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How Digital Signage Affects Shoppers' Behaviour: The Role of the Evoked Experience

Abstract

This paper investigates, drawing on the aesthetic and utilitarian dimensions of the construct of brand experience, the role of digital signage as experience provider in retail spaces. Digital signage consists of screen displays in stores showing video. The findings of a survey-based field experiment demonstrate the effectiveness of digital signage messages containing aesthetically pleasing sensory-affective cues, whereas previous studies concern more functional content. Digital signage content that is high on sensory cues, which shoppers find pleasurable, and that evokes affective experience strengthens the customers' experiential processing route. On the other hand, digital signage messages that are high on "features and benefits" information (providing shoppers' with decision-helping benefits) and evoke intellectual experience strengthen the customers' deliberative processing route. These messages can strengthen the influence of the cognitive route. Critically, evoked affective experience is more strongly associated with the attitude towards ad and the stated approach behaviour towards advertiser than is evoked intellectual experience. The effect of an ad that is high on sensory affect on shoppers' approach to the advertiser is stronger for first-time shoppers of the store and may therefore have an important part to play in generating loyalty. Theoretically, the findings indicate that the design of brand-related informational cues broadcast over digital in-store monitors affects shoppers' information processing. These cues can work by triggering both deliberative processes, which lead to attitude construction, and more spontaneous

processes, which elicit approach behavior towards advertiser by evoking sensory and affective experiences first.

Keywords: brand experience, shopping experience, aesthetics of experience, digital signage, store atmospherics.

Introduction

Retailers and researchers have been aware for a long time that shopping is not just about obtaining tangible products but also enjoyment and pleasure (Martineau, 1958), which are valuable benefits reflected in consumers' spending (e.g. Donovan, Rossiter, & Marcolyn, 1994; Jones, 1999). A practical as well as theoretical concern is then to see which specific design features of retail outlets stimulate consumers' enjoyment and pleasure and how they do that. To be sure, consumer researchers have studied before the effects of environmental design on shoppers' responses and behaviour (Chebat & Michon, 2003; see reviews by Kaltcheva & Weitz (2006) and by Turley and Milliman (2000)). Typically, these studies would focus on one or two atmospheric variables (e.g., scent, lighting, background music) and see to what extent they would make consumers react affectively or cognitively (Babin, Chebat & Michon, 2004; Bosmans, 2006; Chebat & Michon, 2003; Demoulin, 2011; Jang & Namkung, 2009; Morrin & Chebat, 2005; Morrison, Gan, Dubelaar & Oppewal, 2011; Walsh, Shiu, Hassan, Michaelidou & Beatty, 2011). In this paper we investigate how the messages broadcast on in-store screen network—also known as Digital Signage (DS)—can be used as a source of experiences for consumers, which then affect subsequent consumer in-store behaviour.

According to Schmitt (1999), retail environments can provide consumers with compelling experiences, which, in turn, could positively affect consumer shopping behaviour as reflected by the time and money spent in the store. However, we still know little about the type of specific experiences that are evoked by atmospheric in-store elements and how these experiences affect consumers' affective and cognitive reactions as well as their approach behaviour. To enrich our understanding of the processes that mediate the relationship between shoppers' experiences, which are evoked by specific atmospheric design cues, and their in-store behaviour, we include the construct of brand experience (Brakus, Schmitt, & Zarantonello, 2009) into our consumer in-store response model. In particular, this paper investigates how in-store Digital Signage (DS) can be used as a provider of compelling experiences for shoppers. DS is a private screen network. It consists of screens in a public place showing video (for example, in department stores or in shopping malls). Content may include advertisements, community information, entertainment and news. For example, to provide shoppers with "spectacular" experiences, Nike Town retail stores utilize DS networks that display products and celebrities endorsing Nike's products as well as Nike-based stories (Peñaloza, 1999).

We focus on the DS messages that are designed to provide shoppers with either affective or intellectual experiences (Brakus et al., 2009). We argue that, depending on the nature and the aesthetics of the evoked experience, the DS messages affect shoppers' approach behaviours either through a more deliberative route (if the evoked experience is intellectual) or through a more experiential route (if the evoked experience is affective). Substantively, we focus on the effectiveness of DS as an atmospheric stimulus.

Theoretically, our focus is on the nature of experience—evoked by DS in this case—and how it affects judgment and behavior, which is an area of increasing importance in marketing and in retailing (Brakus et al., 2009; Puccinelli et al., 2009; Verhoef et al., 2009). Before we explain how DS can evoke experiences, we focus on the construct of experience first.

Nature of Experience

Brand and consumer experience has become an important area of study over the last few years. Based on works in philosophy (Dewey, 1922; 1925) and cognitive science (Pinker, 1997), Brakus et al. (2009) identified four dimensions of experience: sensory, affective, intellectual, and bodily. Sensory experience refers to the stimulation of the senses. Affective experience includes moods and emotions. Intellectual experience includes analytical as well as imaginative thinking. Finally, bodily experience includes experiences resulting from an action-oriented interaction with the environment. All four types of experiences may be evoked during consumption activities that are part of our daily lives, including shopping (Schmitt, 1999).

At the same time, there has been strong interest recently in the constructs of happiness and subjective well-being among positive psychologists (e.g., Seligman and Csikszentmihalyi, 2000) who distinguish between two approaches toward achieving happiness: pleasure (Kahneman, Diener, and Schwarz, 1999) and meaning (Waterman, 1993). The hedonic approach stresses that happiness results from experiencing pleasurable moments or episodes. The eudaimonic approach focuses on intellectually stimulating episodes.

