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An eye tracking study of minimally branded products: hedonism and branding as predictors of purchase intentions

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Abstract

Purpose – This study aims to test the relationship between consumers' perceptions of product type (utilitarian vs hedonic) and the attentional processes that underlie decision-making among minimally branded products.

Design/methodology/approach – This study uses eye-tracking measures (i.e. total fixation duration) and data collected through an online survey.

Findings – The study shows that consumers spend more time looking at hedonic (vs utilitarian) and branded (vs unbranded) products, which influences perceptions of quality.

Practical implications – The findings of this research provide guidelines for marketing minimally branded products.

Originality/value – The authors showed that the product type influences the time consumers spend looking at an item. Previous findings about effects of branding are extended to an understudied product category (i.e. live potted plants).

Keywords Branding, Retailing, Experimental Design, Eye-tracking, Hedonic and utilitarian consumption

Paper type Research paper

Brands are a ubiquitous occurrence in consumers' daily lives. Consumers are exposed to roughly 3,000 advertisements daily, and in the western hemisphere, individuals are surrounded by branded goods. From labels in a grocery store, the clothes they wear, to the food in their pantries, the average American can be exposed to up to 20,000 brands on a daily basis. In particular, packaging as a brand cue can offer the consumer quality signals that become essential in the buying process (Rettie and Brewer, 2000). According to Silayoi and Speece (2004), the critical value of packaging is offering the consumer a choice in competitive market conditions, as its features can underline those of the product. In addition, quality judgments are also influenced by the packaging.

Thus, in a market where most products are packaged, how do consumers choose among products that normally do not offer additional cues through their packaging? Studies suggest that other features such as the shape of the item (Sundar *et al.*, 2013), color (Bellizzi and Hite, 1992) and signage (Puccinelli *et al.*, 2009) can play a significant role in influencing the purchase decision. Another line of research suggests that the type of need the purchase is intended to satisfy can influence consumers' purchase decisions. Levy (1959) noted that consumers purchase products not only for fulfillment of physiological needs (i.e. utilitarian products) but also as a

means to satisfy other needs that are more socially oriented, such as status (i.e. hedonic products). We ascribe to this view, and we propose that in cases in which branding is not an easily accessible source of information for consumers, their evaluations of a product as hedonic or utilitarian is of paramount importance when making a purchase decision.

In a market where allocating disposable income to products considered to be a pleasurable and enjoyable phenomenon, shopping for hedonic products has become a familiar practice among middle-class individuals (Ahn and Mundel, 2015). Consumers' willingness to shop for cheaper goods in one category, freeing resources for higher spending behavior in other categories, such as hedonic products (Kapferer and Bastien, 2009), is referred to as trading up. This preference for hedonic versions of goods and services has been extended from fashion products to an array of categories, which include coffee products, hair salons and spas. Further, a recent study investigating consumers' perceptions of hedonic products found that the majority of respondents shopped for hedonic products on a monthly basis (Mundel *et al.*, 2017). Therefore,

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in addition to investigating respondents' attention to different brand cues on minimally packaged products, this study investigates the effects of hedonic perceptions on visual attention and product evaluation.

Minimally packaged goods and horticultural marketing

The literature in marketing communications and packaging stressing the value of carefully designed containers is abundant (Kuvykaite et al., 2015; Prendergast and Pitt, 1996). In particular, the package can offer the consumer cues that become essential in the buying process (Rettie and Brewer, 2000). According to Silayoi and Speece (2004), the critical value of packaging is the capacity to offer the consumer a choice in competitive market conditions, as its features can emphasize or accentuate those of the product. In addition, quality judgments are also influenced by the packaging. In a market where most products are packaged, how do consumers choose among products that normally do not offer additional cues through their packaging? Studies suggest that other features such as the shape of the item (Sundar et al., 2013), color (Bellizzi and Hite, 1992) and signage (Puccinelli et al., 2009) can play a significant role in influencing the purchase decision. Within this context, horticultural products such as plants often are minimally packaged (Behe et al., 2013). Thus, it becomes necessary to analyze consumers' use of point of purchase (POP) marketing communication strategies and tactics in evaluating these products.

Horticultural marketing research suggests that a consumers' acceptance of a product is dependent on perception (Specht et al., 2016; Steenkamp, 1997). The perception model proposed by Pilgrim (1957) suggests that physiological effects, perceptions of sensory attributes and influences from the environment, all guide product choice.

