# Using Factor Analysis Tool to Analyze the Important Packaging Elements that Impact Consumer Buying Behavior

## Vjollca Visoka Hasani

Assistant Professor at AAB University, Prishtina, Kosovo
Email: vjollca.hasani@universitetiaab.com

## Jusuf Zeqiri

Assistant Professor at SEE University, Tetovo Macedonia,
Email: j.zekiri@seeu.edu.mk

**Abstract**

The objective of this study is to determine the elements that play an important role on consumer's buying behavior. The purpose of this research is to find out the main important factors related with the packaging effect. Companies in order to create the right packaging for their products, they must understand the consumer buying process and understand the role and the impact of packaging elements as variables that can influence the purchase decision. So, by understanding what factors influence the buying behavior and what packaging elements are most important it help companies making the right decisions about product and their package.
This research through empirical data tries to find the relationship between consumer buying process as the main variable of the study and some independent variables like, packaging color, printed information, packaging material, design of wrapper, printed information, brand image, and innovation and practicality that help consumers in their decision buying process.
The primary research data are collected through a structured questionnaire and SPSS software is used for analysis purposes.
Finally, factor analysis is also employed to find out the most important factors of packaging elements that are more important for consumers during the process of decision while buying. The data obtained rated the package design, printed information, and innovation and practicality as more important factors during the buying process.

**Key Words**: Packaging, Consumer Buying behavior, Purchase Decision,

## 1.  INTRODUCTION

Consumers nowadays are facing an increasing number of products. Being exposed to such a number of products, consumers are bombarded with too many clues, stimuli for being attracted by different companies while making their marketing offer. The average American

267

supermarket holds approximately 20,000 products that are competing to attract the consumers' attention (Belch & Belch., 1999). In this line Keller (2008) states that consumers are exposed to more than 20,000 product choices within a 30-minute shopping session.

In principle the primary purpose of packaging is to protect the product, but companies use the packaging as an instrument for promoting their products, increasing sales, and attracting customers. Companies, now days are more interested in using packaging for boosting their sales.

A good packaging helps to identify and differentiate products to the consumers. Packaging is used for easily delivery and safety purpose. Companies also use it for the promotional purposes as well as to differentiate the product from other brand.

Companies must understand what influences consumers in their consumer buying process in general and in particular the packaging as a variable that can influence the buying decision process. They must also understand what factors can influence buying behavior and what is the role of the packaging elements toward buying decision process of consumers during their purchase decision. However, in order to create the 'right' packaging for a product, companies need to analyze very deeply the packaging elements that might be of importance to consumers.

The marketplace is flooded with a wide range of product brands. This situation has become a real burden for consumers in order to keep pace with this large number of diverse brands in the market (Suresh et al., 2012). According to Alvarez and Casielles (2005) organizations' intentions are developing brands in order to attract and retain the existing consumers.

The scholars have recognized the importance of having loyal customers, because such customers are less price sensitive and spend more money for the preferred brand. Loyal customers tend to buy more frequently, and are less likely to be influenced by competitors' promotion and communication strategies.

Understanding how the consumer chooses products and consumers can provide manufacturers with useful insights and offer them a competitive advantage over their competitors (Kotler & Keller., 2011). Companies can use this understanding in a very strategic way in order to offer the right products and services to the right customer at the right time.

Accoding to Aaker (2010) consumers respond to packaging based on previous information, learned reactions and individual preferences. Products, shapes, colors, sizes and labels might influence consumers to respond positively.

## 1.1. Objectives of the study

This paper tries to analyze and find out the most important elements of packaging that influence the buying decision process. Thus, the paper will try:

- To find out the impact of packaging on the buying behavior decision.

- To find out the most important factors that have an impact of each packaging element on the consumer.
- To check the effect of packaging elements on the buying behavior.

## 1.2. Research questions and hypothesis

The study tries to answer the following research questions:

1. What is the impact of packaging elements on the buying behavior of consumers?
2. What are the most important factors of the package elements for consumers in the buying decision process?
3. What is the effect of the packaging elements on the buyer behavior?

The study will also try to answer the following hypotheses:

Null hypothesis        **Ho: "**There is no relationship between packaging elements and the buying behavior of customers".

