THE INFLUENCE OF PACKAGE ATTRIBUTES ON CONSUMER PERCEPTION AMONG GENERATION Y

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ABSTRACT

The article focuses on how milk packaging is perceived by generation Y. The required data were obtained through eye-tracking using the SMI RED 250 device. Additionally an in-depth interview and a short questionnaire were included in the experiment to obtain complementary qualitative data. The research took place during November 2014 in the Eye Tracking Laboratory at Mendel University. In total 110 respondents representing generation Y participated in the experiment. The research analyzed the front of 12 types of milk packaging. The main objective was to determine which package attributes attract the most attention among consumers. The research shows that the most attention is given to the milk brand as well as claims with additional information, such as fat content and quantity. Additionally, the respondents were asked to rank the packaging samples from the best to the worst. Finally the respondents had to decide which of the products they would buy. The results provide valuable insights to create customized, eye-catching packaging for consumers.

KEY WORDS

consumer perception, package, milk products, eye tracking

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1 INTRODUCTION

The way consumers make their in-store buying decisions continues to elude marketers. Which are the factors creating awareness, interest and ultimately the sale? A major product decision for marketers in this regard is according to Kotler and Armstrong (2011) to determine the label for a product. The most basic function of a label is to help consumers identifying the product according to, for instance, its brand name. However, the time labels served merely

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as an identification of products is long gone. The content of labels are these days much more complex, including for instance the origin of the product, its contents and various other elements. It is also important to mention that a label has a strong influence on branding and how consumers perceive the brand.

This article focuses on the general marketing effects of labels as a whole on consumer buying behavior, particularly for dairy food. We will however start by briefly describing the regulatory context of the act of labeling, which strongly influences the content of the label for various product categories. This will be complemented with a brief overview of methods and results of previous research regarding the effects of labels.

A label is component of the entire packaging design of a product. According to Cheverton (2004) the consumer's attention is impacted by effective packaging design and results in a longer time spent at the shelf and potentially results in a sale. According to Wang and Chou (2011) the visual elements of packaging can be divided between aesthetic design elements and functional design elements. Wang and Chou (2011, p. 2) list the aesthetic elements "Shape (form), color, illustration (lines, symbols, graphics, patterns, and pictures), logo and brand, typography (company name, product name), pattern design (lines, patterns, illustrations, photos), brand name and address, product facts and usage instructions, ingredients, volume (or weight) and decoration to form a layout." and the functional elements as "Structure design (protection, storage, transportation, opening and resealing functions), material design (emotional appeal and window presence value), and volume design (economic function)."

The importance of labels is not only a concern of individual enterprises in terms of how they facilitate the buying process: Europe scrutinizes the act of labelling thoroughly. Directive 2000/12/EC from The European Commission (2012) specifies the general rules to be applied on food labeling. The directive emphasizes the importance of readability and understandability of labels. From a regulatory point of view it is therefore important for enterprises to comply with these rules. However, depending on the product category, different rules apply. The Enterprise Europe Network (EEN – see Thomson, 2011) states that there exists confusion about the regulations applying on labels, particularly in terms of information requirements. Though the EEN mainly focuses on nutritional information, food contents, etc. and not so much on the marketing effects of labels, it is interesting to mention that according to the EEN (Thomson, 2011, p. 10) "the labelling, presentation and advertising of foodstuffs must not mislead the consumer as to the foodstuff's characteristics or effects; attribute to a foodstuff (except for natural mineral waters and foodstuffs intended for special diets, which are covered by specific Community provisions) properties for the prevention, treatment or cure of a human illness." In addition to the Directive on the labeling and presentation of foodstuffs, the EEN states that labeling of milk products, which is particular interest of this article, must state near the trade name the percentage of fat and the percentage of fat-free dried milk extract. The main reason for this concern for labeling worldwide results from a concern for health: as stated for instance by Food and Drug Administration (FDA) Commissioner Dr. Margaret Hamburg (Silverglade and Heller, 2010) "The public health importance of food labeling as an essential means for informing consumers about proper nutrition … has not been substantially addressed since the FDA implemented the Nutrition Labeling and Education Act, more than 16 years ago."

