ORGANIC FOOD PACKAGE DESIGN MANAGEMENT IN SMES
A CONJOINT ANALYSIS APPROACH

Mokryun Baik* / Hyeon-Jeong Suk* / Taewon Suh / Yoon-Sook Kim
*KAIST / Texas State University / Korea Food Research Institute
magnolia@kaist.ac.kr

ABSTRACT
Recently, the organic food market in many places of the world has grown at a soaring rate. With a flood of similar products with identical features available in today’s marketplace, package design becomes one of the important factors for marketing managers in their decision making. Against this backdrop, corporations tend to invest large amounts of money into packaging to influence consumer’s intension to buy. However, it is not the case for SMEs, since their financial resources are more than often limited. In this study, we identified major elements of packaging and examined their effectiveness to derive managerial guidelines for SMEs to efficiently design organic food packages. We conducted two different user tests, and applied conjoint analysis to evaluate the relative importance weights of four visual elements. Subjects were influenced by visual stimuli equally regardless of purchasing experience. We showed that “typography” played the most influential role by appealing to consumers’ eco-sensibilities and affecting their purchasing decisions. The study could be extended to various products as well as consumer groups, so that designers find an appropriate design strategy to communicate with consumers more properly.

Keywords: Package Design Management, Organic Products, Visual Elements of Packaging

INTRODUCTION
As consumers become more conscious about their environment, corporations see greater demand for eco-friendly products. This trend is particularly conspicuous in the food category, which is more directly linked to health issues, and also leads the organic food market to have a significant growth globally. With the clutter of similar products with identical features available in today’s marketplace, packaging design has become an important strategic factor. A study revealed that 73 percent of buying decisions are made at the point of purchase where the package becomes the major tool to communicate with the consumer (Connolly & Davison, 1996).

PACKAGING IN THE MARKETING MIX
Considering today’s competitive market conditions, communicating effectively with consumers at the point of sale becomes essential in marketing strategy. Particularly at the point of purchase, packaging has become a primary vehicle for communication and branding (Rettie & Brewer, 2000). Package design itself may make an incentive to buy (Hall, 1993), and packaging can also help consumers develop brand associations, which creates a brand’s overall image (Keller, 1993). Packaging is even more important for food products since they are low-involvement products which consumers generally perceive to be low risk (Chaudhuri, 2000; Mitchell, 1999). Lamb et al. (2011) indicated that in-store promotion is an important tool for promoting low-involvement products. The literature has a consensus about the critical role of packaging in the marketing communications.

PURPOSE OF THIS STUDY
In the dynamics of consumer buying decision, package design is the single most influential marketing communications tool (Wallace, 2001). Accordingly, organic food companies have attempted to use their packaging to present an eco-friendly image of the product, investing huge amounts of money in packaging. The bigger companies use a variety of strategic visual tools to influence consumers’ intention to buy. However, small and
medium-sized enterprises (SMEs) may not have such tools, because their financial resources are limited. A number of studies have treated packaging as one of the important decision-making variables for the marketing executive, but no practical approach to the configuration of visual design elements in packaging has yet been considered. This may be due to the fact that most of research has been carried out by marketers. Designer-led studies have merely reviewed the cases to reveal the role of packaging design in modern marketing. Therefore, this study aims to provide managerial guidelines for designing packages so as to benefit many. To achieve this purpose, design elements of packaging are identified, and their impact on consumers’ purchase decisions are examined.

ELEMENTS OF A PACKAGE
Since the early 2000s, many researchers have given their effort to classify communication elements of packaging (Rettie & Brewer, 2000; Butkeviciene, et al., 2008; Silayoi & Speece, 2004). Collectively, these recent studies have noted inconsistency in their conclusions. Most of the studies divide elements of packaging into visual and verbal cues. A study showed that visual stimuli are learned faster and remembered longer than verbal stimuli (Erdelyi & Kleinbard, 1978). Therefore, visual components are more effective and influential for packaging design, which meets consumers directly and communicates quickly at the point of purchase. However, most previous studies are more focused on verbal elements, due to a lack of understanding of visual attributes from a design perspective. Thus, this study sheds light on the visual characteristics of packaging design. Based on the literature (Klimchuk & Sandra, 2006; Masten, 1988; Vila & Ampuero, 2007), the more influential visual elements of a package are considered to be typography, color, imagery, and shape. The term “visual” refers to things we can see, but this common-sense definition is arguable simply because printed words also can be seen without any prompt, direct signification (e.g., unknown foreign word), making them “visual” as well (Ogasawara, 1998; Suh, 1999). In addition, typography cannot exist without verbal components that can be written. Therefore, we define “name” as another visual element of packaging design, while most of the literature treats it as a verbal element.

Consequently, this study focuses on four main visual attributes of organic food packaging design, including “Product name”, “Typography”, “Color”, and “Imagery”. “Shape” was eliminated because of its variability, depending on the type of food product. We prioritized the importance of each visual element. Hopefully, this research can provide designers with a guideline to develop effective organic food package designs, especially in SMEs.