Alternative hypothesis  **Ha:  "**The packaging elements are very important on the buying behavior of consumers".

## 2. LITERATURE REVIEW

Buying behavior of consumers is influenced by many factors such as, packaging color, printed information, packaging material, design of wrapper, printed information, brand image, innovation and practicality.

Color of packaging is important because it used by companies to differentiate its product from other competitors. Companies use different colors for emphasizing a different mood, like, black is used for power, blue for trust, red for energy, green for balance or organic and fresh. According to Keller (2009) color is an essential component of packaging because consumers link type of colors with particular product. According to Singh (2006) color perceptions vary across cultures and most of the religions are believed to have their sacred colors.

Packaging protects the product. It does more than just protecting the company's products (Charles W. L et al., 2011) because it also helps in developing the image of the product in consumer mind. Labeling provides information regarding the product category, products ingredients, and product instructions. It also helps consumer to differentiate a product more easily (Morris,1997). Labeling helps consumers spend less time needed while searching for products that are decided to be bought by them. Nowadays, there are consumers that pay more attention to label information since they are more concerned with health and nutrition issues (Coulson, 2000).

The material used in packaging is an important element which prevents the product from any damage or loss. It is more likely that the high quality material might attract customer more than low quality material. Consumer perceptions regarding certain materials could change the perceived quality of a product (Smith & Taylor, 2004).

Printed information contain all the information related to the product quality, price, description which help to identify the brand. The information on packaging is an important component since it can support marketing communication strategies of companies to establish brand image and identity (Shah et al., 2013).

An image can create value to consumers by helping to process information; differentiate their preferred brands, facilitating buying, giving positive feelings, and providing a basis for product extensions (Aaker, 1991). The image on the product is important because it increases the attention for that given product. The background image is the image in the mind of the customer which helps to identify the brand of the product from different brands (Goldberg 1999; Mowen & Minor, 2001). Consumers often buy products that have famous brand because they feel more comfortable with things that are already known (Aaker, 1991).

Bringing innovation in the packaging design can attract consumers, but practicality is also valued a lot by consumers, because it adds the added value, like easily opening, easily stored, and recyclable.

## 3. METHODOLOGY

The main purpose of this paper was to identify the main factors that are important to customers regarding the packaging elements on the consumer buying behavior. Consumers value factors such as, color, printed information, packaging material, design, brand image, and innovation and practicality that help consumers in their decision buying process. The paper used both types of data, primary and secondary. The primary data was collected through a structured questionnaire. Whereas, secondary data was collected from books, textbooks, online articles, journals, etc.

A structured questionnaire was sent to 460 respondents, but 395 responded it. Thus, the respondents' rate is about 86%. The study included different age groups, different professions, and country origins of the respondents.

Factor analysis was used in order to find out the most important factor loading that are important underlying factors with packaging elements that have an impact on consumer behavior. **Factor analysis** is a technique that is used to reduce a large number of variables into fewer numbers of factors. Factor analysis extracts maximum common variance from all variables and puts them into a common score. The statistical tools SPSS and Excel were used for data analysis.

## 4. DATA PRESENTATION AND ANALYSIS

This chapter includes a systematic presentation of data obtained from the survey about packaging factors that are more important on consumer buying process.

### 4.1 Descriptive statistics

The tables below describe the frequency of respondents based on their gender, age, country of origin, job and education.

**Table: 1. Respondents' distribution based on gender**

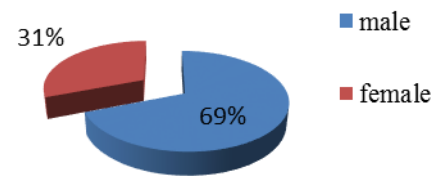| Gender | | Frequency | Percent |
|---|---|---|---|
| Valid | male | 273 | |
| | female | 122 | 31 |
| | Total | 395 | 100 |



Fig. 1 Gender

Table 1, shows the frequency distribution and the percentage of the answers to the questionnaire based on customer's distribution on age. From the results obtained in table 1, 69 % of participants are males, whereas 31 % are female participants.

