



## SELECTED PSYCHOLOGICAL FACTORS AS PREDICTORS OF CONSUMER CHOICE IN THE MILK PRODUCT MARKET

*Jana Rybanská<sup>1</sup>, Ludmila Nagyová<sup>2</sup>, Filip Tkáč<sup>3</sup>*

Faculty of Economics and Management  
Slovak University of Agriculture in Nitra

<sup>1</sup> ORCID: <https://orcid.org/0000-0002-2310-0114>  
e-mail: jane.rybanska@gmail.com

<sup>2</sup> ORCID: <https://orcid.org/0000-0002-5220-2857>  
e-mail: ludmila.nagyova@uniag.sk

<sup>3</sup> ORCID: <https://orcid.org/0000-0002-1225-1697>  
e-mail: xtkac@is.uniag.sk

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### Abstract

Milk and milk products represent one of the most important components of a well-balanced diet. The average consumption of milk in 2017 in Slovakia was about 176 kg per capita. Because the consumption of milk and milk products is generally considered to be very important for human health, it is also important to convince consumers to buy these products.

The presented paper deals with selected psychological factors that influence consumer behaviour when buying milk and milk products. We focused on 180 young consumers (20-45 years old) who belong to the generation Y and we studied the persuading power of selected tools of marketing communication (mainly visual aspects like colour, features of logos, overall look of packages, etc.) for milk.

Several methods of psychological and marketing research were used in the study, specifically a personality questionnaire NEO FFI, semantic differential based analysis of profile, content analysis and an analysis of dependences (binomial logit). It was found that personality characteristics and the temperament structure of consumers influence their choices in the milk product market. Packages and logos of milk products are strong persuaders if they are associated with the offered products.

**WYBRANE CZYNNIKI PSYCHOLOGICZNE WPŁYWAJĄCE NA WYBÓR  
KONSUMENTA NA RYNKU PRODUKTÓW MLECZNYCH***Jana Rybanská, Ludmila Nagyová, Filip Tkáč*Wydział Ekonomii i Zarządzania  
Słowacki Uniwersytet Rolniczy w Nitrze

**Słowa kluczowe:** produkty mleczne, czynniki psychologiczne, wybór konsumenta, zachowanie konsumenta, osobowość konsumenta.

**Abstrakt**

Mleko i produkty mleczne stanowią jeden z najważniejszych składników dobrze zbilansowanej diety. Średnie spożycie mleka w 2017 r. na Słowacji wyniosło około 176 kg na mieszkańca. Spożycie mleka i przetworów mlecznych jest uważane za bardzo ważne dla zdrowia ludzkiego, dlatego ważne jest również przekonanie konsumentów do zakupu tych produktów.

Przedstawiony artykuł dotyczy wybranych czynników psychologicznych, które wpływają na zachowania konsumentów podczas zakupu mleka i przetworów mlecznych. Skupiono się na 180 młodych konsumentach (20-45 lat) należących do pokolenia Y i badano siłę przekonywania wybranych narzędzi komunikacji marketingowej (głównie aspekty wizualne, jak: kolor, cechy logo, ogólny wygląd opakowań itp.) do zakupu mleka i produktów mlecznych.

W badaniu wykorzystano kilka metod badań psychologicznych i marketingowych, szczególnie: kwestionariusz osobowości NEO FFI, analizę profilu opartą na różnicach semantycznych, analizę treści i analizę zależności (logit dwumianowy). Stwierdzono, że cechy osobowości i temperament konsumentów wpływają na ich wybory na rynku produktów mlecznych. Opakowania i logo produktów mlecznych są silnie przekonujące, jeśli są związane z oferowanymi produktami.