We think that the experience construct is conceptually tied with both pleasure and meaning. The nature of the experience and the happiness constructs implies that consumption activities, including shopping, must be viewed from a multidimensional perspective. Importantly, specific experience dimensions seem to map closely specific happiness dimensions. That is, evoked sensory-affective as well as behavioral experiences may contribute to “pleasure”; evoked intellectual experiences may contribute to “meaning.” In a shopping context that we study, we predict that experiences evoked by DS are—depending on their type—important contributors to shoppers’ pleasure or to shoppers’ ability to buy what they want. That is, an ad broadcast on the in-store DS that is designed to contain sensory-affective cues may evoke an affective experience among customers. Since such experience is inherently pleasurable (Dewey, 1934; Hekkert, 2006), it may then positively affect shoppers’ attitude and approach behavior. On the other hand, an informational ad may evoke an intellectual experience which consumers may find meaningful because it informs their in-store decision making. The experience construct is also tied conceptually to aesthetics. We discuss that linkage next.

Experience and Aesthetics

The term *aesthetics* has different meanings (Townsend, 1997; Venkatesh & Meamber, 2008). However, most of its meanings concern sensory experiences evoked not only by arts and other visual forms (Holbrook & Zirlin, 1985), but also by everyday objects (Forty, 1995). Hekkert (2006), for example, claims that the aesthetic experience is restricted to the pleasure that results from sensory perception. Therefore, at the core of an aesthetic is a pleasurable experience.

According to Dewey (1934), ordinary everyday experiences are aesthetic in their nature. Both aesthetic and everyday experiences share the similar multidimensional structure (Brakus et al., 2008; Dewey, 1922; 1925). Critically, the aesthetic qualities of an otherwise ordinary experience can be perceived emotionally (Dewey, 1934). Hence, aesthetic experience is part of everyday consumer experiences, including shopping. We add that it is the type of experience that determines consumers' response, which could be more affective or more cognitive. Note that we do not see this affect-cognition division of consumers' responses to aesthetic experiences as a dichotomy of mutually exclusive categories, but rather as a continuum. Where an individual's response fall on this continuum depends on the type of evoked aesthetic experience (this is the issue that we empirically investigate) and on some personal traits such as individual predisposition for aesthetic appreciation (which falls outside the scope of our study) (Venkatesh & Meamber, 2008)

Our thinking about the dual nature of consumer responses to different types of experiences evoked during shopping is consistent with Holbrook and Hirschman's conceptual work on consumption experiences (1982). They distinguish between utilitarian consumption, which is traditionally conceptualized as reason-based analytic problem solving, and affect-based hedonic consumption directed at the pursuit of "fantasies, feelings, and fun" (see also Babin, Darden, & Griffin, 1994). In our framework, intellectual experiences inform shoppers' decision making and pleasurable sensory experiences enable consumers' hedonic engagement.

The present study also contributes to the literature on the role of design in consumer behaviour (Bloch 1995; Bloch, Brunel, & Arnold 2003; Holbrook & Huber

1979; Veryzer & Hutchinson, 1998) and the aesthetics of consumption (Schmitt & Simonson, 1997; see also review in Venkatesh & Meamber, 2008). We empirically investigate Schmitt and Simonson's conceptual framework about the role of aesthetics in marketing (1997). They focus on brand image and aesthetics and argue that branding—at both corporate and product or service level—can be used strategically to evoke customer sensory experiences, which then create brand appeal and differentiate brands.

In conclusion, this paper takes into account both utilitarian and hedonic aspects of shopping and the corresponding information processing systems (Epstein, 1994; Loewenstein, Weber, Hsee, & Welch, 2001). We account for intellectual experiences and the corresponding deliberative, analytic information processing system by exposing our respondents to DS messages based on cognitive, functional content. In addition, we account for sensory and affective experiences and for the corresponding affect-based information processing thinking system by exposing our respondents to DS messages designed to contain affective, hedonic cues. The messages are broadcast in an upscale department store in London, UK. To make our theory testable in a field experiment, we neglect bodily experiences. In the following chapter we theorize how DS messages designed to evoke sensory-affective or intellectual experiences may affect shoppers' attitude and behaviour.

The Effectiveness of Digital Signage as an Experience Provider: Predictions

Digital signage networks are relatively new as a retail atmospheric stimulus. The limited prior research on DS has demonstrated that shoppers welcome the information provided by DS and that they find the DS network itself aesthetically pleasing because it gives the

mall a more modern image (Newman, Dennis, & Zaman, 2006). We think that DS will constitute an effective manipulable atmospheric stimulus, which will also act as an experience provider for the shoppers (Schmitt, 1999). If the broadcast message is sensory-affective (i.e., hedonic), then the evoked experience will be affective; if the broadcast message conveys functional information (i.e., the utilitarian information that is meant to help shoppers in their decision making), then the evoked experience will be intellectual. Note that in this case the shoppers' intellectual experience will likely consist of analytic thoughts and reasons about the advertised service or a product.

Prior research has shown that brand experience has a positive impact on consumer satisfaction, stated loyalty, and brand-consumer relationship (Brakus et al., 2009; Chang & Chieng, 2006). Furthermore, when consumers perceive a brand as a source of compelling experiences, consumers derive an additional value from those experiences, which increases the perceived value of a brand to consumers over and above the functional and economic value (Pine & Gilmore, 1999). When experiences lead to stimulating, pleasurable outcomes, we expect the evoked brand experiences should affect not only past-directed satisfaction judgments but also subsequent behaviour. Therefore, we expect that evoked experiences will positively affect consumers' approach behavior towards the advertiser directly (experiential route) and indirectly through the (positive) attitudes towards the ad (deliberative route).