Steenkamp (1997) suggests that consumers are likely to engage in information-seeking practices for horticultural products in a similar way to other product categories. Titova et al. (2015) suggest that the colors of different horticultural products can serve as an indicator of quality to consumers to the same extent that different color palettes can help differentiate among computers, toasters and refrigerators (Labrecque et al., 2013). Thus, involvement with the product category, quality variation between alternatives and year-round availability of the product category are aspects that are likely to be considered by the consumer prior to purchase. To this end, cues such as brand, price and other evaluative criteria, such as hedonic vs utilitarian perception, may influence the purchase decision.

Previous literature indicated that the five most important criteria for consumers are product, quality, price, brand name/reputation, freshness and guarantee (Steenkamp, 1997). The marketing literature suggests that although branding is an established practice for product differentiation, plant branding has only become more prolific in the twenty-first century. Given that brands and other cues (i.e. type of product and perceived quality) influence consumers' purchase decision, it should be of particular importance to minimally branded product producers and retailers to identify the most important cues that consumers consider when making judgments about

their products. Building on Steenkamp's (1997) study, a more recent research has have examined the influence of country of origin information (Realini et al., 2013) on product evaluation, and the influence of the organic movement (Marian, 2014) on consumer product perceptions for minimally branded products (e.g. meat and poultry). Yet, testing the applicability of traditional marketing communication theories among horticultural products remains limited.

While scholars have traditionally relied on self-report measures to assess a consumer's intent to purchase, the availability of inexpensive eye-tracking technology has facilitated the study of consumer's physiological reactions to marketing stimuli. To make a sale, a product must first be seen, and eye-tracking has the potential to quickly, economically, objectively and accurately capture gaze behavior, which can provide insight into the consumer choice processes before, during and after making the decision (Schulte-Mecklenbeck et al., 2011). Several studies have used eye-tracking devices to investigate the relationship between eye movement and consumer attention to product displays (Behe et al., 2013), labels (Oliveira et al., 2016), influence of display attributes on purchase intention (Huddleston et al., 2015), color combination and emotional responses (Wise et al., 2010) and marketing copy. Given the rise in the application of these physiological process-tracing technologies among marketing communication scholars (Clement, 2007; Lang et al., 2016; Wedel and Pieters, 2000), and in line with Behe et al. (2015), we believe eye movement is a suitable indicator to better understand consumers' choice processes.

Hedonic and utilitarian consumption

Products and services provide both symbolic (i.e. hedonic) and utilitarian functions, and scholars have suggested that products often serve as symbols that communicate meaning to others (O'Brien et al., 1977). These "symbolic" products are referred to as hedonic products and are posited to enhance an individual's self-concept. Levy (1959) suggested that consumers purchase products not only for their utilitarian value but also for the feelings and meaning they can elicit.

In broad terms, hedonic consumption is defined as "those facets of consumer behavior that relate to the multisensory, fantasy and emotive aspects of one's experience with products" (Hirschman and Holbrook, 1982, p. 92). This definition encompasses a wide range of emotional sensations that can be elicited by hedonic products, and includes sounds, aromas, taste and physical and visual impressions. Thus, rather than satisfying a basic need associated with the product's function, hedonic consumption satisfies our emotional wants (Hirschman and Holbrook, 1982).

Conversely, utilitarian consumption is motivated by functional needs and typically involves products or services that are considered essential rather than pleasurable or entertaining (O'Curry and Strahilevitz, 2001). In a study of differences in how hedonic and utilitarian products are acquired and consumed, Wertenbroch (1998) found that hedonic products are purchased in smaller quantities than utilitarian goods, with consumers being willing to pay a higher price for hedonic products. Consumers' willingness to pay a higher price for hedonic products can be influenced by display presentation,

mental resources and individual differences (O'Curry and Strahilevitz, 2001). Yet, results of studies dealing with hedonic and utilitarian presentation of the same products are inconclusive. Lusk *et al.* (2015) compared consumers' responses to the presentation of apple juice in a hedonic or utilitarian fashion. They concluded that the effect of an evoked context on hedonic response may not be universal, and that research should be conducted among different product categories. While studies have explored the links between hedonic consumption and the purchase of cut flowers (Koelemeijer and Oppewal, 1999), other minimally branded products, such as live edible or food-producing plants, as well as flowering potted plants, have yet to receive scholarly attention. We therefore propose the following hypothesis:

H1. Consumers exposed to hedonic products (i.e. flowers) will estimate having spent more on plants and gardening supplies than consumers who were exposed to utilitarian products (i.e. herbs and vegetables).

