshold, a new pathway is forged to process brand data. This interoceptive pathway overrides existing cognitive processes. The result of this appraisal of the neurological data of a brand is *brand affect*, a term first articulated in marketing literature by Chaudhuri and Holbrook (2001).

Brand affects also can be understood as the body’s neurobiological/psychological interface translating the interoceptive data into emotive categories (Russell and Barrett 1999; Posner *et al.* 2009). An interoceptive response expressed as brand affect can be reduced to two dimensions: valence and arousal, with valence being how positive or negative people feel and arousal being how emotionally activated or un-activated people feel. Importantly, a consumer’s interpretation of a brand is composed of different combinations of pleasure and arousal (Yik and Russell 2003). Brand valence assesses whether a *consumption event is pleasurable or displeasurable* (Bowden *et al.* 2017). Brand arousal, on the other hand, galvanises the body for action in response to potential threats or rewards (Reimann *et al.* 2012). This assessment of utility value at the bodily level can be conceived of as a form of early screening to determine whether one should approach or avoid, continue or discontinue the consumption of a brand.

The dynamic relationship between brand valence, brand arousal and interoceptive activities thus represents a critical area of SBE research since the integration between the two variables is fundamental to shaping the character of an SBE (Esch *et al.* 2012; Haj-Ali *et al.* 2020; Kuppens *et al.* 2012). At the same time, a deeper understanding of the underlying calculus governing the body’s appraisal of a neural profile should be a research enterprise that will interest both academic and marketing practitioners. Knowledge of this "sets of algorithms"

(Adolphs and Andler 2018, p 197) will go a long way to help practitioners shape their sensory marketing strategies.

### ***Subjective feeling states***

As brand affects ascend the hierarchy of consciousness, the brain integrates and organises the pool of brand affects into a global brand profile with *neurocognitively distinct dimensions* (Kringelbach and Berridge 2017). Scherer (2009) views synthesis taking place at two levels: within-component and between-component. Within-component integration reflects the increasing mentalisation of *brand affects* and therefore, increasing complexities, as it moves up the ladder of consciousness (Scherer 2005). For example, the movement from mere arousal (one-off) to excitement (sustained arousal). Between-component refers to the integration taking place between brand affects. Such as a self-report labelling of an event as *interesting* may be a synthesis of two brand affects, reward affect (anticipation of future reward) and fear affect (anticipation of the unknown). Researchers should examine the synthesis of brand affects from both within-component and between-components contexts.

As these brand profiles emerge at the edge of consciousness, they are mentalised as subjective feeling states (Damasio and Carvalho 2013). Conceptualised as states rather than objects, subjective feeling states represent the background of conscious thought, the subject of perception. For the most part, feeling states lie undetected, remaining as *merely awareness* (Williams and Poehlman 2017) in the background. However, triggered by immediate needs, feeling states can be foregrounded, experienced phenomenally as hunches, vibes or simply a gut feel of the brand (Anderson 2015). Among them, unique brand profiles of brands with salient sensory characteristics become tagged in the consumer's memory, consumers recognise and recall them as an SBE.

Research has shown that even in this largely pre-attentive phase, the tonality of these feeling states does have a palpable influence on judgement, preference and choice (Dijksterhuis 2014;

Pham *et al.* 2001; Yeung and Wyer Jr 2004). Evolutionary psychologists have credited this data processing pathway for the ability to grasp situations intuitively and arrive at a quick and efficient solution (Cosmides and Tooby 2000). More importantly, research has shown that decisions made on this basis tend to stick and demonstrate preference consistency (Lee *et al.* 2009). We recommend that future researchers examine the nature of these brand-based subjective feeling states with an emphasis on how the neural characteristics of a brand underpin its influence of preference and choice.

### **Non-representational outcome of sensory brand experience**

Based on premise 3, we propose three outcomes arising from the interface between the SBE and representations of brand. In this first scenario, we anticipate a disruption to the transfer of brand meaning when the subjective feeling state conveys a sense of the brand that contradicts the intended meaning of the brand. In the second scenario, we anticipate a need for internal negotiation when the SBE conveys a sense of the brand that challenges the intended meaning of the brand. Finally, in the third scenario, we anticipate brand characterisation when the SBE conveys a sense that collaborates with the intended meaning of the brand.

