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Multisensory Product Packaging: An Introduction

Carlos Velasco and Charles Spence

Introduction

The history of packaging[1] can be traced back to the first human hunter-gatherers and traders who used early forms of packaging in order to collect, store, transport, and mark their possessions (e.g., Low & Fullerton, 1994; Twede, 2016). However, it can be argued that the full use of

[1] According to the 2018 Merriam-Webster dictionary, packaging is defined as a 'material used to enclose or contain something'. Importantly, however, in the context of marketing and branding, the meaning(s) of packaging go beyond enclosing and containing to cover some additional functional and aesthetic purposes such as: identifying the brand, providing descriptive information, persuading the consumer, helping product consumption, and facilitating transportation, protection, and storage (see Keller, 2013).

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packaging as a marketing tool, or medium, in categories as diverse as food and beverage (F&B), home and personal care (H&PC), and fast-moving consumer goods (FMCG) only really took off around the start of the twentieth century (see Hine, 1995, for an accessible early history of product packaging; see also Low & Fullerton, 1994). As Hine makes clear, the concern initially was primarily with packaging's effectiveness in terms of portion control and product preservation. However, once such goals had been met, many of those working in the field soon started to realize that their packaging could also be used as a powerful branding and marketing tool (e.g., see Pilditch, 1973; Stern, 1981, see also Fig. 1.1). Indeed, according to Nickels and Jolson (1976), packaging should be considered as constituting the fifth 'P' in the classical marketing mix (in addition, i.e., to product, price, promotion, and place). Such developments took time, of course, and even as recently as the 1980s, one could still find papers being published with titles such as 'Packaging remains an underdeveloped element in pushing consumers' buttons' (Calder, 1983).

The majority of the empirical research on packaging that has been conducted to date has tended to focus on the F&B, H&PC, and FMCG categories. This is presumably because of the especially important role that it plays in delivering the total product experience in these categories

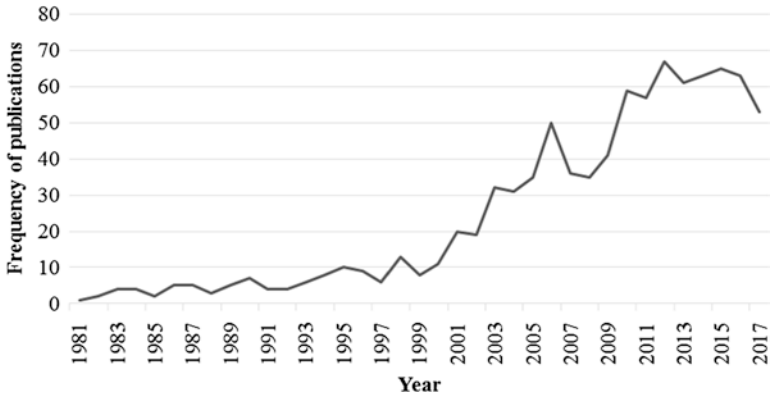

Fig. 1.1 Frequency of publications with 'product packaging' in their title as captured by Google Scholar between 1980 and 2017. Results obtained through 'Publish or Perish 5' software (https://harzing.com/resources/publish-or-perish/; Results obtained on May 10, 2018)

where the consumer normally sees not only (or necessarily even) the product but rather the packaging sitting there on the shelf in the supermarket. Furthermore, many of the products in these categories are often consumed in, or else used from, the packaging (i.e., such as deodorant sprays, toothpastes, perfumes, crisps, and yoghurt). This contrasts with other categories such as consumer electronics or white goods, say, where it makes only the briefest of appearances when the product is transported between the warehouse and customer's home. Just consider, for instance, the last time you bought a laptop knowing in advance what the packaging was going to look/feel like. This, of course, does not mean to say that some of the most innovative brands in this space have not been trying to distinguish themselves by really delivering on packaging that is a pleasure-to-open (e.g., as a case in point, think only of the packaging of Apple computers). That said, the discussion of packaging that one finds in this volume broadens out, on occasion, to discuss insights and approaches that are undoubtedly relevant to some of these other categories (e.g., when considering the growing trend to fragrance the air, or headspace, in the inner packaging of electronics goods, say, see Spence, 2016a).

In the following sections, we present a short overview of the different roles that packaging plays in the fields of marketing and branding. In particular, we highlight the growing interest in multisensory packaging while, at the same time, providing an overview of some of the key material covered in the various chapters that have been gathered together in this volume. As becomes clear, many of the recent developments in packaging design are intimately linked to the explosive growth of interest in sensory, or as we finesse it here, multisensory, marketing.