Branding

Cue utilization theory (Olsen, 1972) posits that consumers experience uncertainty and different levels of risks when contemplating making a purchase (Cox and Rich, 1964). Previous research shows that perceived risks associated with a purchase (e.g. quality concerns, durability) is a critical factor that influences consumers' willingness to purchase new products (Nakhata and Kuo, 2014). According to cue utilization, consumers use multiple cues to make product-related judgments as a means to try to evaluate the quality of the product and subsequently make a purchase decision (Rao and Monroe, 1988).

According to Nakhata and Kuo (2014), the search for cues is twofold. Consumers can refer to intrinsic or extrinsic cues to make their purchase decision. Intrinsic cues are the product's inherent attributes that cannot be modified without changing the physical characteristics of such products (e.g. materials or ingredients). Extrinsic cues are characteristics that are external to the product (such as brand and product presentation). Previous literature suggests that a number of sensory characteristics and conceptual associations influence consumer's product perceptions and ultimately their purchase intention (Thomson and Crocker, 2015). Packaged or branded goods contribute to the creation of consumer expectations based on sensory characteristics (i.e. colors, shapes), and these expectations tend to influence feelings towards the product (Ng *et al.*, 2013).

A study examining people's reaction to branded versus unbranded products showed a positive relationship between brand and packaging on consumers' emotions (i.e. liking). Thus brand and packaging can elicit positive emotions that lead to consumption, especially when the message communicated by the packaging is perceived to be aligned with consumer's expectations (Spinelli *et al.*, 2015). Branded goods are often believed to have better quality and more durability (Albert *et al.*, 2013; Strizhakova *et al.*, 2008). Branding is crucial for eliciting perceived quality, such that some consumers believe that unbranded products can be a waste of money (Horváth and Birgelen, 2015). Consumers who are attached to a branded

product are likely to exhibit behaviors such as positive word of mouth, willingness to pay higher prices and loyalty to the brand (Chaplin and John, 2005; Escalas, 2004; Thomson *et al.*, 2005).

A study of the effect of branded tobacco packaging on consumption demonstrated that branded cigarette packaging (vs unbranded) can convey product characteristics and that it can serve as positioning a brand by conveying a particular image to its consumers (White *et al.*, 2012). In fact, according to White *et al.* (2012), branded cigarette packages have become the primary tobacco marketing tools used by the industry.

Based on the literature and cue utilization theory, we hypothesize that extrinsic cues will act as quality signals and risk-reducers for consumers intending to purchase live potted plants. Thus the following hypotheses:

H2. Perceived product quality will be higher for branded (vs unbranded) horticultural products.

H3. Respondents will be more likely to buy branded horticultural products than unbranded alternatives.

Visual attention

New lines of consumer behavior research have furthered the understanding of how consumers use visual cues that subsequently drive purchase intention. The literature posits that consumers' eye movements can offer objective information about individuals' attention, which leads to perceptions about product attractiveness, and the processes involved in product choice (Pieters and Warlop, 1999). For example, a previous eye-tracking study identified key cues in chocolate packaging that influenced buying decisions of young consumers (Shekhar and Raveendran, 2013) and found that respondents devoted considerable attention to the brands displayed on the chocolate packages. Rayner *et al.* (2008) investigated the relationships between visual attention and advertising processing and concluded that previously determined goals influence the places where a viewer (or consumer) looks in ads. In particular, they were interested in:

- the total amount of time spent looking at different sections of the ads;
- location of the initial fixation within the ads;
- fixation duration measures; and
- saccade length.

Their results suggested that the nature of the advertisement can, in turn, influence where viewers look in ads, such that respondents tended to spend more time looking at the picture portion than at the text portion of the ad.

Research suggests that visual attention is often the first in a series of subsequent processes that influence consumers' choice of products (Behe *et al.*, 2015) and that diverse products elicit different viewing patterns. One study that examined attention to cause-related marketing stimuli found that consumers attend to different cues when evaluating hedonic and utilitarian products (Guerreiro *et al.*, 2015). The results suggest that when consumers were presented with products perceived to be hedonic (chocolate), consumers were more likely to spend more time looking at the target product. However, respondents spent more time looking at the brand logo rather than at the

product itself for utilitarian products (laundry detergent). [Guerreiro et al.'s \(2015\)](#) study highlights the need for research on consumers' cognitive responses to additional types of hedonic vs utilitarian products, particularly through experimental procedures. In an attempt to help fill this gap in literature, this study examines visual attention for hedonic and utilitarian products:

- H4. Visual attention (measured by total fixation duration) will be higher for hedonic (vs utilitarian) products
- H5. Visual attention (measured by total fixation duration) will be higher for branded (vs unbranded) products

Although some literature has examined how consumers choose flowers from assortments, less scholarly attention has been devoted to how they select plants, including herbaceous transplants like basil and woody shrubs. The horticultural market should be of special interest given that, globally, the floriculture industry is worth \$60bn ([Bodhipadma et al., 2015](#)), but also because of its dynamic nature: the availability of different plant types varies with the seasons and the natural conditions.