### ***Disrupting representations of the brand meaning***

SBE researchers should look at SBE's proclivity for disruptive action programmes when subjective feeling states convey a sense of the brand that contradicts its intended meaning. By superseding conscious mechanisms of control, SBE has the capacity to *short-circuit* regular information processing mechanisms and bypass rational filters (Taylor and Hansen 2005) to dominate how meanings of the brand are interpreted. Given that body states are necessarily valenced, either positive or negative – feelings, as proxies of the bodily states, are powerful guides to dominate behavioural adaptation and change. In a sense, astute practitioners have long realized the dominating influence of SBEs. The Japanese invented the Karaoke room as the ultimate brand setting where businessmen and clients co-mingle in physical activities such

as sing-alongs and group dancing, to create proxy feeling states as surrogates of intended brand meanings. Western entrepreneurs invented the VIP Box at Premier League football matches to engage VIP clients in collective excitations, ensuring the sensual memories of the brand dominate the more cognitive-based forms of brand assessment (e.g. comparisons with other brands in the market in terms of price, quality or delivery).

SBE disrupts transfers of brand meaning by directing bodily attention to its immediate conditions (e.g. signs such as “final sale”, “closing down sale” or “last two rooms available” on hotel booking websites), overwhelming more heuristically demanding considerations about the brand (Damasio and Carvalho 2013). Since all organisms strive for physiological optimisation, accessible energy-saving solutions (e.g. “cheaper to buy now!”) take precedence over more energy-taxing options (e.g. “is this a really good product?”).

SBE processes are inherently volatile. Informed by dynamics approach theory, entrained interoceptive processes can be conceived of as a temporary coalition of biological entities. Observing entrained processes, Thelen and Smith (1994) commented, is like watching balls hurtling down a terrain of hills and valleys where one is constantly *astounded* by new pathways emerging in response to the shifting landscape of deep and shallow troughs. The roar of a Ferrari coming around the bend may evoke excitement or displeasure, depending on the biological terrain which the auditory signal has to negotiate to reach the brain. As a two-track process, orderly transfers of brand meaning will always be hostage to unpredictabilities sustained by non-representational pathways of information processing.

Think of how a rude gesture by the attendant at the car park could potentially decimate an objective evaluation of the mall.

### ***Biasing representations of the brand meaning***

SBE researchers should also investigate how subjective feeling states bias representations of the brand meaning by conveying a sense of the brand that challenges its intended meaning.

Feelings-as-information research (Schwarz 2012; Schwarz *et al.* 2021) has shown that people do use information provided by bodily states to inform judgment, including judgements about brands. Information provided by feeling states does infiltrate and contaminate brand meanings and bias our interpretation of the brand.

SBE biases representations of the brand meaning through the creation of affect residue. According to Slovic *et al.* (2007), all experiences are *tagged* in differing degrees of a modicum of affect residue deposited in implicit memory. This *affect pool* containing all the positive and negative tags remains dormant until some kind of association (semantic, metaphorical, sensorial) is found, at which time our memory unloads the associated content to re-enact a *remote* feeling state to challenge the meaning of the brand. Thus, memories of a trauma experienced on a flight may continue to re-enact virtual feeling states to re-traumatise other unrelated flight experiences.

Feeling states have been observed to bias meanings of the brand through the amplification of salient brand attributes (Mather and Sutherland 2011). Exposure to a sense of the brand distorts overall judgement of a brand by amplifying one set of stimuli at the expense of another set of less salient stimuli (Wirtz *et al.* 2000). In a sense, all forms of advertising are mediums of manipulated reality. Amplification of images, sounds, attributes or narrative ensures that consumers are only exposed to what marketers want them to see, hear or experience.

### ***Characterising representations of the brand meaning***

SBEs enhance or reinforce the meaning of the brand when the overall sense of brand collaborates with the intended meaning of the brand. Krishna (2012) argues that sensory marketing is important to practitioners because sensory cues have the potential “to create subconscious triggers that characterise consumer perceptions of abstract notions of the product” (p 332). Reframed in the context of SBE, characterising brand representation takes place when

the sense of the brand, defined in sensory marketing as a “self-generation of (desirable) attributes” (p 322), collaborates with the intended meaning of the brand (the abstract notions).

First, characterisation can be triggered by priming, which is the association of the external sensory event with familiar metaphorical correlates found in the memory (Janiszewski and Wyer Jr 2014). Damasio and Carvalho (2013) noted that when a person responds to a sensorially charged event, an automatic search in the memory bank for related events is initiated. If a favourable affect correlate is found, action programmes are initiated to re-enact the associated feeling state. If a corresponding correlate with a negative affect is the result of the search, action programmes and thoughts are fielded to avoid a repeat of the anticipated feeling state. The correlate can be an image, a smell, a sound, or a particular sensation on the skin. Kwon and Adaval (2018) suggest that semantic associations in implicit memory that match the feeling tone of the external entity are a common metaphorical device. The terms “holistic”, “wholeness”, “connectivity”, “well-being” (the sound symbolism of the word “well” conjures up images of water, springs, freshness) are evoked by the word “whole” in “Whole Foods Market”.