**Introduction**

Cow's milk and cow's milk products have long been associated with good health, making them one of the most consumed products throughout the European countries. Milk has long been seen as a healthy beverage, because it is high in a range of nutrients (Ware & Wilson, 2017). Milk is a rich source of quality protein that contains all nine essential amino acids that may help reduce age-related muscle loss and promote muscle repair. Milk also contains a variety of nutrients that benefit bone health, such as calcium, vitamin D, phosphorus and magnesium (Kubala, 2018). The consumption of cow's milk, however, can be potentially risky, mainly because of bacterial pathogens (Yoon *et al.*, 2016), allergic reactions and the inability to digest lactose (sugar found in milk and dairy products). According to experts from the U.S. Department of Health & Human Services (*Lactose intolerance*, 2018), approximately 65 percent of the human population has a reduced ability to digest lactose after infancy. The prevalence of lactose intolerance is lowest in populations with a long history of dependence on unfermented milk products as an important food source (for example Eastern

and Northern Europe). Despite different disputes among experts, cow's milk and cow's milk products can be considered very beneficial for human health.

In the Slovak Republic, milk and milk products represent a considerable part of the consumer's diet. The estimated average consumption of milk in 2017 in Slovakia was about 176 kg per capita (Masár, 2018). However, the consumption of milk is decreasing in Slovakia and represents only a half of the recommended dose. In 2016, the average Slovak consumed 45.1 litres of milk, which is about a third less than in 1996 (71.5 litres). Within the EU, Slovakia participates at a rate less than one percentage point of total cow's milk production (Sadovska, 2018). Because the consumption of dairy products is generally considered to be very important for human health in the Slovak Republic, it is important to convince consumers to buy these products and support smaller and bigger farmers within the Slovak regions.

Consumer choice is traditionally considered to be a rational, well-judged cognitive process. Increasingly however, research has shown that a significant part of consumer decision-making is unconscious (Fitzsimons *et al.*, 2002). Clegg (2000), Dijksterhuis *et al.* (2005), Dhar (2012), Krishna *et al.* (2014) and others have found that only a limited number of consumer choices are based on conscious information-processing strategies. A significant part of consumer choice is unconscious and results from different cues present in the environment of individuals. Many experimental studies in behavioural consumer research and social psychology have confirmed that environmental cues together with various factors strongly influence the final choice of the consumer (Jacob *et al.*, 2011).

The paper presented here investigates the persuading power of selected tools of marketing communication (mainly visual aspects like colour, features of logos, overall look of packages, etc.) for milk products. It explores how the design of different packages of milk products is associated with this type of product and how these packages are perceived by selected consumers according to their selected psychological characteristics.

## **Material and methods**

The investigated sample consisted of 180 young adults (86 men and 94 women), aged 20-45. All respondents, according to their age structure, belonged to the segment known as "Generation Y" or "Millennials". Participants aged 20-45 were chosen intentionally because this study is a part of wide-ranging research focused on Millennials. Young adults of generation Y are the most studied segment under our conditions, because they represent a purchasing power that can influence the processes in the food market, and thus the processes in the market of milk products. The selected segment can also significantly influence the buying behaviour of the next generation. All respondents have

completed a minimum of secondary education and they live in the Slovak Republic. Further characteristics of participants are stated in the following table (Tab. 1).

Table 1  
Participants according to gender and residence

Specification		Residence		Total
		town	village	
Gender	male	47	39	86
	female	50	44	94
Total		97	83	180

Source: own elaboration.

The representativeness of the sample was verified by a Pearson's Chi-square test. It was found out that the sample of respondents is representative according to gender and residence ( $\alpha = 0.49$ ).

A comprehensive questionnaire was constructed to achieve the research objectives. First of all, an association experiment was conducted. Respondents were asked to write down at least 3 words that they associate with milk. Then the personality traits of selected consumers in the sample were investigated by using the NEO Five Factor Inventory personality questionnaire. Considering the results of previous research, only three personality traits (neuroticism, extroversion and openness to experience) were taken into consideration. In the next step, consumers were presented two logos (Fig. 1) of companies that produce milk and they evaluated the logos on a scale of semantic differential. In the last step, respondents had to choose the packaging of milk that they liked the most. They were presented eight packages of milk from different producers (brands were removed) (Fig. 2). Also, the content analyses of logos and packages were conducted in connection with the questionnaire.