While scholars have normally categorized cut flowers as hedonic products ([Chaudhuri, 2000](#); [Khan et al., 2005](#)), studies have yet to analyze consumers' perceived classification of other types of horticultural products, especially plants, as to whether they are utilitarian or hedonic. Understanding this perception is of interest given that previous studies show that a hedonic item is preferred by consumers over the same utilitarian item ([Dhar and Wertenbroch, 2000](#)).

In a seminal paper on assortment distribution, [Koelemeijer and Oppewal \(1999\)](#) suggested that the horticulture market exhibits conditions that are exceptionally suited for conducting experiments: prices vary considerably over time and by retail outlet. As a perishable product, consumers cannot stock up on plants, therefore often requiring subsequent purchases and additional store visits. [Koelemeijer and Oppewal \(1999\)](#) further suggested that a consumer's willingness to purchase flowers was related to their preferences, such as the color and type of flowers. Additionally, unlike most fast-moving products, live plants are minimally packaged ([Behe et al., 2015](#)). Therefore, consumers often rely on additional cues other than packaging to make a purchase decision. Thus, we test if the hedonic or utilitarian attributes of the product have an effect on product evaluation.

Given the suitability of plants as stimuli for experimental research, this study analyzes consumer perceptions of minimally branded products as hedonic and utilitarian products, in particular live potted plants. We analyze the cognitive processes that underlie decision-making by examining respondents' physiological responses to the product stimuli. Our goal is to present evidence that hedonic and utilitarian products are viewed differently in the shopping process and that visual attention can be a precursor of behavioral intentions (i.e. purchase). While the literature on hedonic and utilitarian products is extensive, our study is, to the best of our knowledge, a primer in visual attention to hedonic and utilitarian products following [Guerreiro et al.'s \(2015\)](#) paper.

Methods

Data for this study were collected as part of a larger investigation, comprising two studies. These studies were aimed at testing the effectiveness of visual attention in predicting consumers' purchases of horticultural products and were conducted in 2014 and 2015. In both studies, respondents' eye-tracking measures were collected using a Tobii X1 light eye-tracking device affixed to a 56-cm (diagonal measure) Flatron computer monitor. Following collection of physiological measures, respondents answered an online survey administered through Qualtrics. The questionnaire used for the study can be found in the [Appendix](#). Data from the two experiments were compiled for this study, and only the variables described below were extracted, and analyzed, for this study.

Respondents ($N = 218$) were recruited through a variety of means (i.e. subject pools, listerv) in College Station (TX), Apopka (FL), Storrs (CT) and East Lansing (MI) and were paid a monetary compensation of at least \$30. The mean age was 40 years ($SD = 13.7$; $Range = 19-67$), respondents were mostly Caucasian (96.0 per cent in 2014 and 70.2 per cent in 2015) and female (62.7 per cent in 2014 and 69.0 per cent in 2015).

Procedure

Pictures of live plants were the product of interest. The stimuli (i.e. plants) were chosen because they would be suitable for cultivating within the landscapes and a wide range of geographies concerned in this study (i.e. Connecticut, Florida, Michigan and Texas). Researchers photographed the plants featured against a black background.

The plant images were shown to respondents in two ways. For the first section, we developed a fractional factorial conjoint between-subjects design to show 16 stimuli, of a possible 48, of four plants, four plant presentations (three branded vs unbranded) and three price levels. The four plants used in the 2014 study were considered to be utilitarian (two herbs: basil, parsley; and two vegetable plants: pepper, tomato), and for the 2015 study, plants considered to be hedonic were used (two annual flowering: *Calibrachoa*, *Impatiens*; and two flowering perennial: *Buddleia*, *Rose*). This categorization was made on the basis that herbs and vegetable plants offer a practical value to the consumer (i.e. herbs and vegetables produce food), and thus can be classified as a utilitarian product. Flowering annuals and perennials, on the other hand, are frequently bought for decoration and (mostly) cannot be eaten, and thus can be classified as hedonic in nature.

Plants were presented in branded or unbranded containers at three price levels (\$0.99, \$1.49 and \$1.99 for utilitarian and \$5.99, \$9.99 and \$13.99 for hedonic products). The brands shown in 2014 were Proven Winners, Bonnie Plants and Burpee. Proven Winners was also shown in 2015 along with Monrovia and a fictitious brand, Unicorn. Plant images were shown through different arrangements of the visual items, where the presentation order for each subject was counterbalanced by the Tobii Studio software so that images were not seen in the identical order. The plant images appeared against a black background (the pots either branded or

unbranded) and were accompanied by a price in the lower right corner, as determined by the conjoint design.