Second, Bower and Forgas (2000) suggest that social correlates play a prominent role in mental characterisation of the brand. Researchers should look at social characteristics associated with a brand encounter including pleasantness of the interaction, sense of closeness and one’s sense of personal involvement. In comparing episodes with one another, people tend to automatically rely on how they feel about the encounters in question, and pay little attention to the different settings, actors, props, and goals. As Pervin (1976) noted earlier: “what is striking is the extent to which situations are described in terms of affects (e.g. threatening, warm, interesting, dull, tense, calm, rejecting) and organised in terms of similarity of affects aroused by them” (p. 471).

Third, spatial correlates should also be examined as an important tool of brand characterisation. Unique store designs trigger spatial correlates stored in the memory. Good examples are themed cafés and restaurants where the spatial design and interior fittings are purposefully minted to evoke place spatial correlates embedded in personal or collective memories. Consumers, exposed to the spatial arrangements, colours, decoration and overall situation, re-enact their own personally meaningful aesthetic experiences (Venkatraman and Nelson 2008). Supermarkets today are no longer simply competing on price and assortment but also on atmospherics and the overall feel of the shopping experiences.

Finally, cultural correlates should also be examined as instruments of brand characterisation. Fournier and Alvarez (2019) discussed how ideology, conceptualised as a type of cultural model, embodies “generalized worldviews that justify action through a system of shared beliefs and values” (p. 520). The values that underpin this worldview can also be expressed through the overall sense of the brand. We think of Starbucks and the characterisation of global consciousness through the display of narratives and images of coffee-growing communities around the world. When the sense of a worldview embraced by the firm comes through the overall sense of the brand, cultural correlates are activated, endearing the consumer to the brand.

## **Conclusion**

There is no doubt that the brand experience concept represents the foundation of the SBE concept. But for the SBE concept to grow, researchers must move beyond its current reliance on brand experience theories and work towards its own theoretical infrastructure, in order to better capture the nuances and issues specific to SBE phenomena. Through two co-citation analysis, we identified the six knowledge fields and their theoretical contribution to SBE’s intellectual structure. On that basis, we constructed three fundamental premises to serve as a doctrinal schema for ongoing and future SBE conceptual development. And crucially, we provided an integrative framework to trace the internal processing of brand data through brand



sensation, brand affect and subjective feeling states. Underlying this pathway is the notion of a two-track data processing paradigm.

Meaning transfer can be conceived of as a two-track process (see Figure 4) activated concurrently at the point of brand stimulation - a representational and an accompanying non-representational mode of affective meaning transfer. Anderson (2010) argues that these non-representational processes should be differentiated from the more representational form of processing because they represent “a class of experience that occurs before and alongside the formation of subjectivity” (p. 78). In recent years, the concept of a two-track pathway has made considerable advances in neuroscientific research (Barrett 2017), particularly through the contribution of functional anatomist studies (Craig 2008). It is becoming increasingly clear that the two pathways – the exteroceptive pathway (the processing of signals from sensory modalities to inform our perception) and the interoceptive pathway (the processing of signals to inform the brain about the body’s condition) – have defined neural correlates at both the receptor end and processing end of the bodily system (Pace-Schott *et al.* 2019).

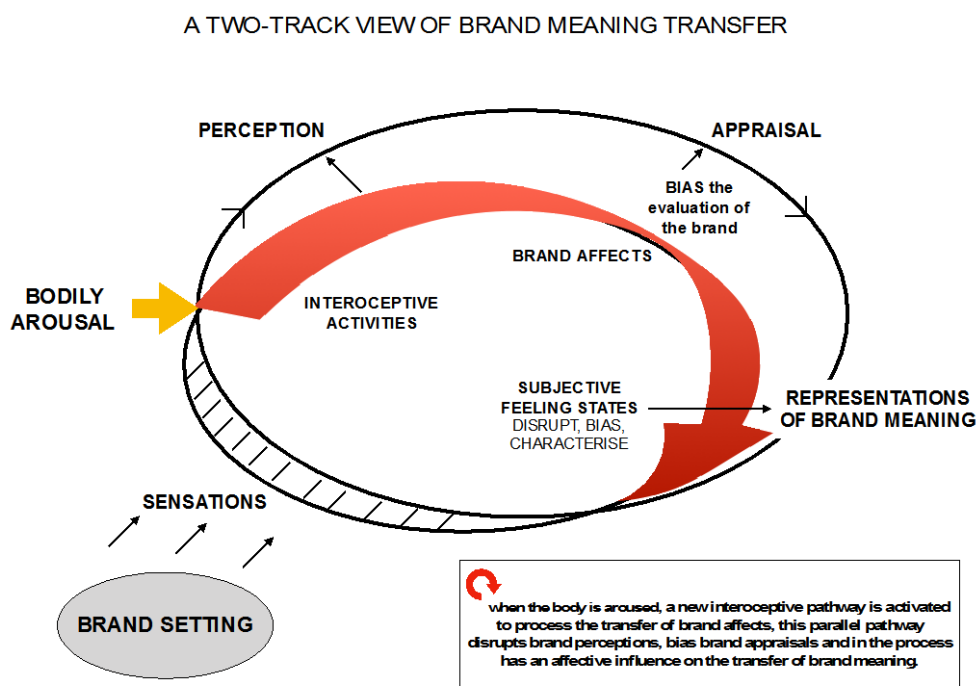


Figure.4. A Two-Track View of Brand Meaning Transfer ((developed by the authors)