Brand attitudes are general evaluations that are based on beliefs (Fishbein & Ajzen, 1975), while experiences result from consumer interactions with brands or with communications for brands; for example, with ads, catalogues, packaging, shopping environments (Brakus et al., 2009; Chang & Chieng, 2006). Brand experiences are not

belief-based. Moreover, they are not general evaluative judgments about the brand (e.g., “I like the advertised brand”). Rather, they include internal responses such as specific sensations, feelings, divergent (imaginative) thoughts and “approach” behaviors as well as convergent (analytical) thoughts triggered by specific brand-related stimuli (Brakus et al., 2009). Therefore most brand experiences are not cognitive in nature, except the high-order intellectual ones such as analytical, convergent thoughts and reasons. Overall brand attitudes are more general and do not elucidate the very nature of brand experience. However, brand experiences can, at times, result in brand evaluations and may develop into attitudes that consumers can recall when asked about their brand experiences (if, for example, a consumer did or did not find the experience stimulating or pleasurable).

We summarize the preceding theorizing in the following hypotheses:

H_{1a} Digital signage ads with cognitive content (providing utilitarian information) will evoke intellectual brand experience among consumers.

H_{1b} Evoked intellectual experience will be directly associated with increased approach behavior towards the advertiser.

H_{1c} Evoked intellectual experience will be indirectly associated with increased approach behavior towards the advertiser by positively affecting attitude towards the ad.

H_{2a} Digital signage ads with affective content (providing hedonic information) will evoke affective brand experience among consumers.

H_{2b} Evoked affective experience will be directly associated with increased approach behavior towards the advertiser.

H_{2c} Evoked affective experience will be indirectly associated with increased approach behavior towards the advertiser by positively affecting attitude towards the ad.

Next, we predict that the message designed to contain affective content (providing pleasant hedonic cues), unlike the message designed to contain cognitive content, will directly result in a positive attitude towards the ad. This prediction is consistent with the existing research on the effects of pleasant incidental (i.e., atmospheric) stimuli (e.g., background music, scent, lighting) on consumers' affect-mediated attitudes during a shopping trip (e.g., Bosmans, 2006; Demoulin, 2011; Morrison et al., 2011). In a situation like this, the experiential processing system tends to operate by default and consumers likely rely on it when they process pleasant, affect-laden incidental cues because it is unlikely that consumers can devote sufficient cognitive resources and effort to engage the deliberative system (Gorn, Goldberg, & Basu, 1993). Note that in a previous study on the effects of digital signage, the majority of respondents were unable to recall specific content featured (Dennis, Newman, Michon, Brakus, & Wright, 2010). Therefore, consumers intuitively "infer" their attitude from the (positive) affect, an example of affect-as-information heuristic (Pham, 2004; Schwarz & Clore, 1996).

We do not predict, however, a direct association between the message with the cognitive, functional content and the attitude. Again, it is unlikely that consumers will engage the deliberative processing system to assess and reason about the incidental, functional information (e.g., features and benefits of a product or a service, attribute values). The only way they can do that is if they are explicitly prompted to deliberately assess and reflect on the functional information and the resulting higher-order intellectual experience. Therefore, we advance the following hypothesis:

H₃ Digital signage ads providing affective content, unlike digital signage ads providing cognitive content, will be directly associated with positive attitude towards the ad.

Moreover, due to the primacy-of-affect effect (Pham et al., 2001) which likely operates when consumers are exposed to incidental stimuli during a shopping trip (see above), we also predict the following:

H₄ Evoked affective experience will be more associated with increased approach behavior towards the advertiser than will evoked intellectual experience.

In addition, although there is little previous research on which to base predictions, we logically expect that sensory and affective experiential elements of digital signage will influence the perceived hedonic value of products featured on digital signage (Leclerc, Schmitt, & Dubé, 1994), which will strengthen the influence of the experiential route. Conversely, the intellectual elements (Brakus et al., 2009) of digital signage will influence the perceived utilitarian value of products featured on digital signage, which will strengthen the influence of the deliberative route. We propose two related hypotheses:

H_{5a} Cognitive digital signage content that is high on intellectual experience (providing utilitarian information) will strengthen the influence of the deliberative route.

H_{5b} Emotional digital signage content that is high on affective experience (providing hedonic information) will strengthen the influence of the experiential route.

In short, we expect both types of DS messages to work (as argued above) and that those high on sensory and affective cues will work better than those that are high on intellectual cues. Previous research indicates the effectiveness of only few sensory stimuli

significantly associated with increased spending; for example, aroma (Chebat & Michon, 2003) and music (Mattila & Wirtz, 2001). The first contribution of this research will be to add digital signage as an important tool that retailers may utilize. Second, this work should elucidate whether atmospheric stimuli such as digital signage should be designed to improve the intellectual experience (for example, with information about the features and benefits) or alternatively whether digital signage should be designed to increase shoppers' sensory or affective experience directly (for example, by using aesthetically pleasing visual cues). The next section details the method for testing the hypotheses.

Method

A popular retail store in London that is visited by visitors for its brand value was used for collection of data. Responses of visitors were used to determine the process by which store atmospherics influence their cognitive and emotional evaluations (Naylor et al., 2008) and drive attitude and approach related behaviour towards the advertisements in the store and the advertiser of those advertisements. The store where data was collected is considered to be a high end store whose atmospherics are incidental to its brand name (Silva and Alwi, 2006). DS on which text and video were run was used as a marketer-controlled sensory stimulus. The controllability of the DS helped in exploring cognition and emotional evaluation as variables building the attitude of the visitors towards the advertisement through utilitarian and hedonic evaluation (Babin et al., 1994) and contribute to their approach towards the advertiser.

