
ASSESSING PERCEIVED QUALITY THROUGH PACKAGE DESIGN: AN EYE TRACKING STUDY

Sarah M. Stanley, Ph.D., Missouri University of Science and Technology, stanleysm@mst.edu
Cassandra C. Elrod, Ph.D., Missouri University of Science and Technology, cassa@mst.edu

ABSTRACT

In this research, quality cues are examined on a simple consumer product: coffee. Previous research suggests that consumers use extrinsic & intrinsic cues to estimate perceived quality when they do not have previous experience with the product. A focus group, eye-tracking data, and a questionnaire were used in an attempt to understand where consumers focus on a package when trying to assess product quality. The eye-tracking results showed that consumers fixated primarily on the brand name and coffee blend, and focused only on the country of origin or special features (i.e. fair trade or organic) when it was located near the center of the package, in close proximity to the brand name. Interestingly, price does not seem to be as directly tied to quality as expected. In fact, the survey results showed that the lowest rated brands, in terms of quality, were not the lowest priced.

Keywords: Quality, Package design, Eye tracking, Tobii

INTRODUCTION

Historically, product packaging has impacted the marketing mix significantly. Packaging plays a functional role in the product and distribution mix by providing protection to the contents and also by providing the means for promotion. Similar to billboards, online ads, and printed ads; as shoppers pass by products while walking down aisles in a store, they are exposed to the “message” of the package. Packaging also undergoes numerous trade-off decisions. For example, a package might be highly visible and appealing if contained in an odd shape, but impractical if the product contents do not fit or ship well [11]. The authors have observed numerous packages in the coffee industry. Some seemingly intended to appeal to the bargain shopper, gourmet shopper, loyalty shopper, and others. In this study, the authors are exploring the association between what shoppers are looking at while being presented with various coffee packaging, and their assessment of product quality.

Literature Review

According to the literature, brands and products are thought to consist of various cues, ranging from price, brand name, packaging, and color. Each of these various cues can provide a basis, or rationale, for customers’ impressions or perceptions of a product or brand. One cue of particular importance is perceived quality. Perceived quality seems to be strongly linked to consumers’ purchasing patterns and also to brand loyalty [13, 4, 12]. Other documented extrinsic cues are brand name, store name, country of origin, level of advertising, and price [15, 14].

Historically, price is the cue that generated the most interest in relation to perceived product quality. Other cues that have been experimentally tested are brand image, store image, and actual composition differences [1, 7, 2, 5, 6]. While these studies were concluded to be exploratory, they were also deemed more realistic than previous studies because they included more than one quality cue. The previous, but more theoretically aligned research, has been effective in establishing cause and effect relationships, but limited the number of cues that were assessed simultaneously [13].

Packaging trends are recently turning from strictly a delivery device to an effective, or ineffective, marketing tool for manufacturers. How consumer’s related packaging to product quality is one question of interest, since packaging is being used more and more as a marketing vehicle. Recent studies have suggested that factors such as recyclability and re-seal-ability are attractive to customers and may impact the buy decision [10].

Rationale

A lack of literature regarding comprehensive package design, as it relates to quality perceptions, has been a driver of this study. The product category, coffee, was chosen for this study because research shows that many of the quality cues of interest are often being marketed on coffee packaging, such as country of origin, fair trade and organic. For instance, coffee from Colombia, Brazil and Tanzania are often considered of high quality by Americans [3, 8]. Additional research states that while consumers feel positively about both fair trade and organic coffee they are only willing to pay a higher price for fair trade coffee [9].

Methodology

This process was began by conducting two focus groups. Each focus group included 10-12 students who were taking a marketing class on the Missouri S&T campus. While some were not familiar with the product (coffee), others were avid users, and all were asked a series of questions that related to the branding and quality of coffee. This focus group feedback was then used to generate the stimuli used in the eye tracking study.

Tobii studio was used to create a slide show for the study participants. In order to be as realistic as possible the slides contained photos of actual store shelves. Participants were shown photos of the whole aisle to begin with and then were shown stills of three competing products without the price of each product. Then, they were shown the same photo with the pricing information available. This was conducted three times for a total of nine different products.