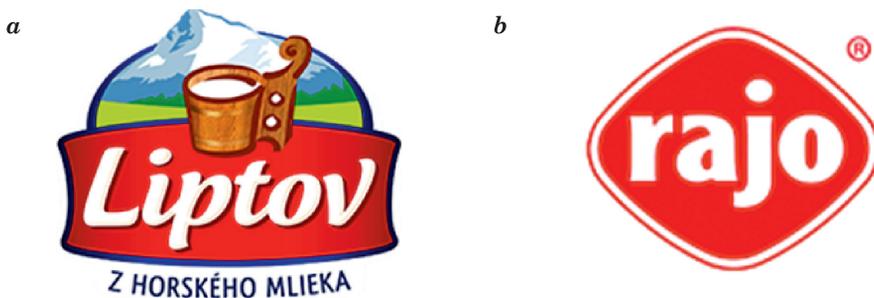


Fig. 1. Explored logos of companies producing milk: *a* – Liptov, *b* – Rajo

Source: Liptov. Z horskeho mlieka... (online), Rajo (online).



Fig. 2. Explored milk packages

Source: own elaboration.

The dependences between the psychological characteristics of respondents and their preferences and choices were investigated by the chosen statistical methods (binomial logit). The analysis of the profile was also made on the basis of the evaluated results from the scales of the semantic differential.

## Results and discussion

Representation of the selected temperament traits (extroversion, neuroticism and openness to experience) of respondents investigated by the NEO Five Factor Inventory corresponds with the anticipated representation of these characteristics and temperament structure in the worldwide population, which was found on the basis of longitudinal studies based predominantly on the Myers-Briggs Type Indicator whose items are significantly correlated with the NEO FFI. These findings indicate that there are about 25-30% of introverts in the population. In our sample there were 26% identified as introverts and 74%

identified as extroverts. About 65% of respondents were emotionally stable and 35% were emotionally unstable.

The results of the association experiment showed that the word “Milk” is mostly associated with positive or neutral words from the everyday life of consumers. Milk is mostly associated with the words: cow, white, health, strength, cocoa, breakfast and Alps. From these results we can conclude that milk is generally assumed to be a healthy beverage that is popular among young adult consumers. All associated words were taken into consideration in the content analyses.

Two presented logos of companies that produce milk were well-known among respondents. The logo of the brand Liptov was evaluated more positively than the logo from the brand Rajo. It was considered to be more interesting, prettier, more positive and more pleasant (Fig. 3). We can assume that it is because of the present visual cues that are connected with Slovak nature and culture, mountains and freshness. All of the mentioned features can be easily associated with physical health and strength on a conscious and subconscious level. The results are identical with the results of the content analysis that takes into consideration associations, used colours and other visual cues.

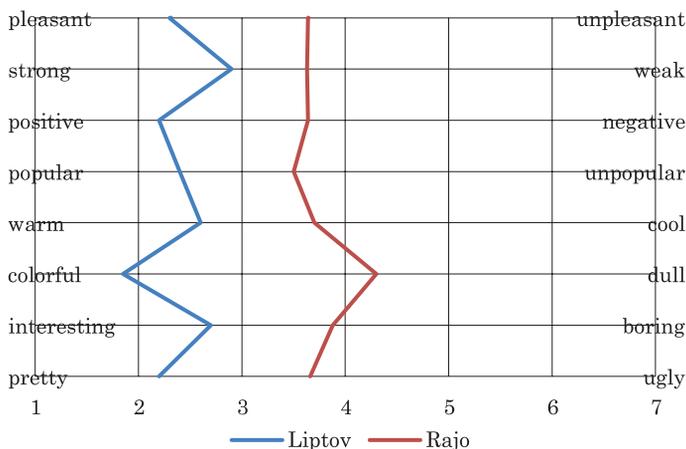


Fig. 3. Evaluation of the presented logos of “Milk” on the scales of semantic differential  
Source: own elaboration.