As a result quite a lot of research, both in Europe and beyond, focuses on the effect of nutritional information on labels. Colby, Johnson, Scheett and Hoverson (2010) concluded that nutrition marketing is mostly used on products with high saturated fat levels, sodium and/or sugar. Grunert and Wills (2007) claim that there is widespread interest among consumers regarding nutrition information on food packages. The results point out that consumers prefer simplified information. Additionally the research indicates that consumers have a different response when it comes to ease of use, the level of information provided and

the degree to which consumers feel pressured to change their consumer buying behavior. The work of Feunekes, Gortemaker, Willems, Lion and van der Kommer (2008) supports a need for simplicity. Their research points out a more simplified front-pack labeling need less time for evaluation. This in turn would make the buying behavior easier in shops where consumers tend to make quick decisions. Kim, Lopetcharat and Drake (2013) discovered that the brand as well as the fat or sugar level influence purchase intent. Krystallis and Chrysochou (2011) claim that a 'low fat claim' results in a higher loyalty and is therefore important as part of the communication.

In terms of research methods to evaluate the marketing effects of dairy products, Gelici-Zeko, Lutters, Klooster and Weijzen (2013) concluded that categorizing and perceptual mapping are useful, simple and user-friendly to uncover which packaging design cues have an impact on the perception of dairy products. An often-used method for evaluating packaging and labels is eye-tracking. Clement (2007, p. 1) concludes through this method "consumers exhibit a muddled search strategy where packaging design influences the decision process in several phases. Five phases were found in an in-store decision process, and the post-purchase phase seems to be essential for even low-level in-store decision processes. Further knowledge on packaging design elements is needed for a broader understanding of visual influence during in-store purchase decisions." A study by Graham and Jeffery (2011) across several types of food products showed 'meal' items generated more attention contrary to fruits, vegetables, snacks and deserts. Respondents also gave more attention to products, which they actually intended to buy. Finally the study showed few between-groups differences in terms of label viewing when it came to age, sex, race, etc. Additional research by Graham and Jeffery (2012) concluded showed that the self-reported awareness of nutritional information is higher than the awareness an eye-tracker was objectively able to measure. It also was concluded that more viewings were generated from label elements, which were placed at the top of the label as centrally placed labels. Another important factor which should be mentioned is lightning of package in shops (Horská and Berčík, 2014). These authors claim that the various types of lightning indeed change the rhythms of brain activity and probably on consumer behavior. Therefore it is important to focus on the presentation of packages in stores.

2 METHODOLOGY AND DATA

2.1 Participants

Participants were 110 students from a Faculty of Business and Economy at the Mendel University in Brno ranging in age from 19 to 25 years, with 75% of them female. Students with bad results in calibration were excluded from participation. Participants were chosen random. Time spend with one participant by research was 15 minutes. Our participants were chosen due to relatively easy availability and also they represent relevant example of the Y generation. The sample size of participant is comprehensive with respect to the used method. Typical sample size in similar researches is approximately 20 participants.

2.2 Procedure

For research were chosen 12 brands of milk packaging, which are available in typical Czech supermarkets. The first pages of packaging (part of labels visible firstly in shelves by shopping) were photographed in eye-tracking laboratory. All pictures were adjusted to correct size. All pictures were uploaded to the SMI Experiment Center software and printed concurrently. In experiment were used brands and types of milk which are on Fig. 1.

The required data were obtained through eye-tracking using the SMI RED 250 device. The RED has a sampling rate of 250 Hz. The distance between participants and eye-

Fig. 1: Overview of Packages

tracker with screen was 60 cm. First step with all participants were calibrated by 9 automatic calibration points and validated by 4 validation points. In some cases were done these steps repeatedly to taken better results. 36 participants with bad results by calibration and validation (more than $X = 1$ or $Y = 1$) were excluded.

After calibration and validation were participants answered to several important questions answers where were served for identification of participants.

Next these questions were screened pictures with labels of milk. Order of pictures was for each participant random. The task for participants was "Take a look at labels of milk". Each label was screened 10 s. Aim of this task was to discovered, which parts or stimuli of labels get the most of attention. After each label participants were answered to question "Do you like this label (ranging 1–5; 1 = I like it; 5 = I don't like it)" and "Do you buy this product?". Aims of this questions was to discovered, if there are some dependence between attention of participants and their attitude to brands of concretes milks.

In next step were participants answered to several questions served for discover they attitude to milk and buying milk.