Before the DS ads were shown to respondents, they were pre-tested (Hunt et al. 1982), through a small set of individuals in order check that they were correctly perceived as cognitive/utilitarian or emotional/hedonic respectively. We decided to use pleasant

imagery to provide sensory/affective experience. We did not want to use overtly emotional material (e.g., comedy, cartoons) because individual tastes vary so much as to make the effects of such content likely to be inconsistent across the whole sample. The actual content was produced by a commercial specialist who created three types of ad:

- (i) **High-cognitive/low affect:** an ad that contains brief details and price of a tropical island holiday in mainly text form with the logo of an upscale private travel company;
- (ii) **High affect/low cognitive:** an ad that consists of a video of a seaplane landing in a beautiful tropical lagoon next to a golden sand beach, also with the logo of the same travel company; and
- (iii) **High cognitive/high affect:** an ad that combines the video and text from the first two ads.

We pretested the ads to check that they were perceived as intended, before carrying out the main study to test the hypotheses.

Visitors at the store were asked if they would like to participate in the survey (Tybout and Zaltman, 1974). Those who consented favourably were given a questionnaire which was designed to get their responses on a 1-5 scale that rated the strength of the causal relationships being investigated (Roster et al. 2007). Respondents were briefed about the research before they were exposed to the advertisement for assessment purposes (Edell and Burke, 1987).

Our conceptual framework (Figure 1) consisted of six constructs. The rectangular boxes in the framework briefly summarise the question that indicate the variable in the

oval (Brunel and Hensel, 1993). The constructs investigated were cognitive element of the advertisement, emotional element of the advertisement, utilitarian evaluations made by customers, hedonic evaluations made by customers, attitude of consumers towards the advertisement and approach of consumers towards the advertisement. The questionnaire was used to test eight causal relationships between the constructs identified. The construct of utilitarian evaluation was tested using text only advertisements through five items, whereas, hedonic evaluation was investigated using video based advertisement through four items, attitude of customers towards the advertisement was based on five items and approach of the customers towards the advertiser was constituted using four items. All the items were adopted or adapted from existing literature. These constructs investigated the process by which different advertisements influence attitude and approach related behaviours of customers towards the advertisement and the advertiser. We assumed that the cognitive advertisements have utilitarian value, for e.g. perception of useful information, whereas, emotional advertisements are more positively evaluated e.g. liked more than the cognitive advertisement.

Figure 1 here

Design, Dependent Measures, Procedure

Dependent variables were evaluations of DS ads and anticipated approach behavior towards the advertiser. We tested High-cognitive/low affect, High affect/low cognitive and High cognitive/high affect ads using a between-subjects design (146, 137, and 154 respondents respectively; n = 437).

The questionnaire concerned themes: (i) travel agent affective/sensory brand experience; (ii) travel agent intellectual brand experience; (iii) attitude to the ad; and (iv) anticipated avoidance-approach behavior towards the advertiser. Scales were adopted or adapted from previous studies (Table 1). The items assessing the affective, sensory and intellectual experiences were adapted from the brand experience scale (Brakus et al., 2009), which was developed for product-brands as sources of experiences. However, the brand experience scale has been successfully adapted and validated for service-brands also (Chang & Chieng, 2006; Skard et al., 2011; Zarantonello & Schmitt, forthcoming).

We also measured anticipated spending and number of items expected to be bought on that visit. Main demographics of sub-samples were similar (Table 2). Discriminant validity was established as average variance explained is greater than the squared correlation between variables (details available from the authors).

Table 1 here

When respondents started the questionnaire, the DS was visible and the loop running, including the test content. During any delay before test content started, respondents answered general questions, then were asked to view the test ad. They were then asked the DS questions followed by approach / avoidance questions. The main study results follow.

Table 2 here

Results

Manipulation Check. The High-cognitive/low affect and High cognitive/high affect ads are perceived as more utilitarian than the High affect/low cognitive ad; and similarly the High affect/low cognitive and High cognitive/high affect ads are perceived as more hedonic than the High-cognitive/low affect ad. There is a significant effect of the content on hedonic evaluations of the ad, $M_{\text{cognitive}} = 1.77$, $M_{\text{affective}} = 3.54$ and $M_{\text{cognitive with affective}} = 3.53$ (1-5 scales as pretest) ($F(2, 434) = 161.6, p < .001$). Exposing shoppers to **either** High affect/low cognitive or High cognitive/high affect content significantly increases shoppers' hedonic evaluations of the ad ($t(434) = 19.9, p < .001$) (compared to High-cognitive/low affect) but there is no significant difference between the effects of High affect/low cognitive and High cognitive/high affect ($t(434) = -.19, p > .05$).

Similarly, there is a significant effect of the content on utilitarian evaluations of the ad, $M_{\text{cognitive}} = 3.22$, $M_{\text{cognitive with affective}} = 3.36$ and $M_{\text{affective}} = 2.10$ ($F(2, 434) = 55.3, p < .001$). Exposing shoppers to **either** High-cognitive/low affect or High cognitive/high affect significantly increases shoppers' utilitarian evaluations of the ad ($t(434) = 4.41, p < .001$) (compared to High affect/low cognitive) but there is no significant difference between the effects of High-cognitive/low affect and High cognitive/high affect ($t(434) = 1.06, p > .05$).

Utilitarian evaluations are significantly greater than hedonic evaluations of the High-cognitive/low affect ad (utilitarian $M_{\text{cognitive}} = 3.22$, hedonic $M_{\text{cognitive}} = 1.77, t(145) = 14.8, p < .001$). Hedonic evaluations are significantly greater than utilitarian evaluations of the High affect/low cognitive ad (hedonic $M_A = 3.54$, utilitarian $M_A =$

2.10, $t(136) = 12.2$, $p < .001$). There is a small, conceptually irrelevant difference between shoppers utilitarian and hedonic evaluations of High cognitive/high affect (utilitarian $M_{\text{cognitive with affective}} = 3.36$, hedonic $M_{\text{cognitive with affective}} = 3.53$, $t(153) = 2.2$, $p = .03$).