The dependencies between temperament, personality traits and other psychological characteristics of respondents and their choices and evaluations were tested with the use of a binomial logit (Tabs. 2, 3).

It was observed that the investigated personality traits influenced the choices, evaluations and preferences of consumers. Respondents with higher neuroticism evaluated the first logo more positively on several scales. Females (rather than males) considered the first logo to be less strong. The second logo was considered

Table 2

LIPTOV – Dependences between psychological characteristics and evaluations of the logo

Endogenous variable	Exogenous variables	
Colorful	openness to experience (0.2786)*	:
Strong	neuroticism (-0.05294)*	female (-1.66163)*
Active	neuroticism (-0.04989)*	:

Signif. codes: \*\*\* – 0, \*\* – 0.001, \* – 0.01, . – 0.05, : – 1  
 Source: own elaboration.

Table 3

RAJO – Dependences between psychological characteristics and evaluations of the logo

Endogenous variable	Exogenous variables		
Pretty	neuroticism (0.07911)**	age (0.0613)*	village (residence) (1.59361)**
Colourful	openness to experience (0.06529)*	:	:
Warm	openness to experience (0.06859)*	:	:
Positive	extroversion (0.05765)*	female (-1.5953)**	:
Interesting	neuroticism (0.076)**	openness to experience (0.07792)*	village (1.45054)***
Strong	village (1.3883)**	:	:
Active	neuroticism (0.05105)*	age (0.09398)**	village (1.63203)***

Signif. codes: \*\*\* – 0, \*\* – 0.001, \* – 0.01, . – 0.05, : – 1  
 Source: own elaboration.

to be prettier and more interesting by respondents that are more emotionally unstable. Neuroticism (emotional liability) is the personality trait that usually triggers stronger and deeper emotions – the more emotionally unstable the consumer is, the stronger are their emotions regardless of their valence.

Differences in the evaluation of logos by different types of consumers are shown in following figures (Figs. 4, 5, 6, 7).

Surprisingly, consumers with a phlegmatic temperament evaluated the first logo the most positively and the second logo the most negatively. Melancholics evaluated the first logo more negatively (despite overall positive evaluating) and the second logo more positively (despite an overall negative evaluation).

The slice differences were also detected between extroverts and introverts. Extroverts considered the first logo to be less pretty, less interesting and less pleasant in comparison with introverts. The second logo was generally evaluated more positively by extroverts. Emotionally unstable consumers were generally more critical.

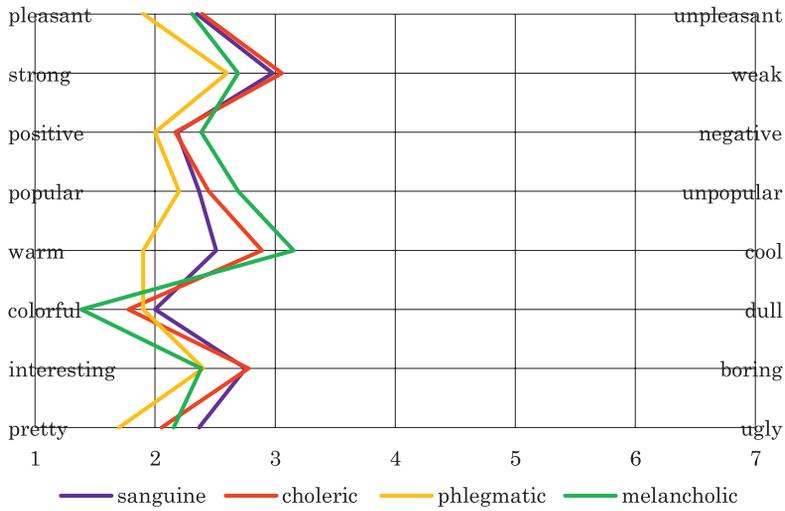


Fig. 4. Evaluation of the logo LIPTOV on the scales of semantic differential by consumers with different temperament (analysis of profile)

Source: own elaboration.