As a manipulation check to ascertain that the selected plants could be considered to be hedonic or utilitarian, we conducted an online survey distributed through Amazon's Mechanical Turk, a crowdsourcing internet marketplace where individuals sign up to complete surveys for compensation. Fifty respondents responded to whether they perceived the plants of this study to have utilitarian attributes: useful, practical and functional (using a seven-point Likert scale anchored by extremely low – extremely high). Respondents were adults in the USA, mostly white (82 per cent), female (60.7 per cent) and had incomes between \$10,000 and \$49,999 (57.4 per cent).

The three response items were averaged and combined into a single-item scale ($\alpha = 0.91$) to measure respondents' perceptions of the plant as utilitarian (vs hedonic attributes). We found that the mean of utilitarian products ($m = 6.02$, $sd = 0.98$) was higher than the mean of hedonic products ($m = 3.03$, $d = 1.67$), and were significantly different ($t_{120} = 12.06$, $p < 0.001$). That is, the herb and vegetable plants were perceived as more utilitarian than the flowering plants. Thus, the stimuli used for the study are considered valid representations of utilitarian and hedonic products.

To assess the effect of branding on quality evaluations, respondents viewed three randomly arranged images of three digitally identical plants, either utilitarian or hedonic. In this second section of the study, the three plants were presented in branded (2) and unbranded (1) containers shown simultaneously. Brands included Bonnie Plants, Burpee and Proven Winners in 2014, and Monrovia and Proven Winners in 2015. Respondents were asked which plant was of the highest quality, or were they [the three plants] about the same? The utilitarian plants were identified by letters (Q, R, S or T, U, V), and the hedonic plants by position (left, middle, right). Responses were coded according to the plant/pot combination in the position indicated – 0 (unbranded) or 1 (branded) – or 2 if the respondent indicated "about the same". See Figure 1 for an example of the quality evaluation plant images.

The experiment was administered in a lab to respondents scheduled at 15-min intervals. After providing the consent and receiving the incentive, the subjects proceeded to the eye-tracking portion of the study. Once seated at the Tobii eye-tracking device, the eye-tracker was calibrated to the subject using a five-point calibration. The study began with introductory and instruction elements, followed by an initial practice round with items not included in the stimuli under study. Subjects were directed to stare at a bull's eye image,

randomly positioned in a corner of the screen, which appeared for 2 s prior to each of the stimuli to neutralize their gaze between stimuli. Another instruction element followed the conjoint section and preceded the quality assessment section. After the eye-tracking experiment, respondents completed an online survey pertaining to perceived product quality, horticulture spending habits, purchase intentions and demographic information, administered via Qualtrics on iPads.

Measurement

Tobii Studio software was used to identify areas of interest (AOIs) for the visual attention metrics. Specifically, the plant container (which contained the brand image), plant and price, were identified as areas of interest to capture applicable eye fixations to the visual cues. An area of interest is defined as a user-defined area in a stimulus, which allows the researchers to measure viewing behaviors, such as how often a subject fixated on the brand featured on the container (Tobii Technology, 2008). After defining the AOIs, total fixation duration was exported using Tobii Studio software. Total fixation duration (TFD) is herein defined as the length of the fixation to the millisecond within an AOI.

Consumer spending was measured by asking respondents to provide an estimate of their spending in USA dollars on plants and gardening supplies in the six months prior to the study date. Spending options were based \$25 increments up to \$50 and then \$50 increments up to \$500. The midpoint was then used to calculate averages in spending. Respondents were asked to indicate which plants they had purchased over the past six months, and thus they could have indicated they had bought both kinds of plants (i.e. hedonic and utilitarian).

Purchase intentions were measured through a nine-point Likert-type scale in 2014 (anchored by "Not at all likely" and "Extremely likely"), and ten-point Juster scale (anchored by "Certain, practically certain" and "No chance, almost no chance"). Respondents were asked how likely they were to purchase the plant while viewing the stimulus during the eye-tracking portion of the study; a research technician recorded their answers. Quality assessment responses to the question, which plant was of the highest quality, or were they (the three plants) about the same? were coded as "0" if the unbranded plant was indicated as having the highest quality, "1" for the branded plant and "2" if the respondent indicated "about the same". The responses that indicated a branded or unbranded plant was of higher quality were tested for significant differences.