After finished this part of experiment, were participants asked for looked at all labels in printed version and chosen three, which they like mostly and three which they don't like. Next task was to order these three labels in order from the best and another three from the worst. Part of this task was also described why they were chosen these labels or what their like or don't like on these labels.

All data were transformed to SMI BeGaze software. First step of analysis of data was classified all participants based on their identification and removed participants with bad results by calibration. Like key performance indicator were included to all stimuli areas of interest: "Brand", "Title name", "Fat", "Claims", "Weight", "Nutrition values". In next step all these data were exported from BeGaze to Stata software. Based on these information and information from questions was possible to evaluated attention and meaning participants about labels of milk.

Same like areas of interest there were made in BeGaze for illustration heat maps and focus maps analysis. Obtained data were analyzed using ANOVA analysis, analysis of frequency, average values of dwell time.

3 RESULTS

According to average Dwell Time (see Fig. 1) we can conclude that respondents from generation Y are mostly attracted by Title name of the milk. The most Dwell time was spent to milk number 1. This result can be affected by the fact that the Title name covers almost all front size of the examined package. But the importance of Title name for consumer's attention is proved with other results, where only in two occurrences (packages number 7 and 11) the Title name isn't the most important part of front side of milk package according to Dwell Time. In these cases Brand, Fat and Image gained more attention. Both packages (7 and 11) are retailer's private brands. Package number 11 is the one with the most Dwell Time spent for Fat information. This result is probably affected with fact that this information is emplaced in the top third part of the front size and is the biggest (in meaning of font size) from all the samples. Probably the high contrast (white font on blue background) takes it role as well. In other cases the average Dwell Time to Fat was between 500 and 1000 milliseconds so we can assume consumers from generation Y only check whether the main colour of package (excluding the white colour) refers to the right fat level (red = fat, blue = semi-fat, green = low-fat).

Only two examined samples have the Image average Dwell Time longer than 1,500 milliseconds. Sample number 5 obtained even more than 2,000 milliseconds of average Dwell Time.

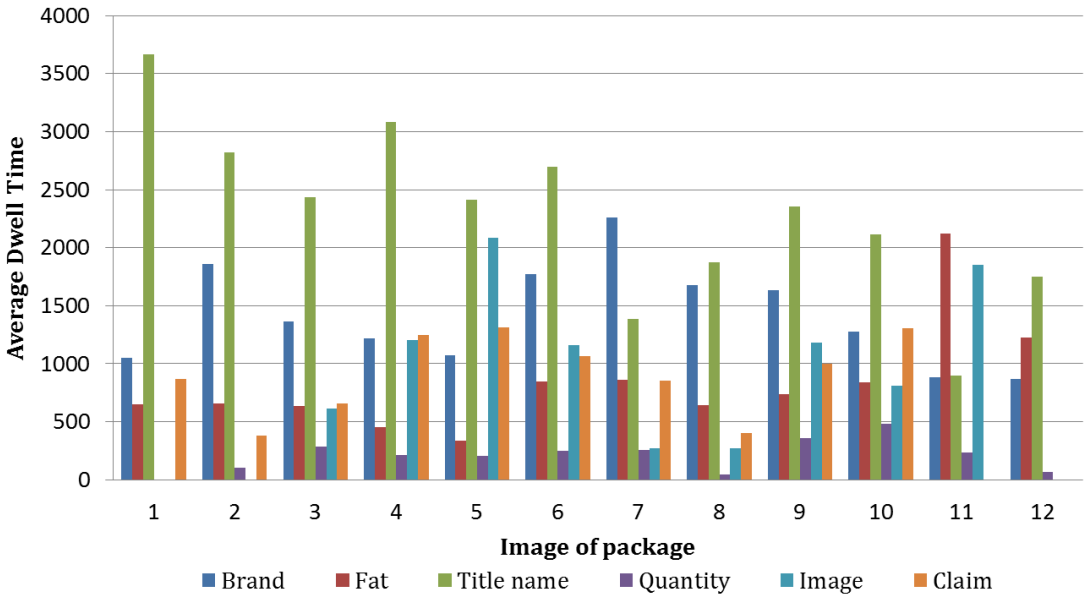

Fig. 2: Average Dwell Time of Package parts

The other sample is number 11. Both images are very simple and not presenting milk itself (compare with samples 3, 4, 6, 7, 8, 9, 12). They are more representing something connected to milk – cow (sample 11) or traditional farmhouse typical for South Bohemia region (sample 5). The shortest average Dwell Time spent respondents with Quantity. This is probably affected with the fact that all samples in this research have typical dimensions and shape for 1 litre of milk sold in the Czech Republic. Two basic types of milk packages were included in this research – tall-slim (samples 1, 2, 7, 8, 12) and short-wide (samples 3, 4, 5, 6, 9, 10, 11).