Testing the Hypothesized Model The next step was to test our hypothesized model of the influence of the digital signage ads on shoppers' responses through a latent path structural equation model (SEM). In reporting the total effects of the variables, we ran the SEM three times (using SPSS AMOS) to separate out the effects respectively of (i) the cognitive-plus-affective ad and (ii) the affective-only one; both compared with the cognitive-only ad; and (iii) the cognitive-plus-affective ad compared with the affective-only one. (For brevity, we do not report the details of these separated SEMs but the results are similar to the appropriate parts of the combined model illustrated in Figure 2). The fit measures for all models satisfied all the standard criteria (Hu & Bentler, 1999).

Figure 2 here

The results of the model in Figure 2 indicate that H1, H2, and H3 are supported. Regarding H4, the direct influence of affective experience on approach behaviour is 0.526 and the direct influence of intellectual experience is 0.144, demonstrating that affective experience directly influences approach behaviour more than does intellectual experience. The same relationship holds if we take into account the direct and the indirect paths linking the respective experiences with approach behaviour. The total effect of intellectual experience on approach is .169 ($.144 + .133 \times .187$). The total effect of affective experience on approach is .634 ($.526 + .541 \times .187 + .290 \times .133 \times .187$). Thus,

these results indicate that evoked affective experience is a stronger predictor of approach behaviour than evoked intellectual experience. This result supports H4.

Finally, the cognitive ad is associated with the evoked intellectual experience, standardized coefficient .526 ($p < .001$), whereas there is no association between the affective ad and intellectual experience (that path is non-significant). Moreover, the affective ad is associated with the evoked affective experience, standardized coefficient .662 ($p < .001$), whereas there is no association between the cognitive ad and affective experience (that path is non-significant). Taken together, these results support H5.

The direct influence of affective experience on approach is significantly greater than the direct influence of intellectual experience ($t = 4.82$ $p < .001$). The total effect of intellectual experience on approach is .169 whereas the total effect of affective experience is .634. Evoked affective experience is a stronger predictor of approach than evoked intellectual experience, supporting H₂.

Finally, the High-cognitive/low affect ad is associated with evoked intellectual experience, ($t = 12.8$ $p < .001$), whereas there is no significant association between the High affect/low cognitive ad and intellectual experience. Moreover, the affective ad is associated with the evoked affective experience, ($t = 17.0$ $p < .001$), whereas there is no significant association between the High-cognitive/low affect ad and affective experience, supporting H₃.

Attitude towards the Ad and Approach towards the Advertiser. There is a significant effect of the content on attitude to the ad, $M_{\text{cognitive}} = 2.52$, $M_{\text{affective}} = 3.12$ and $M_{\text{cognitive with affective}} = 3.08$ (1-5 scale) ($F(2, 434) = 46.9$, $p < .001$). Exposing shoppers to

either High affect/low cognitive or High cognitive/high affect significantly increases attitude to the ad ($t(434) = 9.69, p < .001$) (compared to High-cognitive/low affect) but there is no significant difference between effects of High affect/low cognitive and High cognitive/high affect ($t(434) = -.29, p > .05$).

There is a significant effect of the content on approach to the advertiser, $M_{\text{cognitive}} = 2.21$, $M_{\text{affective}} = 3.99$ and $M_{\text{cognitive with affective}} = 4.05$ (1-5 scale) ($F(2, 434) = 171.1, p < .001$). Exposing shoppers to **either** High affect/low cognitive or High cognitive/high affect significantly increases approach to the advertiser ($t(434) = 16.8, p < .001$) (compared to High-cognitive/low affect) but there is no significant difference between effects of High affect/low cognitive and High cognitive/high affect ($t(434) = .71, p > .05$).

The path from affective to intellectual experience is significant, consistent with previous research that hedonic retail atmospheric stimuli can influence utilitarian evaluations (Beverland, Lim, Morrison, & Terziovski, 2006), theoretically consistent with primacy-of-affect theory and affect-as-information heuristic (Pham et al., 2001; Schwarz & Clore, 1996). An affective experience evoked by pleasant imagery has a positive effect on higher-order utilitarian evaluations and evoked intellectual experience, exemplifying experiential and cognitive information processing systems co-working.

Shopping Outcomes. There is a significant effect of content on shopper expected spending on this trip to the store, $M_{\text{cognitive}} = 2.39$, $M_{\text{affective}} = 2.71$ and $M_{\text{cognitive with affective}} = 2.67$ ($F(2, 434) = 3.275, p < 0.05$) (scale redacted for commercial confidentiality). Exposing shoppers to **either** High affect/low cognitive or High cognitive/high affect DS content significantly increases expected spending ($t(434) = 2.55, p < 0.01$). The effect

remains after controlling for classification variables for which spend varies, i.e. age and first visit or not ($F(2, 414) = 3.19, p < 0.05$). There is no significant difference in spending between the effects of High affect/low cognitive and High cognitive/high affect DS content ($t(434) = -.29, p > 0.05$).

There is also a significant effect of the content on expected number of items bought by shoppers on this trip, $M_{\text{cognitive}} = 2.90$, $M_{\text{affective}} = 4.07$ and $M_{\text{cognitive with affective}} = 4.51$ ($F(2, 434) = 3.53, p < .05$) (scale redacted). Exposing shoppers to **either** High affect/low cognitive or High cognitive/high affect significantly increases expected number of items bought ($t(434) = 2.53, p < .05$). The effect remains after controlling for the classification variable for which items bought varies, first visit or not ($F(2, 414) = 4.22, p < .05$). There is no significant difference between effects of High affect/low cognitive and the High cognitive/high affect ($t(434) = .72, p > .05$).