**Table: 2. Respondents' distribution based on age**

| Age | | Frequency | Percent |
|---|---|---|---|
| Valid | less than 20 | 38 | 10 |
| | 21-30 | 197 | 50 |
| | 31-40 | 91 | 23 |
| | 41-50 | 60 | 15 |
| | more than 51 | 9 | 2 |
| | Total | 395 | 100 |



Fig. 2 Age
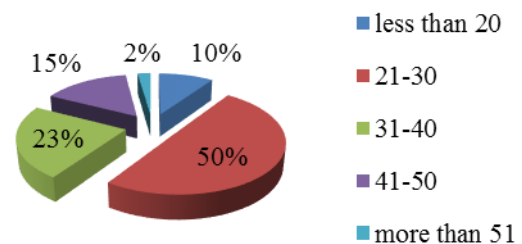
From the results obtained in table 2, most response rate belongs to the group age 21-30, about 50% of participants, followed by the group age 31-40 with 23% response rate, and with the least response rate group age above 51, with 2% response rate.

**Table: 3. Respondents' distribution based on country of origin**

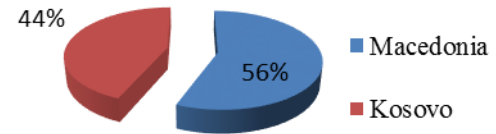| Country | | Frequency | Percent |
|---|---|---|---|
| Valid | Macedonia | 222 | 56 |
| | Kosova | 173 | 44 |
| | Total | 395 | 100.0 |



Fig.3 Country

Table 3 presents customer's distribution based on country of origin. From the results obtained in table 3, 56 % of participants are from Macedonia, whereas 44 % are from Kosova.

**Table: 4. Respondents' distribution based on job**

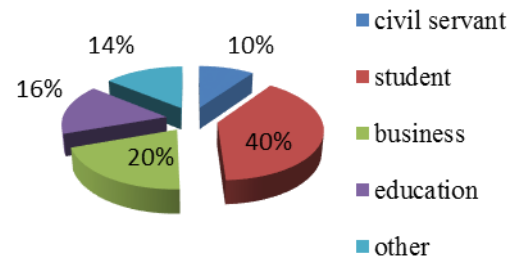| Job | | Frequency | Percent |
|---|---|---|---|
| Valid | civil servant | 39 | 10 |
| | student | 156 | 40 |
| | business | 80 | 20 |
| | education | 64 | 16 |
| | other | 56 | 14 |
| | Total | 395 | 100 |



Fig. 4 Job

Table 4, presents customer's distribution based on their job As we can see from the table, students belong to the group with the most response rate, 40%, followed by those that work in private companies and those that work in education with response rate of 20% respectively 16% response rate.

**Table: 5. Respondents' distribution based on education**

| Education | | Frequency | Percent |
|---|---|---|---|
| Valid | secondary | 36 | 9 |
| | faculty | 188 | 47 |
| | master | 125 | 32 |
| | doctorate | 46 | 12 |
| | Total | 395 | 100 |



Fig. 5 Education
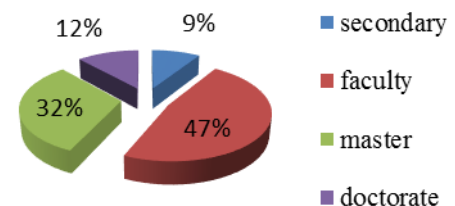
From the results obtained in table 5, customer's distribut faculty respondents are valued with 47%, master respond followed by doctorate education with 12% response rate.

**4.2 Factor Analysis**

**Factor analysis** is a technique that is used to reduce a large number of variables into fewer numbers of factors. The number of factors is determined by Eigenvalues. If Eigenvalues is greater than one, we should consider that a factor and if Eigenvalues is less than one, then we should not consider that a factor. According to the variance extraction rule, it should be more than 0.7. If variance is less than 0.7, then we should not consider that a factor.

First of all, KMO and Bartlett's Test was used to check the appropriateness of factor analysis for the purpose of research. The results of reliability should be bigger than 0.7. Also, the results of Bartlett's Test of Sphericity should be less than 0.05

**Table: 6. KMO and Bartlett's Test**

| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .880 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1183.081 |
| | df | 36 |
| | Sig. | .000 |

According to results obtained from table 6, KMO is .880 which is above the acceptable level, which approves the appropriateness of this analysis for the study.