Taking a two-track view allows us to employ two sets of methodological assumptions. Methods to test representational outcomes should be different from methods to examine non-representational outcomes where researchers look out for subtleties that may “evade interviewees conscious awareness of the brand” (Hill *et al.* 2014, p 383), bodily processes and bodily knowledge, phenomenal prompts or unconscious triggers; investigating the *representing* of affective brand meaning and not just the *re-presenting* of brand meaning. Conceptualising the transfer of brand meanings and the accompanying transfer of brand affects as separate pathways may help unravel some of the complexities surrounding the operationalising, testing and measurement of meaning transfers (Batra 2019). By calling for a “greater understanding of inferential processes” (Batra 2019, p.542), the author has already drawn our attention to the significance of these non-representational inferential-making processes, which are automatic and spontaneous. In doing so, the author differentiated them from other more deliberate and resource-intensive forms of processing, suggesting that we should not “assume that all brand meanings are inferred in the same way” (*ibid*). In the same way, Williams and Poehlman (2017) call for the need to abandon a “global notion of consciousness,” A more disaggregated approach, the authors argue, facilitates the examination of “low-level, biological or otherwise unconscious influences” that are often lost in an aggregated frame of enquiry (p. 231). In affective neuroscience, Lindquist (2013) conceptualises the psychological constructionist model as the interplay between two processes – core affect and situated conceptualisation – observing how they “combine and constrain” one another like ingredients in a recipe (p. 360).

From the branding perspective, we assert that the rehabilitation of meaning transfer theory is most productively implemented by conceptualising SBE as a separate and independent construct. We recognise the enormity of the task, one that requires the rigours of robust

theorisation and the test of its assumptions in the trial of academic inquiry. We see this paper as a part of this exciting initiative.

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## Appendix 1: The most frequently cited sensory brand experience publications