Figure 1 Example of digitally added brand to containers of *Impatiens*



Results

Demographic information

Study results were obtained by combining subjects' responses from the two independent studies conducted in 2014 and 2015. To ensure that these samples were equivalent, a series of comparisons were conducted. First, a chi-square test was used to test whether the proportions of males to females differed significantly between studies. The results indicate that the ratio between males and females in the two years was statistically similar ($\chi^2_1 = 0.77, p = 0.38$).

The Wilcoxon two-sample test (Z) for non-parametric data was used to test for differences between the underlying distributions of age by study (year). The results again showed no statistically significant difference ($Z = -1.72, p = 0.08$) at a 95 per cent confidence interval.

Similarly, we conducted an independent-sample t -test to test whether household income varied significantly between the two studies. The analysis revealed that income was similar in the two years ($t_{200} = -0.21, p = 0.83$).

However, a chi-square analysis did indicate significant differences in ethnicity between the two study samples ($\chi^2 = 13.98, p < 0.001$). In total, 96.0 per cent of the respondents in the 2014 study indicated they were Caucasian and 2.0 per cent reported to be from other ethnicities. In the 2015 study, the sample was 70.2 per cent Caucasian, and 29.8 per cent other than Caucasian. Dennis and Behe (2007) reported that a majority of flower and plant consumers are Caucasian, so both samples were consistent with this finding although the 2014 sample had a significantly higher proportion of Caucasians.

Finally, there are no significant differences for education level between the two samples according to Fisher's exact test, using Monte Carlo estimate for the exact test ($p > 0.05$) (due to one level with less than five respondents). Thus, except for ethnicity, our samples were similar and we proceeded to test the hypotheses.

$H1$ predicted that respondents exposed to hedonic products would report having spent more on plants and gardening supplies compared to their utilitarian counterparts. An independent-sample t -test was calculated comparing total spending on gardening and related supplies of respondents exposed to utilitarian (i.e. herbs) and hedonic products (i.e. flowering). Results showed that there was a significant difference in number of dollars spent ($t_{1,3488} = 57.48, p < 0.001$). Respondents exposed to hedonic products estimated having spent more in total ($m = \$159, sd = 153.68$) than subjects exposed to utilitarian products ($m = \$116, sd = 140.23$). Therefore, $H1$ was supported.

$H2$ predicted that respondents would perceive branded horticultural products as being of a higher quality based on the perceived quality scale. We asked respondents to indicate which of the plants (having the branded or the unbranded option) seemed to be of the highest quality or if there were no differences between the options. A chi-square analysis showed a significant difference ($\chi^2_{1,14} = 41.24, p = 0.000$). Results showed that 55.3 per cent indicated that the branded and unbranded products were of equal quality. More than 30 per cent of subjects indicated that branded products were of higher quality, while the 11.9 per cent remaining indicated that unbranded products were of higher quality. In an attempt to

further clarify the results, we performed a chi-square test, eliminating the "no difference" option. We found a significant difference ($\chi^2_{1,7} = 32.90, p = 0.000$), where branded products were perceived of higher quality (73.33 per cent) when compared to the unbranded option (26.67 per cent). Thus, $H2$ was partially accepted.

$H3$ predicted that respondents would be more likely to purchase branded horticultural products than unbranded alternatives. The respondents' likeliness to buy branded products when compared to other alternatives was compared using an independent-sample t -test. No significant difference was found ($t = -0.85, p > 0.05$). The mean likeliness to buy for unbranded products ($m = 5.62, sd = 2.32$) was not significantly different from the likeliness to buy branded products ($m = 5.66, sd = 2.31$). Thus, $H3$ was not supported.

$H4$ analyzed the variation in respondents' visual attention when presented with hedonic (vs utilitarian) products. A one-way ANCOVA was calculated comparing the mean for TFD (in seconds) for respondents exposed to hedonic vs utilitarian products, controlling for the effect of price displayed along with the images and participants' familiarity with the brand. To calculate a mean total fixation duration, we added a subject's fixation duration on the areas of interest (i.e. plant, pot, and price) for each stimulus. Price was not significantly related to TFD ($p = 0.11$), although familiarity was ($p = 0.000$). The main effect of hedonism was significant ($F_{1,10460} = 49.73, p = 0.000$). The mean TFD of those exposed to hedonic products was higher ($m = 3.56, sd = 2.50$) than the mean of those exposed to utilitarian products ($m = 2.88, sd = 1.97$). Thus, respondents looked longer at hedonic vs utilitarian products. Results are illustrated in Figure 2.