**Table: 7. Total Variance**

| | Total Variance Explained | | | | | |
|---|---|---|---|---|---|---|
| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4.210 | 46.774 | 46.774 | 4.210 | 46.774 | 46.774 |
| 2 | .947 | 10.520 | 57.294 | | | |
| 3 | .783 | 8.694 | 65.989 | | | |
| 4 | .661 | 7.349 | 73.337 | | | |
| 5 | .625 | 6.946 | 80.284 | | | |
| 6 | .525 | 5.831 | 86.114 | | | |
| 7 | .456 | 5.071 | 91.185 | | | |
| 8 | .432 | 4.801 | 95.986 | | | |
| 9 | .361 | 4.014 | 100.000 | | | |

According to table 7, Total Variance, and the Rotated Component Matrix shows the most important factors from the packaging elements. Loading factors show the importance of the

specific factors for the customers during their buying decision process. Eigenvalues show variance explained by that particular factor out of the total variance. From the commonality column, we can see that our first factor explains 46.77% variance out of the total.

**Table: 8 Rotated Component Matrix**

| Rotated Component Matrix | |
| --- | --- |
| | Component |
| | 1 |
| *The package design has an impact on product selection during buying process* | .729 |
| *The printed information on the package helps the process of buying* | .724 |
| *Innovation and practicality is important in consumer buying process* | .723 |
| *The quality of the packaging material is important during buying process* | .696 |
| *The brand image on the package has an impact on consumer behaviour on buying process* | .690 |
| *The label of the package is important in desicion buying process* | .676 |
| *The packaging color impacts consumer behaviour during buying process* | .663 |
| *The language used on the package influences consumer behaviour during the buying process* | .655 |
| *The quality of packaging is related with the price of the product* | .586 |

According to table 8, using Rotated Component Matrix and Total Variance, factors are put in one group. This means that all this factors are important as packaging elements during consumer buying behavior. The most important factors are listed. Therefore, based on the results, the loading factors showed the importance of the specific factor for the customers during their decision process. The package design, the printed information, and Innovation and practicality are more important in consumer buying process.

## 5. CONCLUSIONS

The obtained results from research show that all elements presented in this study seem to be important and some of those elements to be very important as a factor while deciding to buy certain products. Thus, the packaging elements represent a good means of marketing communications towards consumers, because consumers value the elements that are embodied on the package.

The figure 6 summarizes the obtained results that the packaging elements are very important during the buying process and they facilitate a lot the decision process. Furthermore, the findings show that the following factors such as, the package design, printed information, and innovation and practicality, seem to be the most important factors that are valued by customers during their buying process.