First-time vs. Non-first-time Visitors. Demographics did not influence evoked experiences, attitudes or approach significantly. There are minor differences according to whether shoppers are visiting London as tourists, who may have more positive evaluations, but differences are crystallized for shoppers for who visit the store for the first time, for whom the variables are higher (Figure 3) (Detailed results and the relevant calculations available from authors, but skipped here for brevity). Shoppers may be enthralled by the new experience on their first visit and prone to higher ratings.

Investigating any moderating effect of the classification variable for which there are significant differences, i.e. shoppers who are on their first visit to the store ($n = 165$) compared to those not on their first visit ($n = 250$), we first establish partial metric

invariance ($\Delta\chi^2 = 13.64$, 7 df, $p \geq .05$). Therefore, we constrain at least two indicators from each latent variable equal between groups, whilst the following are unconstrained: This is an affective advert; I would describe the advert (rather than the advertiser) as: ('very poor' to 'very good'); I would describe my attitude towards the advert (rather than the advertiser) as ('dislike very much' to 'like very much'); What do you think of the visual impact of the advert? ('very poor' to 'very good'); After viewing the advert, I will be likely to use the advertiser more often. The fit measures across groups satisfied the standard criteria: $\chi^2 = 879.6$, df = 333, $\chi^2/\text{df} = 2.64$, CFI = .939, RMSEA = .063. The differences arise from the evaluation of the cognitive-plus-affective ad as the SEM for the affective-only ad is insignificantly variant for first vs. not first visit customers (structural weights $\Delta\chi^2 = 6.47$, 8 df, $p \geq .05$). The only significantly different structural weight in the SEM comparing the cognitive-plus-affective ad with the cognitive-only one is the dummy variable cognitive-with-affect ad to affective brand experience, which is significantly higher for those on their first visit (.819) compared to those not on their first visit (.572). The standardised total effect of the cognitive-plus-affective ad (compared with the cognitive-only one) is greater for shoppers on their first visit (.548) compared with subsequent visits (.450). The cognitive-plus-affective ad therefore has the potential to positively influence shoppers who are on their first visit proportionally more than others and may therefore have an important part to play in generating loyalty. In the interests of brevity, details of the between-groups differences are not included here but are available from the authors.

Figure 3 here

Hypotheses Tests and Discussion of Results

This section presents our interpretation of the results as findings and discusses the issues related to the methodology used by our study. Our focus was on the cognitive content (providing utilitarian information and evoking intellectual experience) and affective content (providing hedonic information and evoking affective experience) of the advertisements with text at the cognitive level, in comparison to advertisements with video at the affective level. Loadings indicated the strength of the causal relationships being investigated (Figure 2).

H1 concerned the cognitive content and intellectual brand experience, with significant paths confirming (H1a) that digital signage ads with cognitive content (providing utilitarian information) evoke intellectual brand experience among consumers; (H1b) evoked intellectual experience is directly associated with increased approach behavior towards the advertiser; and (H1c) evoked intellectual experience is indirectly associated with increased approach behavior towards the advertiser by positively affecting attitude towards the ad.

H2 concerned the affective content and affective brand experience, with significant paths confirming (H2a) that digital signage ads with affective content (providing hedonic information) evoke affective brand experience among consumers; (H2b) evoked affective experience is directly associated with increased approach behavior towards the advertiser; and (H2c) evoked affective experience is indirectly associated with increased approach behavior towards the advertiser by positively affecting attitude towards the ad.

Supporting H3, digital signage ads providing affective content are directly associated with positive attitude towards the ad, whereas the direct path from digital signage ads providing cognitive content to attitude towards the ad is non-significant.

Regarding H₄, the direct influence of affective experience on approach behaviour is 0.526 and the direct influence of intellectual experience is 0.144, demonstrating that affective experience directly influences approach behaviour more than does intellectual experience. The same relationship holds if we take into account the direct and the indirect paths linking the respective experiences with approach behaviour. The total effect of intellectual experience on approach is .169 (.144 + .133 x .187). The total effect of affective experience on approach is .634 (.526 + .541 x .187 + .290 x .133 x .187). Thus, these results indicate that evoked affective experience is a stronger predictor of approach behaviour than evoked intellectual experience. This result supports H₄.

Finally, for H₅, the cognitive ad is associated with the evoked intellectual experience, standardized coefficient .526 ($p < .001$), whereas there is no association between the affective ad and intellectual experience (that path is non-significant), supporting H_{5a}. The affective ad is associated with the evoked affective experience, standardized coefficient .662 ($p < .001$), whereas there is no association between the cognitive ad and affective experience (that path is non-significant), supporting H_{5a}.

In sum, hedonic evaluations made by respondents of the study demonstrated strongest influence on attitude towards the advertisement and approach to the advertiser (loading). In comparison the effect of utilitarian evaluation on attitude towards the advertisement and approach to the advertiser was found to be low. Our results indicate

that the affective aspect linked to the video was evaluated significantly higher than the cognitive i.e. text only advertisements by respondents because they were able to generate a mix of entertainment and pleasure for the customers. The utilitarian evaluation of content revealed that cognitive advertisements with text only were evaluated significantly higher than the emotional advertisements with video because of the utilitarian value evaluated by customers from them as the information received from the advertisement helped them to make decisions. The assessment of attitudes of respondents towards the content revealed that emotional advertisements were evaluated significantly higher than the cognitive advertisements. Respondents were also asked to respond to the questions that were designed to assess their approach related behaviour as their attitude towards the advertiser. Analysis of data revealed that advertisements created for facilitating the affective element scored higher on a scale that was assessing approach related behaviour towards the advertiser in comparison to the cognitive element based on text only messages given through the advertisements.