Packaging: From Brand Element to Multisensory Experience Delivery Device

In recent decades, a growing number of researchers have become interested in assessing the different variables that help product packaging to stand out on the shelf and help convert the consumer to purchase (Masten, 1988; Miller, 1994; Sherwood, 1999). Additionally, there has

also been a growing realization that product packaging constitutes a tremendously powerful element for brands when it comes to creating value, communicating product attributes (and/or setting the best product expectations), and ultimately persuading the consumer to select one product over another (Ampuero & Vila, 2006; Nancarrow, Wright, & Brace, 1998).

Importantly, researchers and practitioners have also started to realize that, in certain cases at least, the packaging actually affects people's experience of the contents as well (see Spence, 2016a; Spence & Piqueras-Fiszman, 2012, for reviews). This growing realization obviously makes packaging an especially powerful tool by which to influence the consumer's multisensory experience (Schifferstein & Spence, 2008). Indeed, there is now a great deal of interest and innovation, not to mention a wider variety of novel packaging formats available than ever before (e.g., Farmer, 2013). This explosion of innovation has also been facilitated by the fact that the design process and rapid prototyping are now much easier/cheaper to execute than ever before. What is more, there are also a range of new methods and techniques out there, all designed to help take some of the uncertainty out of the empirical assessment of the efficacy (whatever the aims/objectives) of new packaging designs (and covered in a number of the chapters in this volume, see also Moskowitz, Reisner, Lawlor, & Deliza, 2009).

A crucial current trend as far as branding, and in this particular case packaging, is concerned regards the consideration of the role of the human senses, and specifically multisensory perception/integration, in designing the 'right' experiences for consumers (Hultén, 2011; Krishna, 2012; Spence, 2016a). This idea is closely tied in with the emergence of the field of 'sensory marketing' (Hultén, 2011; Spence, 2012), that is, marketing that places the human senses at the centre of the consumer experience, or journey. Note, however, that we refer to such an approach to marketing as *multisensory* because it should not only focus on the role of the individual human senses but also their interactions (see Velasco & Spence, this volume, where we outline a new framework for multisensory packaging analysis and design). Multisensory marketing is, of course, by no means restricted to the field of packaging design, but thus far it has certainly been one of the major application areas. The field of

multisensory marketing developed from our growing understanding of the multisensory nature of human perception (e.g., Calvert, Spence, & Stein, 2004; Haverkamp, 2014; Spence, 2018, for reviews), as well as a result of the emergence of new technologies that enable companies to play (relatively cheaply) with much more than merely just the colour scheme (see Petit, Velasco, & Spence, this volume).

Multisensory marketing has now started to influence packaging research and development (see Spence, 2016a, for a review). Indeed, one only needs to consider the key moments of the consumer's experience with a typical product (involving shelf navigation, purchase, use/consumer, and the eventual stage of discarding/recycling, see Mumani & Stone 2018; Salgado-Montejo, Velasco, Ariza, Salgado, & Moreno, 2017) to realize the crucial role of the senses when it comes to a product's packaging. The different sensory properties of product packaging can guide consumers' search behaviours, set their product expectations, facilitate interaction and usability, and even influence product perception itself (see also Louw & Kimber, 2011). Crucially, while the focus has traditionally mostly been on the visual aspects of packaging design (e.g., Plasschaert, 1995; Spence & Velasco, 2018), there is now a growing awareness of the importance of the *multisensory* contributions to product packaging (see Spence, 2016a, for a review). Indeed, a rapidly growing number of forward-thinking companies and brands are spending more of their time than ever before thinking about what their packaging should sound like (Byron, 2012; Wang & Spence, in this volume), what they want it to feel like in the consumer's hand (Gallace & Spence, 2014; Spence in this volume; Spence & Gallace, 2011), and even what it should, or could, smell like too (see Spence & Youssef, 2015; Spence & Piqueras-Fiszman, 2012, for reviews). Some have even been working on the design of edible packaging (modelled on, e.g., grape skin that we normally eat, Hurst, 2018; Quinn, 2012).

This volume brings together contributions from a broad range of leading young scientists working at the border between multisensory packaging research and practice. We have grouped the contributions in three main sections: (1) packaging and the senses; (2) multisensory packaging frameworks and contexts; and (3) the future of multisensory packaging. The first block of chapters deals with how to understand different senses

and sensory information when it comes to the design of product packaging. The next section includes chapters that have the integration of the senses at their core, as well as those touching on health, culture, and branding. The final block involves chapters dealing specifically with consumer neuroscience in the context of product packaging, as well as the role of new technologies in delivering the most innovative of multisensory packaging experiences.