Lastly, $H5$ compared respondents' visual attention for branded and unbranded horticulture products. A one-way ANCOVA was calculated comparing the mean for TFD (in seconds) for respondents exposed to branded and unbranded products, controlling for the effect of price and brand familiarity. There is a significant effect of brand on TFD after controlling for price and familiarity ($F_{1,10462} = 45.84, p = 0.000$). Price ($p = 0.000$) and familiarity ($p = 0.000$) were significantly related to TFD.

The mean TFD of those exposed to branded products was higher ($m = 3.46, sd = 0.05$) than the mean of those exposed to unbranded products ($m = 3.10, sd = 0.03$). This means that

Figure 2 Respondents' TFD for hedonic and utilitarian products



subjects looked longer (had a higher TFD) at branded products compared to unbranded products, while controlling for the effects of price on the screen and brand familiarity. These results are illustrated in Figure 3.

Discussion

The purpose of this study was to examine the relationship between consumers' perceptions of product type (utilitarian vs hedonic) and the attentional processes that underlie decision-making among minimally branded products. We analyzed consumers' evaluation of potted live products and its influence on product choice. Our data demonstrated that respondents exposed to hedonic products (i.e. flowering annuals or perennials) reported having spent more on gardening plants and related supplies than subjects exposed to utilitarian products (i.e. herb and vegetable plants), which could be understood as an objective estimation of future spending in similar situations. Our findings are in line with previous studies (Wertenbroch, 1998) which suggested that there are differences in purchase behavior of hedonic and utilitarian products. Specifically, on average, our respondents who were exposed to hedonic products reported having spent almost \$40 (37 per cent) more than those exposed to utilitarian products.

Our results support the cue utilization theory which posits that consumers use both intrinsic and extrinsic cues to assess product quality and reduce purchase risk (Olsen, 1972). As we expected, the extrinsic cue (branded containers) increased respondents' perceptions of product quality and supported brand cues as a quality signal (Ng et al., 2013). Previous studies have found that consumers perceived minimally branded products to be of higher quality when a brand is present, and when the product (i.e. plant) is meant to be used as food (Bagnara, 1996; Collart et al., 2010). Our findings extend these results to other types of plants and minimally branded products. Future studies could further analyze the contribution of brand to perceived quality by examining respondents' evaluations of plants based on the perceived health of the plant, or the number or sizes of bloomed flowers. However, we found no significant difference in respondents' likeliness to buy for branded and unbranded products. We believe that having used digitally identical pictures of the same plant with the three brand variations could have influenced the results, given that in a natural setting, each plant looks somewhat different (e.g.

different leaf health, size, color). Also, consumers might be making evaluations about the plant based on their aspect (i.e. how healthy the plant looks), and thus not making inferences between the brand and the price displayed. Future studies should try to tease out reasons for the lack of difference in likeliness to buy by creating stimuli that depict different brand images (i.e. congruent and incongruent logos, and different brand image colors), and prominence and placement of the brand around different areas of the pot and the point-of-purchase display.

We found that consumers look at hedonic and utilitarian products differently. Specifically, we found an overall main effect of hedonism on visual attention. Respondents who were presented with hedonic products paid more attention to the product as demonstrated through a longer TFD. This finding might be attributed to the visual complexity of the hedonic vs utilitarian plant, the color variation or the beauty and attractiveness of the plants. In addition, involvement with the product might have influenced subjects' visual attention as demonstrated in Behe et al. (2013). According to the authors, consumers who are more interested in the merchandise might make deeper evaluations and might not be so sensitive to other cues such as price. Future studies would benefit in measuring respondents' level of involvement as a means to unraveling differences in visual attention. While we did not investigate perceived display complexity, previous work (Orth and Crouch, 2014) found that the context complexity in which products are presented affected perceived product attractiveness, such that products presented in a more (vs less) complex environment were perceived as less attractive and received less visual attention. Future studies should investigate the influence of perceived product complexity on visual attention.

Interestingly, while respondents' likeliness to purchase a product did not vary significantly for branded vs unbranded stimuli, we found that respondents spent more time visually, as indicated by their TFD, inspecting the product when a brand was present than when presented with unbranded products. These findings call for further research, as a different set of brands might be able to elicit different purchase intentions as a result of increased visual attention. If different branded packages do not produce a different LTB response, perhaps a greater investment in branding information, such as signs, at POP would improve results.

This study used a stationary eye-tracking device. With the increasing availability of mobile eye-tracking technologies, future studies should collect psychophysiological responses in real-world settings, as we believe that actual plant inspection (i.e. leaves and flowers health) may be a better predictor of the cues a consumer uses before making a purchase decision than self-report measures.