**Figure: 6. The Packaging Elements**
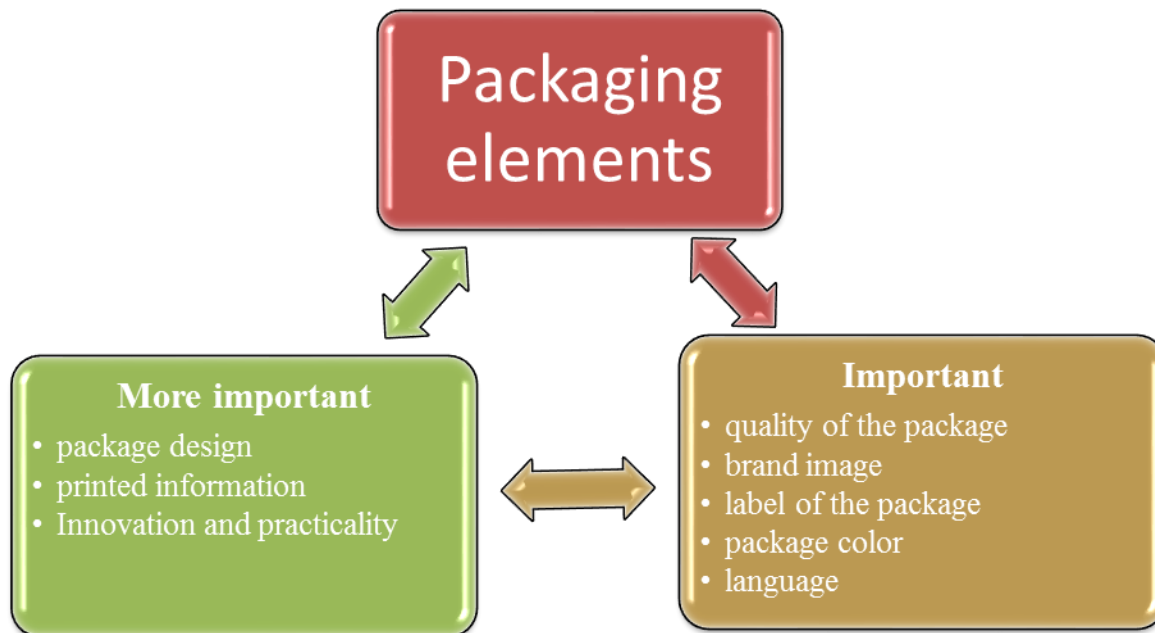


As it was noted from literature review, the color helps consumers differentiate their favorite brands. The packaging color helps also companies to catch consumers' attention and interest. Consumer value label in the products, because they can get information about the product. The information given in the label also helps companies promote the product in the market.

From the empirical evidence, the information on packaging represents an important component because printed information contains all the information related to the product quality, price, and description which helps and facilitates the decision process during purchasing. The language used on the package also represents as an important factor during the buying process. Innovation in the packaging design also increases the chance for positioning the product into consumers' minds.

Finally, factor analysis was also employed to find out the most important factors of packaging elements that are more important for *consumers during the process of decision while buying.*
The data obtained rated the package design, printed information, and innovation and practicality as the more important factors during the buying process.

## 6.  REFERENCES

1. Alvarez, A. & Casielles, R.V., 2005, '*Consumer evaluation of sales promotion: The effect on brand choice*', European Journal of Marketing 39(1/2), 54–70. http://dx.doi.org/10.1108/03090560510572016
2. Suresh, S., Mohanam, P. & Naresh, G., 2012, '*Brand success redefined: An analysis of the interrelationships among various brand dimensions*', Psychological Research 2(1), 32–39.
3. Kotler, P. and Keller, K. (2011) *Marketing Management* (14th edition). London: Pearson Education.
4. Aaker, D.A., 1996, '*Measuring brand equity across products and markets'*, *California Management Review 38(3), 102–121.* http://dx.doi.org/10.2307/41165845
5. Keller, Kevin L. (2008). *Strategic Brand Management.* New Jersey: Pearson Education.
6. Belch, George E. & Belch, Michael E. (1999). *Advertising And Promotion: An Integrated Marketing Communication Perspective* (4th ed). Mc Graw Hill.
7. Charles W. L, Joe F. H, Carl M., 2011 *Essentials of Marketing: A Marketing Strategy Planning Approach,* Cengage Learning
8. Julian M. , 1997, *Green Goods? Consumers, Product Labels and the Environment*, Published by the IEA Environment Unit
9. Coulson, N.S., 2000, "*An application of the stages of change model to consumer use of food labels*", British Food Journal, 102, 9, 661-8.
10. Smith, P.R. & Taylor, J., 2004. *Packaging. In Marketing Communications*. London: Kogan Page Limited. Pp.543-74.
11. Singh, S., 2006*. Impact of Color on Marketing*. Emerald, 44, pp.783-89.
12. Keller, K.L., 2009. *Choosing Brand Elements to build Brand Equity*. In Strategic Brand Management. 3rd ed. Delhi: Dorling Kindersley. pp.187-96.
13. Shah, S., Ahmed, A., & Ahmad, N. (2013). *Role of Packaging in Consumer Buying Behavior*. International Review of Basic and Applied Sciences, 1(2), 35–41.
14. Aaker, D. A. (1991), *Managing Brand Equity*, New York: The Free Press.
15. Mowen, J. C. & M. Minor (2001). *Consumer Behavior*: A Framework, USA: Prentice Hall
16. Bambang S. W., 2013. *Dimensions of Brand Image*: A Conceptual Review from the Perspective of Brand Communication, European Journal of Business and Management www.iiste.org ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online) Vol.5, No.31