Ever since we first conceived of this volume, our primary goal has been to try and bring together information relevant/interesting to both researchers and practitioners working in multisensory packaging and related fields. In that sense, all of the chapters included in this volume involve elements of both theory and practice.

Packaging and the Senses

In the first section, the chapters focus on vision. 'Colour sells!' as they say. To date, by far the greatest amount of research on packaging design that has been published has revolved around optimizing the visual appearance and shelf-standout (see Spence & Velasco, 2018 for a review). What the consumer sees sets their product expectations. These expectations then anchor the consumer's subsequent product experience (see Piqueras-Fiszman & Spence, 2015, for a review). In this volume, Spence and Velasco present a detailed account of the role that packaging colour plays (or can play if managed well) in optimizing shelf-standout and maximizing processing fluency/congruency. Of course, packaging colour also conveys product and brand meaning to the consumer, and influence their product expectations and experiences. These authors also highlight the sometimes context-dependent meaning of colour and stress its different roles in terms of conveying product-relevant information and differentiating brands. Signature colours, for instance, can become a powerful identifier of a given brand. Just think of, for example, Cadbury's Dairy Milk purple.

In recent years, there has been a growing trend towards the use of transparency in product packaging (see Nassauer, 2014; Simmonds & Spence, 2017). In their chapter in this volume, Simmonds and Spence summarize

the latest evidence concerning the impact of introducing transparency to packaging on consumers' product perception. The authors argue that it normally influences consumers' impression of a product positively. However, that being said, while the trend towards transparency is (perhaps unsurprisingly) on the rise, Simmonds and Spence also make clear that further research is still needed in order to determine which products/categories it may be most appropriate for. Based on the available evidence, the authors summarize a series of findings and recommendations for designers and product developers who may be thinking about, or perhaps already are, working in this space. In many cases, the evaluation of such prototyping work often takes place online. This practice is one that many researchers and firms are now increasingly using in order to evaluate the visual aspects of packaging design (e.g., see Woods, Velasco, Levitan, Wan, & Spence, 2015, for a review of internet-based testing).

Beyond the colour (scheme) and form of the packaging, there is also an emerging interest in, not to mention science around, typeface design (Hyndman, 2015; Velasco, Woods, Hyndman, & Spence, 2015), logo design, and how the various elements should be placed relative to one another on product packaging (see Batra, Seifert, & Brei, 2015).[2] Furthermore, in an exciting recent development, we are now starting to see a shift from merely tweaking existing packaging designs, through to the bottom-up generation of new packaging forms/typeface designs based on insights and carefully controlled experimentation (e.g., Velasco, Salgado-Montejo, Marmolejo-Ramos, & Spence, 2014, for one such early example), often conducted online. In this volume, we have a chapter by Velasco and Spence on typeface in the specific context of product packaging. The authors make clear that whilst this is an often neglected research area in packaging design, the choice of typeface can successfully be used to convey/reinforce a whole range of specific brand associations. In the end, most, if not all, packages involve text and text comes in a typeface. What is more, specific typeface design can also be used to influence the perception of other sensory attributes such as the expected taste/flavour, and in some circumstances, this carries over to affect the perceived aroma of products and/or the flavour of food and beverages too.

[2] Most research understandably focuses on the front-facing side of product packaging.

In their chapter on auditory packaging research, Wang and Spence draw attention to the fact that many brands are now looking to differentiate themselves through the optimization, or differentiation, of the sound their packaging makes when the consumer interacts with it. Importantly, there is evidence to suggest that despite the fact that consumers rarely think about it, both product and packaging sounds can have profound implications for the sensory and hedonic aspects of product perception (Spence & Wang, 2015). In this chapter, Wang and Spence focus on the role of packaging sounds at the point of sale and during consumption/use. Furthermore, they also discuss opportunities in terms of nudging consumers by means of sonic cues and by combining packaging sounds with other sensory packaging cues.

Visual and haptic cues are ubiquitous in packaging. Consumers typically touch/haptically explore the packaging throughout their interaction with a product (see Spence & Gallace, 2011, for a review). In that sense, then, optimizing the tactile/haptic aspects of packaging is a crucial component of multisensory packaging design. This topic forms the subject of Spence's chapter in this volume. He reviews the evidence showing that many companies are thinking about setting up specific product expectations and experiences by means of the feel of their packaging. Others, meanwhile, are working on the development of a 'signature feel' for their product packaging. Delivering on the latter can help stimulate the consumer's sense of touch in a manner that is hopefully differentiated from that of the competition. Spence goes further in considering the ways in which other multisensory aspects of packaging interact with what consumers' feel (i.e., weight, texture, hardness/compressibility, and temperature of the packaging) and vice versa.