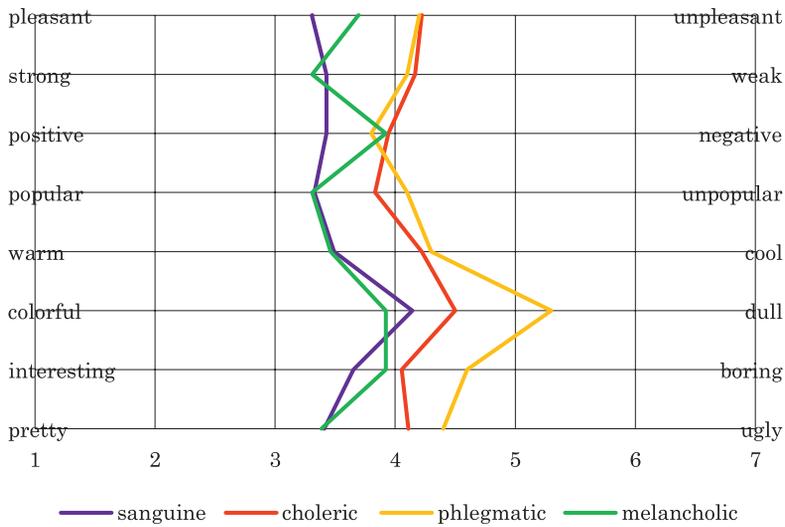


Fig. 5. Evaluation of the logo RAJO on the scales of semantic differential by consumers with different temperament (analysis of profile)

Source: own elaboration.

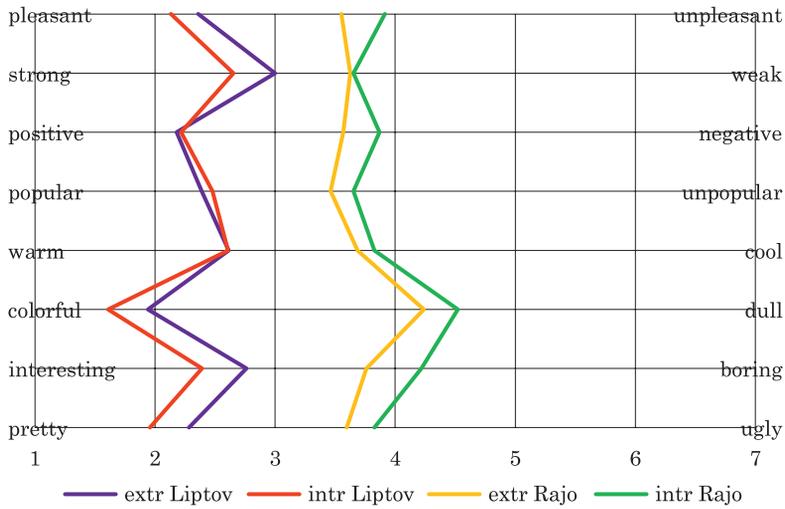


Fig. 6. Evaluation of presented logos on the scales of semantic differential by consumers with different levels of extroversion (extroverts – introverts)

Source: own elaboration.