Rank	Publication	Source	Total Citations <sup>a</sup>	Aim / Objective	Key constructs	Key theories	Methodologies	Implications
1	Brakus <i>et al.</i> (2009)	<i>Journal of Marketing</i>	29	<ul style="list-style-type: none"> <li>- To define and conceptualize the brand experience construct</li> <li>- To develop a scale for measuring brand experience</li> <li>- To identify the underlying dimensions of brand experience</li> </ul>	<ul style="list-style-type: none"> <li>- Brand experience (sensory, affective, intellectual, and behavioural)</li> <li>- Brand personality</li> <li>- Satisfaction</li> <li>- Loyalty</li> </ul>	<ul style="list-style-type: none"> <li>- Experience marketing</li> </ul>	<ul style="list-style-type: none"> <li>- Conceptual</li> </ul>	<ul style="list-style-type: none"> <li>- Defines brand experience</li> <li>- Conceptualizes and operationalizes the brand experience</li> <li>- Develops the brand experience scale</li> <li>- Determines four dimensions of brand experience</li> </ul>
2	Bitner (1992)	<i>Journal of Marketing</i>	18	<ul style="list-style-type: none"> <li>- To understand how the build environment affects both consumers and employees in service organizations</li> <li>- To integrate theories and empirical findings from diverse disciplines into a framework</li> </ul>	<ul style="list-style-type: none"> <li>- Environmental dimensions (ambient conditions, space/function, signs, symbols and artifacts)</li> <li>- Perceived servicescape</li> <li>- Employee and customer response</li> <li>- Internal employee and customer Responses (cognitive, emotional, Physiological</li> <li>- Behavior</li> </ul>	<ul style="list-style-type: none"> <li>- Environmental psychology</li> </ul>	<ul style="list-style-type: none"> <li>- Conceptual</li> </ul>	<ul style="list-style-type: none"> <li>- Introduces the servicescape framework</li> <li>- Identifies the dimensions of the servicescape</li> <li>- Provides multiple strategic roles that physical surroundings can exert in service organization</li> <li>- Understand sensory elements-user relationships in service organization</li> </ul>
3	Schmitt (1999)	<i>Journal of Marketing Management</i>	18	<ul style="list-style-type: none"> <li>- To introduce a new approach to marketing</li> <li>- To provide a framework for experiential marketing</li> </ul>	<ul style="list-style-type: none"> <li>- Sensory experience</li> <li>- Affective experience</li> <li>- Cognitive experience</li> <li>- Behavioral experience</li> <li>- Social-identity experience</li> </ul>	<ul style="list-style-type: none"> <li>- Experience marketing</li> </ul>	<ul style="list-style-type: none"> <li>- Conceptual</li> </ul>	<ul style="list-style-type: none"> <li>- First to introduce the experiential marketing</li> <li>- Proposes five different types of experiences</li> </ul>
4	Mattila and Wirtz (2001)	<i>Journal of retailing</i>	15	<ul style="list-style-type: none"> <li>- To examine the main effects of many pleasant ambient stimuli such as Music and scent</li> </ul>	<ul style="list-style-type: none"> <li>- Scent</li> <li>- Music</li> <li>- Arousal</li> <li>- Pleasure</li> <li>- Approach-Avoidance</li> <li>- Store environment</li> <li>- Satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>- Environmental psychology</li> <li>- Service marketing</li> </ul>	<ul style="list-style-type: none"> <li>- Empirical (experimental study – factorial design in a field setting)</li> </ul>	<ul style="list-style-type: none"> <li>- Provides evidence that improving a store’s ambient conditions enhances consumers’ evaluations of and behaviors in the shopping experience</li> <li>- Identifies the environment’s arousing qualities via scents and background music can help retailers to differentiate themselves from other competitors, encourage shoppers to engage in impulse buying</li> </ul>
5	Hulten (2011)	European Business Review	14	<ul style="list-style-type: none"> <li>- To present the multi-sensory brand-experience concept in relation to the human mind and sense</li> <li>- To propose a sensory marketing model of the multi-sensory brand-experience hypothesis.</li> </ul>	<ul style="list-style-type: none"> <li>- Sensors</li> <li>- Sensations</li> <li>- Sensory expressions</li> <li>- Multi-sensory brand-experience</li> <li>- Customer equity</li> </ul>	<ul style="list-style-type: none"> <li>- Sensory marketing</li> <li>- Service marketing</li> <li>- Brand experience</li> </ul>	<ul style="list-style-type: none"> <li>- Qualitative study</li> </ul>	<ul style="list-style-type: none"> <li>- Proposes the multi-sensory brand-experience hypothesis emphasizes the significance of the human mind and senses in value-generating processes</li> <li>- Identifies emotional/psychological linkages in differentiating, distinguishing and positioning a brand as an image in the human mind</li> <li>- Identifies the shortcomings of the transaction and relationship marketing models in considering the multi-sensory brand-experience concept</li> </ul>
6	Pine and Gilmore (1998)	Harvard Business Review	12	<ul style="list-style-type: none"> <li>- To understand the experience economy</li> </ul>	<ul style="list-style-type: none"> <li>- Entertainment</li> <li>- Educational</li> <li>- Esthetic</li> <li>- Escapist</li> </ul>	<ul style="list-style-type: none"> <li>- Experiential marketing</li> </ul>	<ul style="list-style-type: none"> <li>- Thematic review</li> </ul>	<ul style="list-style-type: none"> <li>- Proposes five key experience-design principles to designing memorable experiences</li> <li>- Distinguishes aesthetic (including visual, aural, olfactory, and tactile aspects), educational, entertaining, and escapist experiences.</li> </ul>