In Fig. 3 and 5 the most and the less attractive milk packages are shown. There is mostly no difference in gender, only packages number 5 and 2 are a little bit more attractive for men than women. And packages 7, 3 and 6 are less attractive for men. Women's most preferred package is number 1 and we can see some difference in package 3 between women and men. The less attractive packages for women are 10, 2 and 11 (all retails private brands with simple graphics). Overall the most attractive package is number 1 – analysis of this package's areas of interest is shown in Fig. 5.

Obtained data were analyzed using ANOVA analysis. The aim was to verify the assumption gender and package structure influence on consumer's attention. In the Tab. 1 ANOVA analysis results are presented. Overview of the ANOVA's results of all images is in Tab. 2.

As we can see in the Tab. 2, the models appear to be significant at the 0.00% level. Gender is not significant in any of the package and it does not effect on the length of the consumers' attention. Part of package has a significant influence on the length of consumer's attention.

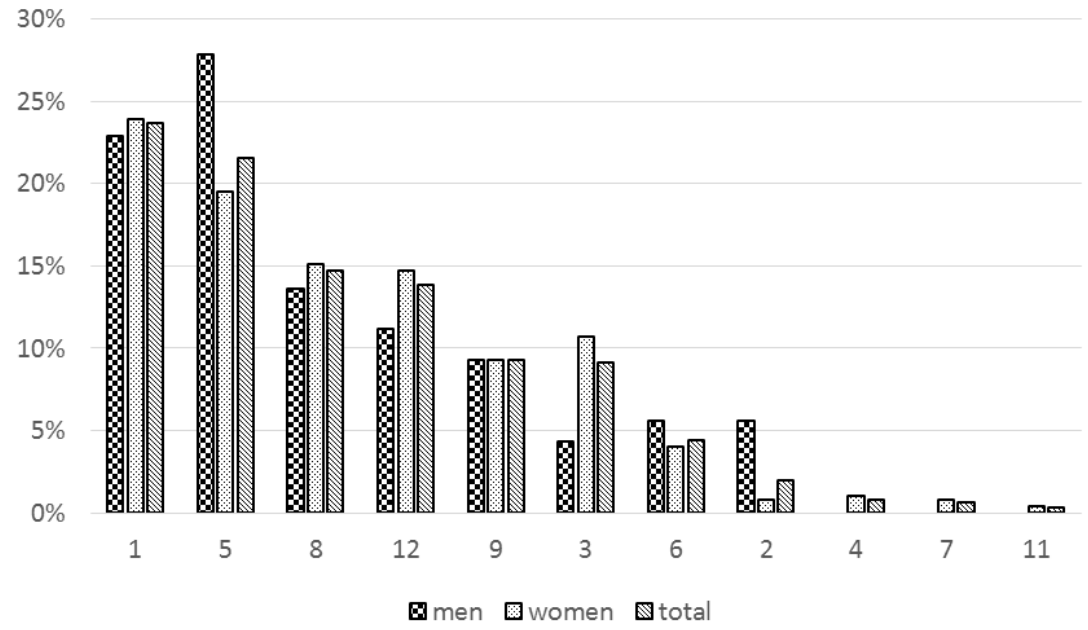

Fig. 3: Most attractive milk packages according to gender of respondents

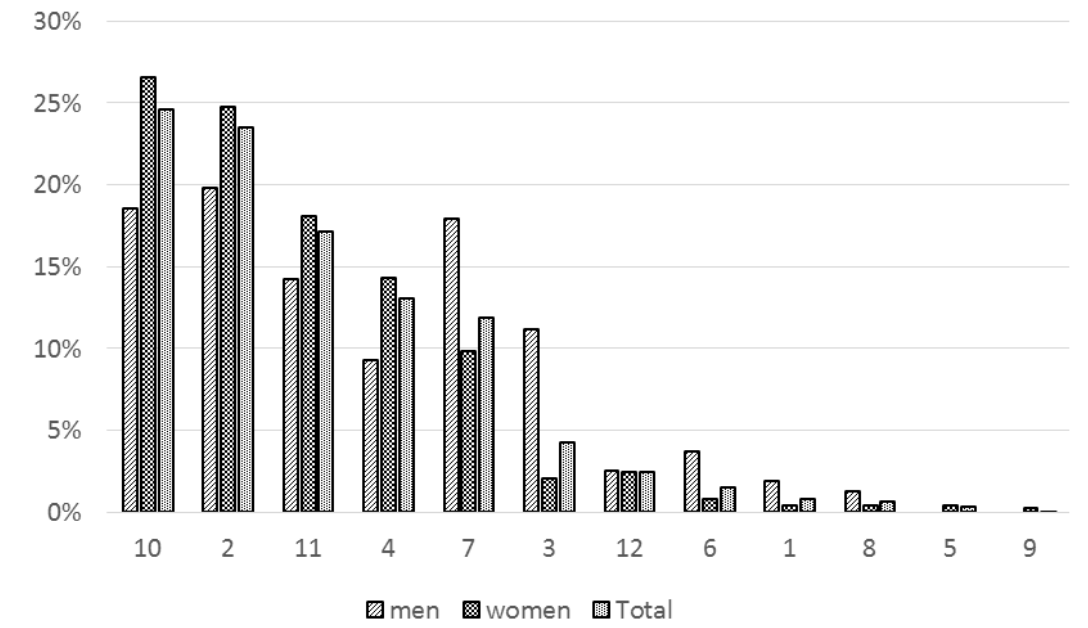

Fig. 4: Less attractive milk packages according to gender of respondents

Fig. 5: Areas of interest of the most attractive milk package overall

Tab. 1: ANOVA of 1st package

Number of obs = 518 R-squared = 0.7007
Root MSE = 758.355 Adj R-squared = 0.6930

Source	Partial SS	df	MS	F	Prob > F
Model	678571530	13	52197810	90.76	0.0000
gender	459256.974	1	459256.974	0.80	0.3719
part	580782461	6	96797076.8	168.31	0.0000
gender#part	875443.272	6	145907.212	0.25	0.9578
Residual	289851476	504	575102.135		
Total	968423006	517	1873158.62		

Tab. 2: Summary of ANOVA's results

		$p > F$		
Image	**Model**	**Gender**	**Part of package**	**Interaction**