Given the paucity of research conducted to date on the experiential aspects of both taste (as in edible) and smell in packaging in design and branding contexts, such research is covered briefly in chapters in the following section.

Multisensory Packaging Frameworks and Contexts

Considering the complexity of integrating multiple sensory cues in product packaging and the need for some kind of integrative framework, this

section tackles the interrelations between the senses as far as the packaging is concerned. Van Rompay and Fennis present an integrative approach to multisensory packaging design cues, conceptualizing the origins of product perception and sensory evaluation from the perspective of embodied cognition. They argue that cognitive processes are grounded in the bodily states that arise from our interaction with the environment (Krishna & Schwarz, 2014). In their chapter, the authors focus on understanding the role of packaging shape, graphic layout, and composition, as well as the tactile elements of the consumer experience, through bodily experiences and related body-environment interactions. They also discuss how such design factors interact as far as the consumer's product expectations and perception are concerned. Van Rompay and Fennis argue that an embodied approach may account for the different effects of design variables on consumer perceptions and experiences.

In the other chapter in this section, Velasco and Spence present the Multisensory Analysis of Product Packaging (MAPP) framework. First, they provide an overview of different research approaches in multisensory packaging. Next, they focus on the conceptual shift that is required to start considering packaging from a multisensory perspective. This involves the consideration of different kinds of sensory cues and the putative mechanisms guiding their interaction when analysing and designing packaging experiences. Here, sensory cues (involving both low- and high-level attributes), as well as the responses that may arise from them (sensory, semantic, symbolic, and affective), are differentiated. The respective roles of key concepts such as multisensory congruency, sensory dominance, and sensory overload are discussed. The chapter ends with a list of questions that those interested in multisensory packaging may want to ask when considering the design of their product packaging.

The growing interest in the communication of health benefits via multisensory product packaging is addressed in Anna Fenko's chapter. Currently, most health benefits are conveyed via labels and nutritional information (e.g., Lobstein & Davies, 2009). However, such messages may potentially also be communicated through multisensory packaging (with the emphasis on the sensory), and this may, in turn, potentially nudge consumers towards healthier eating behaviours (see also Karnal, Machiels, Orth, & Mai, 2016). In her chapter, Fenko reviews the research on the effects of multisensory packaging cues such as colour, shape, and

sound, as well as informational cues in the context of food experience and product choice. The role of cognitive, symbolic, and cultural aspects of multisensory congruency is highlighted as a means of communicating food healthiness as well as facilitating food choices amongst consumers. Here, one starts to get into questions concerning the ethics of packaging design, should it prove to be as effective in nudging consumer behaviour as some of its proponents would have us believe (see Purnhagen, van Herpen, & van Kleef, 2016; Spence, 2016b).

Given the changing landscape of premium and luxury brands, and the increasing interest of these brands in multisensory design, Velasco and Spence discuss the relevant research concerning multisensory premiumness. They argue that while research on multisensory aspects of premium/luxury packaging has certainly been very limited to date, a number of studies have nevertheless been conducted in which the association between visual information and dimensions of premiumness (e.g., quality, authenticity, willingness to pay a higher price, etc.) have been investigated. Velasco and Spence argue that customization or optimization of brands based on multisensory cues may lead to higher production costs, costs in which a commodity brand might not want, or in fact be willing to, incur. However, they also suggest that such a strategy also presents a great opportunity for the product/brand to differentiate in the premium market (see also Wiedmann, Hennigs, Klarmann, & Behrens, 2013).

In this section on multisensory packaging frameworks and contexts, Machiels and Orth discuss research on multisensory packaging design from a cross-cultural perspective. This topic is vitally important given the different meanings that specific sensory cues can acquire across cultures (e.g., colour) and also given the discussion of the extent to which brands should standardize versus customize (Jameson, 2007). The authors review the relevant literature on the influence of culture on the perception/interpretation of multisensory packaging, which has mostly focused on visual aspects of packaging. Importantly, Machiels and Orth discuss some of the opportunities and limitations associated with tailoring multisensory packaging to specific cultural groups and across different cultural groups. This is particularly relevant given the discussion about the sort of participant groups on which much of the more academic research is based,

whose characteristics might be particular and in some circumstances not representative of different relevant groups of consumers (e.g., see Henrich, Heine, & Norenzayan, 2010).