Following the use of the eye tracker, the respondents were then asked to complete an online questionnaire detailing their previous experience with each brand and the product category. In addition, they were asked questions about each quality cue and its relative importance to determining coffee quality. They were also asked to evaluate each brand on quality using a 7 item measurement of quality.

Results

Most of the results are reported visually using gaze plots and heat maps. Gaze plots indicate the order in which people fixated on items in the photo (Figures 1, 2, 6, 7 and 8). The numbers indicate that respondent's order of fixation and the size of the dots indicated the duration of that fixation. When showed a photo of the entire coffee aisle, respondents kept their gaze near the center aisle, not venturing often to the top or bottom selves (Figure 1). In looking at the heat maps, the information is streamlined (Figures 3-5). Instead of viewing each individual respondent's fixations, the data is aggregated to see area of the photo that was of interest. The colors go from green to red, with red being the areas of greatest aggregate fixation.

The results of the eye tracking study were interesting. When shown the packaging more closely, they focused on the brand name with a fixation on the blend of the coffee as well (Figures 2, 3, and 4). They also seemed to focus on price. This is interesting, because when they later rating each of these brands in terms of quality on the questionnaire, price seemed less of a factor (Table 1). In the following table, each brand is listed with the average quality rating for the product. This quality rating is a composite of all seven quality measures. To arrive at this composite, the average of each item was calculated and then combined by averaging those averages to reach this final quality rating. The price listed is simply the price that was provided to the respondent. It also is the actual price being charged for the brand at the time the stimulus photos were taken. In this table the three brands that were shown on each slide, are also grouped together using shading. For instance, in the first brand grouping, the highest price coffee (Millstone \$7.98) is also the lowest rated in quality. For the second grouping, the least expensive (Folgers Gourmet \$5.00) was rated the highest in quality. In the last grouping, the one rated significantly lowest in quality was neither the priciest nor the least expensive.

Table 1: Quality Ratings of each brand and their listed price

Brand	Quality Rating	Price
Caribou	4.80	\$7.28
Dunkin' Donuts	4.87	\$7.28
Millstone	4.47	\$7.98
Sam's Choice	3.47	\$5.48
Gevalia	4.98	\$5.98
Folgers Gourmet	5.28	\$5.00
Folgers	4.91	\$8.28
Great Value	2.88	\$7.98
Maxwell House	4.26	\$7.28

A link between familiarity with the brand and the quality rating is also reported. In the following table, quality is calculated the same as in Table 1, and familiarity is presented as simply the percentage of the sample who self-reported having tried the brand before and the percentage of respondents who could remember seeing promotions for the brand in question (Table 2). In each slide, the brand that was most familiar to the respondent was also the highest rated, in terms of quality.

Table 2: Brand Familiarity and Quality Ratings

Brand	% that has tried this brand before	% that has seen promotions for this brand in the past	Quality Rating*
Caribou	24%	5%	4.80
Dunkin' Donuts	66%	86%	4.87
Millstone	17%	16%	4.47
Sam's Choice	28%	14%	3.47
Gevalia	7%	22%	4.98
Folgers Gourmet	62%	59%	5.28
Folgers	79%	84%	4.91
Great Value	41%	19%	2.88
Maxwell House	59%	62%	4.26

*this quality rating is a composite of all seven quality measures (an average of their average rating for each of the 7 items item)

In addition, this study showed that the country of origin was not a fixation point unless it was prominently placed on the package near the brand name. For instance, Gevalia places 'made in Sweden' in the top right corner with the Swedish flag, but it was not a primary fixation point for participants (Figures 4 & 7). Fair trade, however, was a focus but it seemed be the text (not the logo) that was gazed at most often (Figures 4 & 7).

Managerial Implications

Consumers fixate on visual images on packaging as well as brand names. Managers have to be conscientious of what is contained in the 'prime real estate' of a package. In this study, it seemed that most participants kept their gazes to the center of the package and the price below the package, leaving information outside those spots to be virtually ignored. It is believed that marketers need to choose images that will activate consumers' interest in the products but also carefully choose what information will be featured in the center of the package.