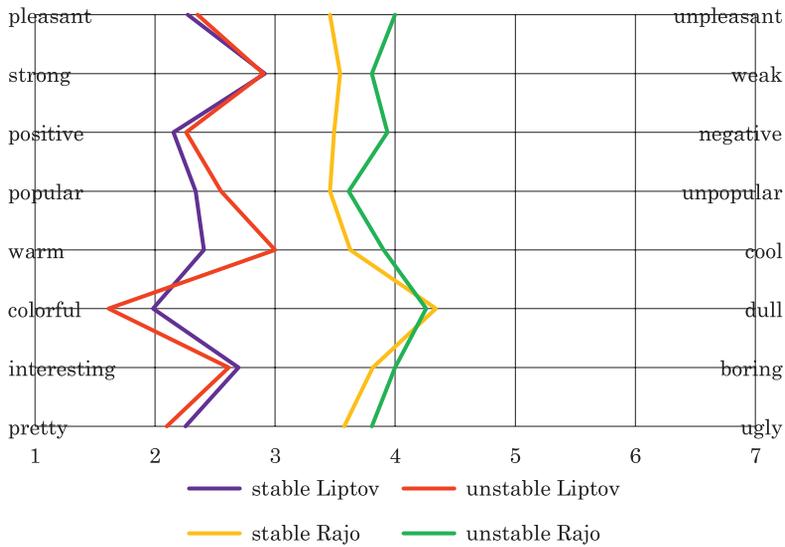


Fig. 7. Evaluation of presented logos on the scales of semantic differential by consumers with different levels of neuroticism (emotionally stable – emotionally unstable)

Source: own elaboration.

In Figure 8 there are evaluations of packages of different brands of milk. The most favourite is the packaging that contains the largest number of associated features and cues. The results are identical with the results of the content analysis that takes into consideration associations, used colours and other visual cues. The most favourite packaging tended to contain natural motifs and a cow, which has the strongest association with the product “Milk”. The second most popular choice contained milk itself on the blue background of the packaging.

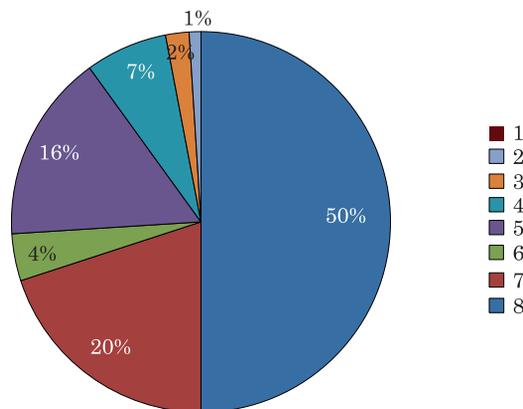


Fig. 8. Evaluation of the presented packages of different brands of Milk  
Source: own elaboration.

## Conclusions

The presented study is part of a wide-range of research focused on Millennials (young adults, aged 20-45) that has investigated conscious and subconscious incentives of consumer behaviour. Similar studies have been conducted many times so far, all of them are based on basic psychological principles of human behaviour.

The influence of personality traits on consumer behaviour is often discussed, but it is a rarely explored topic of marketing research. There are only a few authors that have paid attention to the mentioned problematics. Based on our results and the results of other authors, we can assume that the personality of the consumer is a very important factor that influences buying behaviour. For example, Verplanken and Herabadi (2001) found a positive dependence between impulsive buying behaviour and extroversion and the negative dependence between impulsive buying behaviour and conscientiousness. Matzler *et al.* (2006) confirmed the dependence between extroversion, openness to experience and the hedonic value of products. Chen (2007) proved the significant influence of personality with the selection of food products.

Besides personality, temperament and psychological characteristics, there are other important factors that can lead a consumer to the final decision when buying food products, specifically milk. Fazio *et al.* (1982), Higgins (1996), Fazio and Olson (2003), Jain and Posavac (2004), Singh and Verma (2017), Jaeger *et al.* (2018), etc., found that associations and provided information significantly influence consumers' perception and their decision-making process. Previous experiences are important as well, mainly for the creation of associations with selected products.

Because the consumption of milk and milk products is generally considered to be very important for human health, it is also important to convince consumers to buy these products. When the right visual features and the right communication for different segments of consumers are used, the promoted product can be successful in the market and consumers can be persuaded to make beneficial choices as well. Several limitations may have occurred in our study, because several factors were not taken into consideration. We suggest further research of consumer behaviour in the market of milk.

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