The Future of Multisensory Packaging

Here, both recent methodological approaches to consumers' responses to packaging as well as some of the novel technologies used in the context of multisensory packaging are summarized and evaluated. Spence, Velasco, and Petit review the consumer neuroscience research that has been published to date relevant to the topic of multisensory packaging. The authors present both some of the latest neuroimaging techniques (e.g., functional magnetic resonance imagining, electroencephalography, etc.), as well as findings that have emerged from studying consumers' responses to packaging with such techniques. Spence et al. argue that whilst promising, such research has mostly focused on determining the different brain areas involved in the processing of visual images of product packaging (e.g., Basso et al., 2014). The suggestion is that one day such research may help businesses to better predict the performance of their product packaging in relation to a brand's strategic aims (see also Kühn, Strelow, & Gallinat, 2016; Spence, 2016b). Crucially, though, before this happens, there are a number of challenges that will need to be addressed as made clear by the discussion in this chapter. For example, neuroimaging research usually involves multiple trials (in order to average over biological noise). Hence, some topics such as surprise in product packaging (which may only occur the first time that a consumer interacts with a novel packaging form) can be difficult to capture with the neuroimaging techniques that are currently available.

In the final chapter of this section, and, in fact, the volume, Petit, Velasco, and Spence review the growing research on sensory enabling technologies as well as how different brands are capitalizing on these in the design of multisensory packaging interactions. Whilst this research is undoubtedly still in its infancy, the authors anticipate that we are going to witness an increase both in the number of studies as well as in the

range of industry initiatives in which sensory enabling technologies will be used to project people into consumption experiences, promote brand engagement, as well as improve product evaluation via, for instance, augmented reality applications.

Undoubtedly, one of the aims of multisensory packaging design is to aid brand building by making product packaging as attractive to as many of the consumers' senses as possible. However, the design of multisensory packaging certainly goes well beyond this too. Sometimes, in fact, research on the topic has been used to guide the design of packaging that is actually maximally unappealing, as in recent research on the most unappealing colour for cigarette packaging (a drab khaki green as it turns out; Day, 1985; Kamenev, 2011; Munafò, Roberts, Bauld, & Leonards, 2011; Noar et al., 2016).

Another interesting example comes from over-the-counter (OTC) and prescription medications. Here, the regulatory framework tends to be rather more challenging than is the case for H&PC or FMCG (e.g., Filik, Purdy, & Gale, 2005; Hethcock, 1978; Roullet & Droulers, 2005). The danger of accidental poisoning is also ever-present (Basso et al., 2014). As such, the emphasis in design is as much on making packaging that is difficult to open (what is often referred to as 'child-proof') rather than on easy open and 'looking good enough to eat.'

There are also a number of challenges that brand managers and designers face, which involve the personalization and regulation of packaging for different populations. Children, for instance, may be especially susceptible to specific marketing cues embodied in packaging design (such as colours, shapes, and characters) that can potentially lead to healthy/unhealthy eating (e.g., Hawkes, 2010; Pires & Agante, 2011; Robinson, Borzekowski, Matheson, & Kraemer, 2007). The elderly, on the other hand, may have specific needs in terms of packaging usability that need to be considered in a world with a rapidly growing ageing society (Lorenzini & Hellström, 2017; Philbert, Notenboom, Bouvy, & van Geffen, 2014).

Multisensory packaging may be used to target specific perceptions and associated behaviours in relation to the reduction of food waste as well as recycling. These are obviously topics that are highly relevant for

sustainability (e.g., Svanes et al., 2010; Wever, Onselen, Silvester, & Boks, 2010). However, complex and controversial questions around exactly what kind of packaging solutions are actually best for the environment remain to be answered. Importantly, multisensory design will help in making new, more sustainable packaging formats both clear (in that they communicate that they are sustainable) and appealing to the consumer (i.e., enhancing natural feel to promote recycling).

Conclusions

The cost of the packaging of many H&PC and FMCG goods can often exceed the price of the product itself, often by several orders of magnitude. It is therefore all the more vital to understand how packaging contributes to, and influences, consumers' product and brand experiences and behaviour. Given that many of the most powerful experiences in our everyday lives are multisensory in nature, here we focus on how the different multisensory aspects of packaging shape such experiences and behaviours. Based on the growing interest in multisensory product packaging, in this edited collection, we have brought together a number of those working in the field to share their unique perspectives in a wide range of concise state-of-the-art reviews.

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