Overall, our results suggest that both the types of advertisements i.e. containing text (cognitive) or video (affective) drive the evaluations of customers. Antecedents of shoppers' evaluation of the ad suggest that it is driven by a combination of cognitive and affective elements. The influence of cognitive and affective elements of the advertisement on shoppers approach to the advertiser is partially mediated by their attitudes towards the ad. The strongest route is the direct influence of shoppers' affective experience on their approach to the advertiser. These findings demonstrate that digital signage content that is high on pleasure and entertainment (providing hedonic benefits) and that results in customer affective experience, can strengthen the influence of the

experiential processing route more than ads that are high on functional information (providing utilitarian benefits) can strengthen the influence of the deliberative processing route (H₅).

In this study, we accounted for consumers' experiential information-processing system by asking respondents to view ads with little cognitive information; and for the deliberative information-processing system with ads containing mainly factual, functional information. In digital signage retail installations, deliberation may be relatively low (given that in the Dennis et al. (2010) study, most respondents were unaware of having viewed specific ads – yet still considered that the digital signage contributed to positive image). This lends emphasis to our finding of the strength of the experiential processing system at the center of which is the evoked affective experience. The findings of this study will be also of interest to marketing practitioners designing digital signage installations and ads. First, digital signage ads that evoke affective experience can be effective in increasing shoppers' intentions to buy from an advertiser and also in increasing shoppers' intentions to buy from a store that carries the digital signage ads in general, not just from the advertiser. Second, the particular attractiveness of the digital signage ads to shoppers on their first visit to the store may have important implications for store loyalty; i.e., digital signage advertising may be an effective medium for generating repeat business for the store.

Many visitors indicated a liking for the DS screens and most expressed a liking for the visual design of the way screens were installed in the store. These visitors found the visual design of the signage installation very appealing, distinctive and contemporary. Two types of screen surround were in use: a plain vs an “art deco” type. Respondents

significantly preferred the art deco design with very few (about 10%) considering them to be old-fashioned.

Conclusion

Previous studies of the effects of DS have treated it as another atmospheric variable similar to, for example, lighting or background scent or background music. Those studies contribute to the stream of research that has investigated the relationship between atmospheric variables and the perception of the shopping experience. Importantly, in those studies on the effects of DS the criterion variable was attitude; for example, attitude towards brand, towards physical shopping environment or towards shopping itself. The present article, however, shows that DS works by evoking specific experiences first— aesthetically pleasing sensory-affective or decision-helping intellectual—, which then positively affect shoppers’ “approach” behaviors directly and indirectly through the attitudes. Therefore, a theoretical explanation of the effectiveness of DS in retailing has to consider DS as an experience provider and incorporate the type of the evoked experience as a key construct (Brakus et al., 2009) rather than rely only on typical attitude-centric communication models (Colley, 1961; Petty & Cacioppo, 1986; Rossiter & Percy, 1997).

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Table 1: Measurement Scales

Dimensions and Items	Adopted/adapted from
Intellectual brand experience (utilitarian). $\alpha = .965$; CR = .964	
<i>($\alpha = .836$; CR = .829)</i>	
If I were planning to buy a holiday, the advert would help me to make a better decision	Fiore et al. (2005); Hoch & Ha (1986)
Viewing the advert provides information that would be helpful in buying a holiday	Fiore et al. (2005); Hoch & Ha (1986)
If I were planning to buy a holiday, the advert would help me to find what I was looking for	Babin et al. (1994)
Viewing the advert gives me more information about holidays and travel	Babin et al. (1994); Fiore et al. (2005); Newman et al., (2006)
If I were planning to buy a holiday, the advert would help me to find what I was looking for	Babin et al. (1994)
The advert stimulates my problem solving ¹	Brakus et al. (2009)
I engage in a lot of thinking when I encounter an advert like this one ¹	Brakus et al. (2009)
Viewing the content about the travel agent would provide utilitarian value (practical or functional) if I were planning to buy a holiday ¹	Holbrook & Hirschman (1982); Leclerc et al. (1994)
Affective brand experience (hedonic). $\alpha = .965$; CR = .957	
<i>($\alpha = .938$; CR = .899)</i>	
Viewing the advert provides entertainment	Dennis et al., 2010
Viewing the advert is pleasurable	Dennis et al., 2010; Leclerc et al. (1994)
The advert induces feelings and sentiments	Brakus et al. (2009)
This is an affective advert	Brakus et al. (2009)
Viewing this content is truly a joy ²	Babin et al. (1994)
Viewing this content felt like an escape ²	Babin et al. (1994)
I enjoyed viewing this content for its own sake, not just for the items I may purchase ₂	Babin et al. (1994)
When viewing this content, I enjoyed being immersed in an exciting new holiday ²	Babin et al. (1994)
Viewing this advert whilst shopping is a very nice time out ²	Babin et al. (1994)
Attitude towards the DS advert. $\alpha = .927$; CR = .926	
What do you think of the sensory appeal of the advert?	Brakus et al. (2009)
What do you think of the visual impact of the advert?	Brakus et al. (2009)
I would describe the advert (rather than the advertiser) as: (very poor – very good)	Leclerc et al. (1994)
I would describe my attitude towards the advert (rather than the advertiser) as: (dislike very much – like very much)	Dennis et al., 2010; Leclerc et al. (1994)
I would describe the advert (rather than the advertiser) as: very commonplace – very distinctive	Newman et al., (2006)

Viewing the content affects my shopping trip in a ... way (very negative – very positive) ³	Leclerc et al. (1994)
Viewing the content motivates me to search for a specific product or service in the store ³	Newman et al., (2006)
Advertiser avoidance / approach. $\alpha = .953$; CR = .915	
<i>(α: .927; CR: = .924)</i>	
After viewing the advert, I will be likely to use the advertiser more often	Donovan et al. (1994)
After viewing the advert, I am more interested in the advertiser than I was previously	Donovan et al. (1994)
The advert enhances my feelings towards the advertiser	Brakus et al. (2009)
After viewing the advert, I would describe my attitude towards the advertiser (rather than the advert) as; (dislike very much – like very much)	Leclerc et al. (1994)
After viewing the advert, if I were planning to buy a holiday I would be more likely to book with the advertiser ¹	Leclerc et al. (1994)
After viewing the content, I am likely to spend more money on travel requirements with that travel agent ¹	Chebat & Michon (2003); Dennis et al., 2010

Notes. Five-point Likert (anchored by disagree strongly – agree strongly) or semantic differential scales.