USER TEST
To evaluate the relative importance weights of the four visual elements of packaging, two types of conjoint analysis were adopted. Organic purchase experience could be an influential factor. In order to reflect the factor, we recruited two different subject groups: a potential buyer group and a current buyer group.

CONJOINT ATTRIBUTES AND LEVELS
We assumed that some attributes should be more effective than others in affecting consumers’ eco-sensibilities and influencing their purchase decisions. Thus, conjoint analysis was used to examine the relative weight of importance of the four visual elements. Hair et al. (1998) recommended conjoint analysis to evaluate consumer preferences for products and services, and this approach has been widely used so far. The necessary data to carry out this methodology consists of consumers’ judgment of alternative product concepts described as a set of attribute levels (Gil & Sanchez, 1997). In this study, the four main visual characteristics were used as conjoint attributes to define different packaging profiles. Meanwhile, an expert workshop was held to define proper conjoint levels.

EXPERT WORKSHOP FOR DEFINING CONJOINT LEVELS
Twenty graduates in the design department at KAIST, and researchers in the fields of design, psychology, and marketing participated in an expert workshop. The intent of the workshop was to extract descriptive adjectives for conjoint levels. We began with a task called “Talk about food packaging style” to examine food product packages now in the Korean market. The clear pictures of the 60 products, which
are from the newest brand leaders, were chosen and shown on a large screen. Participants were asked to freely share their first impressions of the visual style of each package, using only adjectives. A list of the mentioned adjectives was made during their discussion.

Then, in the next step, “Be a package designer”, subjects individually chose suitable adjectives from the list and wrote each word down on a sticky note, as if they were designing organic food packaging. After that, they added other proper adjectives which were not on the list.

Results were similar to the Brand Personality Scale by Aaker (1997). Aaker proposed a brand personality model that consists of five dimensions: sincerity, excitement, competence, sophistication, ruggedness. She even stated that packaging could serve as an expression of brand personality via visual element (Aaker, 1996; Underwood, 2003). In our workshop, style adjectives on the list, extracted from the first session, were divided into four groups, depending on each character. The trait of each group corresponded with four factors of brand personalities: sincerity, excitement, competence, and sophistication. All adjectives were evenly distributed over these four dimensions, while ruggedness had no relation to any adjective groups.

In the “Be a package designer” task, an increase in the number of new adjectives was shown only in the “Sincerity” and “Excitement” dimensions. In this way, we considered that these two dimensions differentiate organic food packaging from the general food packaging.

After reinterpreting of organic food brand personality based on the adapted scale with two dimensions of high potential traits, new dimensions of organic food brand personality were developed: “Clear Honesty”-“Imaginative Excitement”.

According to the traits of new personality scale, attribute levels were defined (Table 1).

For the user test, “Kimchi” (the cabbage and red pepper based Korean spicy pickle) was used as a hypothetical product. A total of 16 packaging profiles were made up; each profile was a combination of four attributes and each attribute was broken down into two levels (Table 2).

<table>
<thead>
<tr>
<th>No.</th>
<th>Level Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(b) x (d) x (f) x (h)</td>
</tr>
<tr>
<td>2</td>
<td>(b) x (c) x (f) x (h)</td>
</tr>
<tr>
<td>3</td>
<td>(b) x (d) x (e) x (h)</td>
</tr>
<tr>
<td>4</td>
<td>(b) x (d) x (f) x (g)</td>
</tr>
<tr>
<td>5</td>
<td>(a) x (d) x (f) x (h)</td>
</tr>
<tr>
<td>6</td>
<td>(a) x (c) x (f) x (h)</td>
</tr>
<tr>
<td>7</td>
<td>(b) x (d) x (f) x (g)</td>
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<tr>
<td>8</td>
<td>(b) x (c) x (f) x (h)</td>
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<tr>
<td>9</td>
<td>(a) x (d) x (f) x (g)</td>
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<tr>
<td>10</td>
<td>(a) x (d) x (e) x (h)</td>
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<tr>
<td>11</td>
<td>(b) x (d) x (f) x (g)</td>
</tr>
<tr>
<td>12</td>
<td>(b) x (d) x (e) x (g)</td>
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<tr>
<td>13</td>
<td>(a) x (d) x (e) x (g)</td>
</tr>
<tr>
<td>14</td>
<td>(a) x (c) x (f) x (g)</td>
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<tr>
<td>15</td>
<td>(a) x (c) x (e) x (h)</td>
</tr>
<tr>
<td>16</td>
<td>(a) x (c) x (e) x (g)</td>
</tr>
</tbody>
</table>

Table 1. Definition of Conjoint Attributes & Levels

Table 2. 16 packaging profiles

To create visual excitement, three different designs were developed for each level (Figure 1). Therefore, 48 visual stimuli were generated. The user test was divided into two parts, and all 60 of the subjects participated in each of the parts. Both groups of subjects were tested by the same examiner.
DIVERSITY AND UNITY

METHOD
The study used two all-female subject groups: a student group and a non-student group. Each group comprised of 30 subjects, and the two groups were compared for the study purpose. The student subjects were selected from female students who were likely to buy organic food products. Their average age was 23 years (standard deviation: 2.36). The non-student group had an average age at 42 (standard deviation: 6.44). For this group included were only the current female members of an eco-friendly grocery store. All subjects were paid volunteers.