7	Peck and Childers (2003a)	Journal of Consumer Research	12	- Develops and validates a measure of individual difference in the "Need for Touch" (NFT)	- Need for touch	- Information processing	- Empirical (experimental study)	- Develops the NFT scales to measure individual difference in preference for haptic information
8	Hirschman and Holbrook (1982)	Journal of Marketing	12	- Defines hedonic consumption - Conceptualize hedonic consumption	- Metal constructs - Product classes - Product usage - Individual differences - Hedonic consumption	- Hedonic consumption experience	- Conceptual	- Defines hedonic consumption - Introduces the constructs of multisensory experience, fantasy imagery and emotive response - Proposes a conceptual framework for hedonic consumption
9	Krishna and Ahluwalia (2008)	Journal of Consumer Research	11	- To examine the role of language choice in advertising to bilinguals in global market	- Multi-national corporations - Asymmetric language effects - Local firms	- Information processing	- Empirical (experimental study) - Conceptual	- Identifies that multi-national corporations cannot mimic local companies in their choice of advertising language
10	Spence <i>et al.</i> (2014)	<i>Psychology Marketing</i>	11	- To review the scientific evidence related to visual, auditory, tactile, olfactory, and gustatory aspects of the store environment and their influence on consumer's shopping behaviour	- Visual atmospherics - Auditory atmospherics - Tactile atmospherics - Olfactory atmospherics - Gustatory atmospherics	- Sensory marketing	- Thematic review	- Identifies that the need for further research to address how the multisensory (visual, auditory, scent, taste and tactile sensations) retail environment shapes customer experience and shopping behaviour - Proposed a framework for multisensory shopping behaviour
11	Verhoef <i>et al.</i> (2009)	<i>Journal of Retailing</i>	11	- To build a conceptual model of antecedents to and moderators of customer experience	- Social environment, - Self-service technologies - Store brand - Retail atmosphere - The assortment, the price and promotions (including loyalty programs)	- Customer experience management	- Thematic review	- Summarized: goals, schemas, and information processing; memory; involvement; attitudes; affective processing; atmospherics and consumer attribution and choice - Affirm the rational consumer perspective - Description of the buying process based on a cognitive- inclined information processing model
12	Babin <i>et al.</i> (1994)	<i>Journal of Consumer Research</i>	11	- To examine the effect of specific retail elements on deviations from the expected schema, or prototypically, of a retail store	- Typically - Excitement - Shame - Romance - Patronage intentions - Hedonic value - Utilitarian value	- Environmental psychology	- Empirical (Experiment study)	- Proposes a model of schema typicality, consumer shopping value - Finds the retailers can benefit from a deeper understanding of consumers' categorical structures
13	Joy and Sherry (2003)	<i>Journal of Consumer Research</i>	11	- Addresses the links between embodiment and customer experience in order to elucidate the contours of aesthetic experience-not just the process of thinking bodily but how the body affects the logic of our thinking about art	- Aesthetic experiences - Multisensory	- Existential phenomenology - Theory of image schemata - Theory of conceptual blending	- Conceptual	- Identifies two levels of embodiments: the phenomenological and the cognitive unconscious - Finds the important of embodiment processes that shape their reasoning
14	Alba and Hutchinson (1987)	<i>Journal of Consumer Research</i>	11	- To review basic empirical results from the psychological literature in a way that provides a useful foundation for research on consumer knowledge	- Consumer Expertise	- Information processing	- Conceptual	- Identifies five dimensions of customer expertise are identified: cognitive effort, cognitive structure, analysis, elaboration, and memory
15	Peck and Childers (2003b)	<i>Journal of Marketing</i>	10	- To develop and propose a conceptual framework to illustrate that salience of haptic information differs significantly across products,	- Haptic	- Information processing	- Conceptual - Empirical (Experiment study)	- Gives attention to the motivation to touch products and types of haptic information - Identifies the Relationship between visual and haptic processing

consumers, and situation

16	Donovan and Rossiter (1982)	<i>Journal of Retailing</i>	9	- To investigate the Mehrabian-Russel environmental psychology model in retail settings	- Environmental stimuli - Arousing - Pleasure - Dominance - Approach or avoidance responses	- Environmental psychology	- Empirical (Experiment study)	- Applies the stimulant-organism-response (S-O-R) Model from environmental psychology to a retail store setting - Demonstrating how SO resulting in automatic Behavioural response (R)
17	Hoch and Ha (1986)	<i>Journal of Consumer Research</i>	9	- To examine the influence of advertising on how and what consumers learn from product experience	- Advertising - Quality judgement - Actual level of ambiguity	- Information processing	- Empirical: (Experiment study)	- Identifies the relationship between advertising and direct product experiences
18	Hoegg and Alba (2007)	<i>Journal of Consumer Research</i>	9	- To examine discrimination as it pertains to consumers' ability to identify differences or the lack thereof among gustatory stimuli	- Taste - Product judgements	- Information processing	- Empirical: (Experiment study)	- Identifies how perceptions of product impact product judgements
19	Peck and Wiggins (2006)	<i>Journal of Marketing</i>	8	- To investigate the persuasive influence of touch as an effective tool in the absence of useful product-related information	- Touch element - Autotelic NFT - Affective response - Persuasion (attitude toward the request, likelihood of donating time or money)	- Information processing	- Empirical: (Experiment study)	- Extends touch research in marketing - Suggests the packaging opportunities are not limited to providing touch attribute information - Identifies touch has significant implications for in-store and point-of-purchase displays - Suggests that touch can be used along with pictures, photos, color, humor, and other elements to increase the persuasiveness of print advertising
20	Spangenberg <i>et al.</i> (2005)	<i>Journal of Business Research</i>	8	- To investigate whether olfactory and music stimuli will influence individuals' perception and behaviours	- Scent (no scent & Christmas scent) - Music (non-Christmas music & Christmas music)	- Environmental Psychology	- Empirical (Experiment study)	- Finds that retailers use of music without scent may be as beneficial as the use of congruent combinations of music and scents in producing favorable consumer responses - Establishing that cue congruency is important with respect to combinations of ambient scents and music - Explores the interaction of environmental stimuli beyond the realms of scent and sound - Combines influence of multiple cues on consumer behaviour
21	Grohmann <i>et al.</i> (2007)	<i>Journal of Retailing</i>	8	- To examine the effects of tactile input on product evaluation	- Tactile - Product categories - Product quality - Individual differences	- Information processing	- Empirical (Experiment study)	- Demonstrates that tactile input influences product evaluations - Identifies the need for touch impacted product evaluations when tactile input was available in