Future studies should be done to demonstrate what types of visuals are most likely to achieve customer focus, as well as which information is most likely to leave a lasting impression. For instance, a study of packaging design can look at conditioning effects as well as extinction. Also, studies can be done using different product categories, different buying cues and different subject populations.

Limitations

There are several limitations of this study that are worth noting. First, the use of a student sample, while common in eye tracking studies, is not necessarily generalizable to the full consumer market. Also, while the results may be accurate for the coffee product category, this is a very small segment of consumer goods. In addition, while using existing brands may be more realistic for consumers, it is impossible to truly capture a consumers' prior experience with that brand and control for it. A control was attempted for this with questions about whether they have used the brand or seen ads for the brand, but outside of that, their prior perceptions of the brand were not quantified.

CONCLUSIONS

This study sheds some light on how consumers' determine quality of coffee, by understanding what they are looking at when they are shopping for the product. They seem to use their prior knowledge about the product as a strong quality cue, and price seems to be less of a factor than anticipated. More research will need to be done to better understand the effects of price as an indicator of quality, because while price was studied (and a fixation point) by respondents, it is difficult to ascertain how much of the quality rating came from prior experience with the product and the consumers' perception of its price.

This study did illustrate, however, that the center of the package is 'prime real estate' for marketing messages as many of the consumer gazes fell in this small sub-segment of the packaging. As such, it will be critical for managers to put their most influential information in this area of the package. In order to better understand, however, what information is best highlighted here it is imperative that more research be conducted to better understand what consumers want in packaging and what quality cues are most effective in this space.



Figure 1: Gaze Plot of the Aisle



Figure 2: Gaze Plot of the Aisle



Figure 3: Heat Map of the Coffee Packaging



Figure 4: Heat Map of the Coffee Packaging



Figure 5: Heat Map of the Coffee Packaging

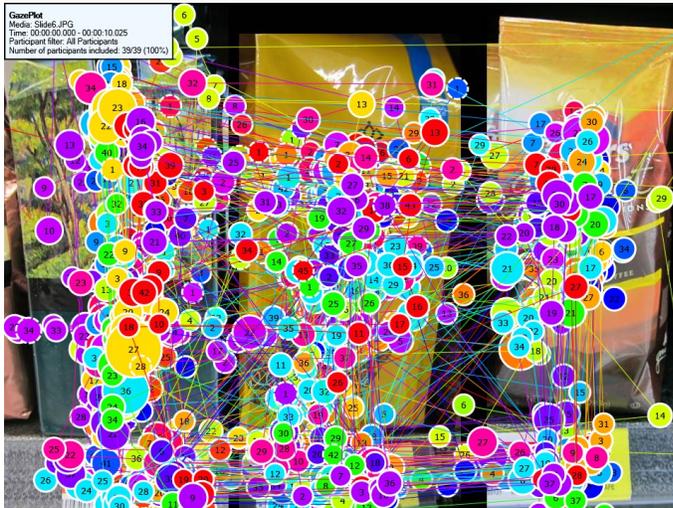


Figure 7: Gaze Plot of the Coffee Packaging

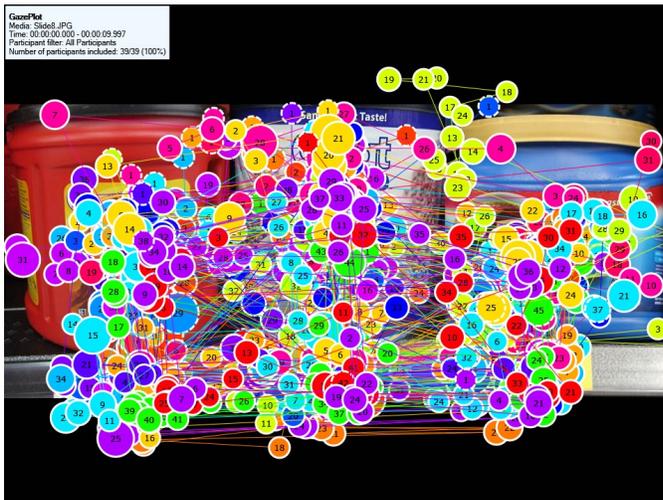


Figure 8: Gaze Plot of the Coffee Packaging

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