USER TEST 1
In user test 1, two-factor trade-off method, one of conjoint data collection methodologies, was used. Subjects did not rank the 16 profiles simultaneously, but two by two. This approach is simple to follow, but it is time-consuming and tedious to perform a total of 120 paired comparisons (16*15/2=120). Therefore, user test 1 was conducted with a touch screen computer (Samsung DM-U200) providing subjects with convenience. Subjects were asked to choose the more preferred, eco-appealing one of the two by simply touching a monitor. They could give both profiles an equal point as well (Figure 2).

USER TEST 2
In this trial, full-profile conjoint analysis was conducted. Subjects were asked to determine the
ranking of 16 profiles from 1 to 16, according to the
degree of effectiveness in making buying decisions.
Each of the 16 profiles were individually selected
and printed out (Figure 3). We managed the colors
on a paper to be same as the colors displayed on a
monitor.

Figure 3. Printed profile cards for user test 2

The relative importance of each attribute was
determined. It indicates that typography was the
most effective factor whereas naming was the least
effective for female students ($r=.473, p<.05$). The
factor which influenced a woman group most was
typography as well. However, this group was least
affected by Illustration ($r=.534, p<.05$). The relative
importance of the two groups provides statistically
significant evidence that both groups were most
affected by typography.

Moreover, a full set of 16 profiles were ranked in the
order of the level of degree that subject’s purchase
decision was influenced. The results, ranked in
descending order are as shown in Table 4.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Students</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Profile 1</td>
<td>Profile 1</td>
</tr>
<tr>
<td>2nd</td>
<td>Profile 5</td>
<td>Profile 4</td>
</tr>
<tr>
<td>3rd</td>
<td>Profile 4</td>
<td>Profile 5</td>
</tr>
<tr>
<td>4th</td>
<td>Profile 6</td>
<td>Profile 3</td>
</tr>
<tr>
<td>5th</td>
<td>Profile 9</td>
<td>Profile 2</td>
</tr>
<tr>
<td>6th</td>
<td>Profile 3</td>
<td>Profile 6</td>
</tr>
<tr>
<td>7th</td>
<td>Profile 7</td>
<td>Profile 14</td>
</tr>
<tr>
<td>8th</td>
<td>Profile 2</td>
<td>Profile 8</td>
</tr>
<tr>
<td>9th</td>
<td>Profile 10</td>
<td>Profile 9</td>
</tr>
<tr>
<td>10th</td>
<td>Profile 13</td>
<td>Profile 11</td>
</tr>
<tr>
<td>11th</td>
<td>Profile 11</td>
<td>Profile 12</td>
</tr>
<tr>
<td>12th</td>
<td>Profile 8</td>
<td>Profile 7</td>
</tr>
<tr>
<td>13th</td>
<td>Profile 15</td>
<td>Profile 10</td>
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<tr>
<td>14th</td>
<td>Profile 14</td>
<td>Profile 13</td>
</tr>
<tr>
<td>15th</td>
<td>Profile 12</td>
<td>Profile 15</td>
</tr>
<tr>
<td>16th</td>
<td>Profile 16</td>
<td>Profile 16</td>
</tr>
</tbody>
</table>

Table 4. The ranks from user test 2

It was found that each subject in a same group
showed the significant similarity in their ranks by
using Kendall’s W test ($p=.00$). Also, the results of
independent t-tests showed that there was no
significant difference between the ranks evaluated
by different two groups ($p>.05$).

RESULTS

The study analyzed the relative importance of each
visual element of packaging evaluated by subjects. It
was statistically significant that both groups were
most affected by “Typography”. This suggests that
the change of the typography can achieve maximum
effect in order to appeal to consumers’ eco-
sensibilities by affecting their purchasing decisions.
Besides, results of the Wilcoxon test showed that 12
out of 16 profile types were ranked in a similar order
by both groups.

DISCUSSION

Different from our initial assumption, the subjects of
both groups were influenced by visual stimuli equally,
regardless of purchasing experience. It can be
concluded that subjects’ purchasing experiences did
not cause a significant difference in perceiving
design factors. However, this interpretation may be
applied only to the same category: the package
design for Kimchi.

We showed that “Typography” played the most
influential role. It would also be interesting to
replicate the approach outlined in this study in other
food product categories where there are more
English product names to verify the universal impact
of typography. In line with this thought, a conjoint
study on “strawberry jam” as a hypothetical product
is currently underway.

Future studies should include further investigation of
various combinations of visual stimuli presentation.
Thus, other combination structures are being
examined (Figure 4).
Future study should be extended to other consumer sectors or targets, as well. Three different consumer groups, which are “Bluesumer”, “Greensumer”, and “Concretesumer”, will be tested. Potential buyers of organic food products will be the members of the bluesumer group. The greensumer group will be comprised of consumers who currently enjoy buying organic food. Lastly, people who are not concerned with both organic produce and the corporation’s related brand strategy will be categorized into the concretesumer group.

REFERENCES


Figure 4. New structure of stimuli combination is being considered for further study.