1st	0.0000	0.3719	0.0000	0.9578
2nd	0.0000	0.1434	0.0000	0.5499
3rd	0.0000	0.9881	0.0000	0.6946
4th	0.0000	0.8438	0.0000	0.9194
5th	0.0000	0.6741	0.0000	0.4252
6th	0.0000	0.4895	0.0000	0.4131
7th	0.0000	0.9090	0.0000	0.0885
8th	0.0000	0.2275	0.0000	0.1166
9th	0.0000	0.5800	0.0000	0.5657
10th	0.0000	0.5840	0.0000	0.4372
11th	0.0000	0.8775	0.0000	0.8910
12th	0.0000	0.7771	0.0000	0.4954

4 DISCUSSION AND CONCLUSIONS

In this paper 12 milk packages were researched to show how gender and package structure influence on consumer's attention in generation Y. Finally we can say the variability of results is independent on gender in generation Y. But ANOVA's results proved that all package parts are influencing consumer's attention (see Cheverton, 2004). Results of this participants group suggest the name of the product is the most important part of package influencing consumer's attention followed by brand and image.

Our results did not proved influence of brand and other parts of package on buying intent as stated Kim, Lopetcharat and Drake (2013). Otherwise results are showing that for representatives of the Y generation the title name (milk) and the brand of the milk gained the highest attention. With the respect to the result it is possible to assume that this two parameters of the package could have influence on the consumer buying process.

The crucial nutrition parameter of a milk is a content of fat. The value of fat as well as the color of package refers to fat level of a milk in the Czech Republic (red – 3.5% of fat, blue – 1.5%, green – 0.5%). As Grunert and Wills (2007) stated consumers prefer simplified information regarding nutrition information on food packages and the milk is the typical example of simplified information. From results it is obvious that the attention to the fat level is also significant.

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