22	Bloch (1995)	<i>Journal of Marketing</i>	8	- To develop a conceptual model that describes how the form of a product relates to consumers' psychological and behavioural response	- Product form - Psychological responses (cognitive , affective) - Behavioural responses	- Information processing	- Conceptual	- Conceptualizes product design: outcomes (consumer response) and moderators of consumer response
23	Donovan <i>et al.</i> (1994)	<i>Journal of Retailing</i>	8	- To extend the Donovan and Rossiter (1982) environmental psychology model into the store atmosphere literature	- Environmental stimuli - Emotional states: pleasure, arousal - Approach or avoidance responses	- Environmental psychology	- Conceptual	- Extends behaviourally in the new study: pleasure and time spending; arousal - Identifies the pleasure and arousal emotions influence variety and quality of merchandise, price speciating and value for money
24	Hoch and Deighton (1989)	<i>Journal of Marketing</i>	8	- To develop a framework for managing what consumers learn from experience	- Consumers learn - Experience - Familiarity with domain - Motivation to learn - Ambiguity of the information environment	- Information processing	- Conceptual	- Proposes a four-stage (hypothesizing-exposure-encoding-integration) customer learning process - Develops a framework to managing consumer learning  from experience with three moderating factors are familiarity with domain, motivation to learn, and the ambiguity of the information environment
25	Kotler (1974)	<i>Journal of Retailing</i>	8	- To develop a systematic exposition of atmosphere as a buying influence	- Atmospheric	- Environmental psychology	- Conceptual	- Defines the atmosphere - Reviews the historical antecedents of the concept of atmosphere - Proposes the atmospherics affect purchase behaviour

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Note: Citation count measures the total number of citations made in the articles drawn for this study

## Appendix 2: An overview of six knowledge fields

Knowledge fields	Definition	Scope	Representative articles
Atmospherics	“the intentional control and structuring of environmental cues” Kotler (1973, p 50)	Focus on the role of the environmental factors influencing customers’ response	Kotler (1974); Donovan and Rossiter (1982); Donovan <i>et al.</i> (1994) Mattila and Wirtz (2001); Imschloss and Kuehnl (2019)
Product evaluation	The mental processing of product information that influences how consumers respond and arrive at product preference and choice (MacInnis and De Mello 2005)	Focus on product judgements, attitudes, preferences and purchase intention	Alba and Hutchinson (1987); Bloch (1995); Hoch and Ha (1986); Hoch and Deighton (1989); Hoegg and Alba (2007); Joy and Sherry (2003)
Sensory Marketing	“Marketing that engages the consumers’ mind and senses, affecting their perception, judgement and behaviour” Krishna (2010, p 2)	Focus on how the role of the senses influence consumer perception and behaviour	Grohmann (2007); Krishna and Ahluwalia (2008); Peck and Childers (2003a, b); Peck and Wiggins 2006
Experiential marketing	“The strategy of creating and staging offerings for the purpose of facilitating memorable customer experience” (Lanier and Hampton 2009, p 9)	Focus on the creation of pleasurable and memorable customer experience	Hirschman and Holbrook (1982); Pine and Gilmore’s (1999); Schmitt (1999); Verhoef <i>et al.</i> (2009)
Service marketing	The marketing of “services as the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity or the entity itself” (Vargo and Lusch 2004, p 2)	Focus on the management of a service-oriented consumption environment and the co-creation of service values	Bitner (1992); Hultén (2011)
Brand experience	“Subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioural responses evoked by brand-related stimuli that are part of a brand’s design and identity, packaging, communications, and environments” Brakus <i>et al.</i> (2009, p 53)	Focus on experiences provided by brands	Brakus <i>et al.</i> (2009); Chang and Chen (2006); Iglesias and Singh (2011); Dolbec and Chebat (2013)