In sum, our results imply that consumers devote more cognitive effort, as evidenced through visual attention, to branded and hedonic minimally branded products. While this article extends the marketing literature by examining the effects of different parameters (i.e. hedonic vs utilitarian) on consumers' perceptions and evaluations of one type of minimally packaged product, there are certain limitations worth noting. First, this study was conducted with photographed pictures of live plants. Future studies should

Figure 3 Respondent's TFD for branded and unbranded products



consider using eye-tracking technologies (e.g. glasses) to capture respondents' visual inspection patterns with real plants. No display signage, other than price, was included in the stimuli. Signs can provide additional information as to product attributes and benefits, which could alter visual attention, perceived quality and/or likeliness to buy. Additionally, four types of plants were used for the purposes of hypotheses testing. Including other plant species (i.e. seasonal plants) could offer more generalizable results. Similarly, our study was conducted in only four locations (Connecticut, Florida, Michigan and Texas) and with a convenience sample. While this limits the ability to generalize from the sample, it should also be considered that these geographical locations exhibit different characteristics in terms of weather, culture and income. Thus, while the results might not be generalizable to the whole population, they reflect the preferences of a very diverse range of consumers. Further, given that horticultural products are merchandised in the same fashion regardless of the geographic market, these results should be of interest to retailers and marketers who have live potted plants and other minimally branded products among their product portfolios.

Managerial implications

Our research demonstrates that if consumers are provided with branding cues for horticultural potted products, they will evaluate the branded option as being of higher quality. Therefore, we argue that retailers of horticultural products should provide customers with a wider array of products that include branded options. However, we found that brand cues (name and logo) alone were not a significant predictor of likeliness to buy. This might have been the result of the brands not being attractive enough for consumers or consumers' lack of familiarity with these particular brands. Including other branded alternatives would allow for different price levels for the same product. If lack of brand familiarity drove these results, then including branded product attributes and benefits in POP signs or other materials as a part of an integrated marketing communication program could create a synergy with brand name and logo as a persuasive promotional message.

This study also shows that when consumers are exposed to hedonic products, they will spend about 25 per cent more time examining them. Our stimuli were presented in a stark, unadorned manner, thus when hedonic products are presented in a more attractive, cue-rich environment, the visual capture is likely to be amplified. There are many types of minimally packaged goods in the market today, including fresh food, clothing, furniture, shoes and art. The majority of consumer studies have been focused on packaged (fast moving consumer) goods and the present study contributes to the understanding of marketing one type of minimally packaged goods. While it is not surprising that adding a brand to the minimalist package enhances the perceived value of the product, our work shows this also applies when a substantial part of the product is visible for inspection. Therefore, brand cues are of importance regardless of the level of packaging.

Furthermore, the results presented here can be influential in the retail environment. While hedonic products captured more visual attention, it is possible that presenting utilitarian products in a cue-rich (hedonic) environment could increase both visual attention and perceived quality. Merchandising

products that are essentially utilitarian can benefit from a lift in perceived value by focusing on their hedonic attributes in POP signs, shelf talkers or banners.

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Appendix

PAST PURCHASE BEHAVIOR

In thinking about your plant purchases over the past six months, please check the box beside all the types of plants that you purchased in the past six months.

- Annual flowering plants (e.g. petunia, marigold, impatiens).
- Vegetable plants (e.g. tomato, pepper)
- Herbs (e.g. basil, parsley, sage)
- Flowering perennials (e.g. hosta, chrysanthemum, day lily, cone flower)
- Flowering shrubs (hydrangea, liliac, etc.)
- Non-flowering shrubs (e.g. boxwood, taxus, etc.)
- Fruit producing trees (apple, pear, etc.)
- Evergreen trees or shrubs (e.g. pines, conifers, junipers)
- Shade trees (e.g. maple, oak, etc.)
- Indoor flowering potted plants (e.g. orchid, African violet, etc.)
- Indoor foliage plants (cactus, succulent, weeping fig, etc.)
- None of the above

Thinking back over the plants and gardening supplies you purchased over the past six months, approximately how much did you spend (in total) on gardening supplies and plants (excluding mechanical equipment like mowers and tillers)? _____

BRAND FAMILIARITY

[Subjects responded to the same questions about all the brands used for the study]

Regarding Bonnie Plant products . . .

	NOT AT ALL						VERY MUCH
How familiar are you with them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How experienced are you with them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How knowledgeable are you about them?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PURCHASE INTENTIONS

What are the prospects that you personally will buy the plant you just saw?

- Certain, practically certain
- Almost sure
- Very probable
- Probable
- Good possibility
- Fairly good possibility
- Fair possibility
- Some possibility
- Slight possibility
- Very slight possibility
- No chance, almost no chance

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