α = Cronbach alpha, CR = Composite reliability (*Pretest*)

¹ Item dropped from the analysis of the pretest.

² Item not included in the main study questionnaire.

³ Item dropped from the analysis of the main study.

Table 2: *Sample Characteristics for the Main Study*

	<i>High-cognitive/low affect</i>	<i>High affect/low cognitive</i>	<i>High cognitive/high affect</i>	<i>Overall</i>	<i>Pearson χ^2 (2df) p</i>
Percent female	66.4	55.5	63.6	62.0	.144
Age: percent up to 25 years	38.4	42.3	46.1	42.3	.40
Based in UK	44.5	41.6	42.9	43.0	.88
Percent income-earning	52.7	52.6	63.6	56.5	.086

Figure 1: Schematic Illustration of Hypothesized Model

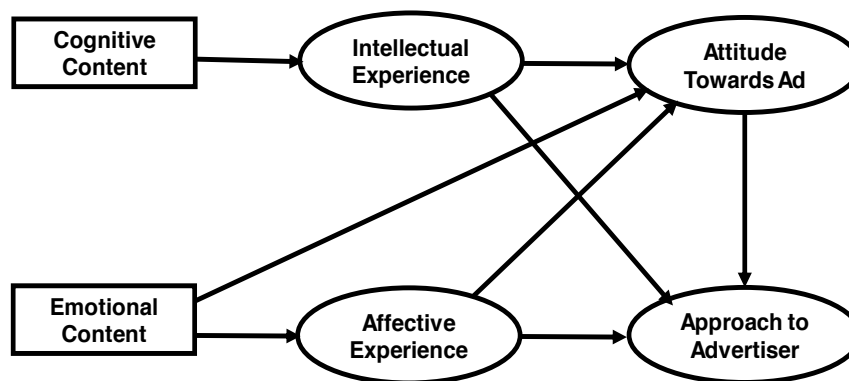
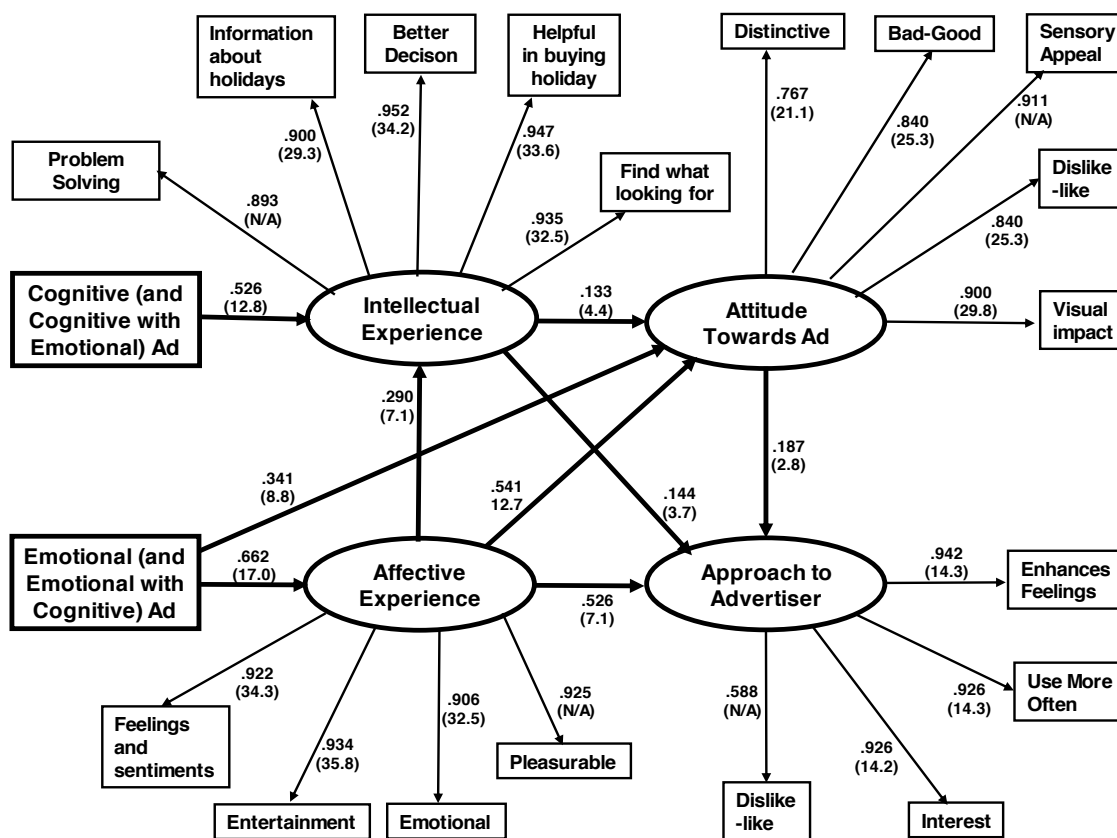


Figure 2: Latent Path Analysis



Standardized coefficients (t-value)

Method: ML; $\chi^2 = 667.6$, $df = 163$, $\chi^2/df = 4.1$, CFI = .946, RMSEA = .084

Figure 3: Approach to the advertiser (travel agent) for the three ad contents X whether first visit to the store