### Appendix 3: The key recent articles published in sensory brand experience literature

Authors	Title	Sources	Definitions	Objectives	Key constructs	Key knowledge fields	Methodology/Analysis	Contexts	Implications	Limitations
Hepola, J., Karjaluoto, H., & Hintikka, A. (2017).	The effect of sensory brand experience and involvement on brand equity directly and indirectly through consumer brand engagement	<i>Journal of Product &amp; Brand Management</i>	sensations [...] evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications, and environments" (Brakus <i>et al.</i> , 2009, p. 52)	To examine the effect of sensory brand experience and involvement on brand equity directly and indirectly through cognitive, emotional and behavioural consumer brand engagement	- Consumer brand engagement - Brand equity - Involvement - Sensory brand experience	- Brand experience	Survey (Finnish tableware brand, 1385 responses, Facebook channels, partial least squares structural equation modelling)	Product brand	- manage sensory aspects of consumer-brand interactions - the importance of holistic consumer brand engagement management	- Brand experience definition - Adopt brand experience measurement scale
Iglesias, O., Markovic, S., & Rialp, J. (2019)	How does sensory brand experience influence brand equity? Considering the roles of customer satisfaction, customer affective commitment, and employee empathy.	<i>Journal of Business Research</i>	Tactile, visual, auditory, olfactory, and gustatory stimulations generated by brands	To investigate the effect of sensory brand experience on brand equity through customer satisfaction and customer affective commitment	- Sensory brand experience - Employee empathy - customer affective commitment - Customer satisfaction - Brand equity	- Brand experience	Survey (a panel of 1739 customers, path analysis)	Service	- sensory brand experience has a positive indirect impact on brand equity - customer satisfaction positively influences customer affective commitment - employee empathy negatively moderates the relationship between sensory brand experience and customer satisfaction.	- Brand experience model and items
Castillo-Villar, F. R., & Villasante-Arellano, A. J. (2020).	Applying the multisensory sculpture technique to explore the role of brand usage on multisensory brand experiences	<i>Journal of Retailing and Consumer Services</i>	"ways in which brands stimulate consumers' five senses"(p. 2)	To investigate the role of brand usage and the application of effective sensory evaluation techniques have been overlooked when designing multisensory brand experiences	- Multisensory brand experiences - Brand usage	- Brand experience	Qualitative (Multisensory sculpture technique (MSS); sixteen interviews)	Service	- sheds light on the relevance of brand usage and the application of the MSS technique to the conceptualization of multisensory brand experience	- One dimension of brand experience
Buzova, D., Cervera-Talet, A., & Sanz-Blas, S. (2020).	Exploring multisensory place experiences through cruise blog analysis	<i>Psychology &amp; Marketing</i>	None	- To uncover tourists' meaningful multisensory place perceptions by analyzing cruise travel blogs	Multisensory place experiences	Sensory marketing	thematic content analysis of 248 blog	Tourism	- it provides empirical evidence for the relevance of multisensory perceptions on tourists' evaluation of place experience - a novel methodological approach to assessing sensory impressions is used by analyzing tourists' freely written online narratives - the research broadens the scope of existing multisensory literature by assessing urban/coastal travel destination experiences.	- Does not take branding perceptive

#### Appendix 4: Recent frequently cited Sensory brand experience-related research

Rank	Publications	Source	Average citation per year
1	Brakus <i>et al.</i> (2009) <sup>a</sup>	<i>Journal of Marketing</i>	71.27
2	Zomerdiijk and Voss (2010)	<i>Journal of Service Research</i>	21.90
3	Ballantync <i>et al.</i> (2010)	<i>Tourism Management</i>	16.89
4	Spence (2012)	<i>Journal of Consumer Psychology</i>	14.00
5	Achrol and Kotler (2012)	<i>Journal of the Academy of Marketing Science</i>	11.79
6	Spence and Gallace (2011)	<i>Psychology and Marketing</i>	11.70
7	Chernev <i>et al.</i> (2011)	<i>Journal of Marketing</i>	10.00
8	Spence <i>et al.</i> (2014) <sup>a</sup>	<i>Psychology Marketing</i>	10.00
9	Bolton <i>et al.</i> (2014)	<i>Journal of Service Management</i>	10.00
10	Troye and Supphellen (2012)	<i>Journal of Marketing</i>	8.50
11	Pauwels <i>et al.</i> (2011)	<i>Journal of Retailing</i>	7.22
12	Krishna <i>et al.</i> (2010)	<i>Journal of Consumer Psychology</i>	6.70
13	Agapito <i>et al.</i> (2014)	<i>Tourism Management</i>	6.17
14	Kim and Eves (2012)	<i>Tourism Management</i>	5.88
15	Small <i>et al.</i> (2012)	<i>Tourism Management</i>	5.75
16	Veale and Quester (2009)	<i>International Business Review</i>	5.36
17	Foster and McLlland (2015)	<i>Journal of Retailing and Consumer Service</i>	5.20
18	Agapito <i>et al.</i> (2013)	<i>Journal of Destination Marketing and Management</i>	5.00
19	Nysveen and Pedersen (2014)	<i>International Journal of Market Research</i>	5.00
20	Dennis <i>et al.</i> (2014)	<i>Journal of Business Research</i>	4.33

