

Sensory Marketing Role on Consumer Behaviour on the Market of Selected Food Products, Case Study Slovakia – Mind Genomics

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Abstract

Sensory Experience based on consumer behavior have been used by marketers to develop marketing strategies. The paper deals with how people describe the importance of different sensory experiences as they drive product purchase. The research reported here uses Mind Genomics, an emerging branch of consumer psychology. Respondents evaluated unique sets of 24 different combinations of descriptions about a food store. The descriptions (elements) focused on the foods (produce, meat, beverage) and ambiance in the store. The respondents rated interest in buying based upon the description. The data revealed both the degree to which each element (descriptive term) drove purchase, and uncovered new-to-the-world mind-sets, individual in Slovakia who show different patterns of response to the same elements. The study shows the ability to understand what specific sensory characteristics of the products should be featured in stores, and how the marketer can focus efforts to please customers in the Slovak market.

Keywords: food products, consumer behaviour, Mind Genomics, Sensory marketing, Slovak market

JEL Classification: Q10, Q13, M31, M39

1. Introduction

Marketing is one of the most important company objectives, intimately connected to the customer's needs and wants. The company which understands it's customers at a deep level, can be more successful satisfying them, instead of looking at the competition for guidance. The marketing concept is focused on the customer and could be defined as the world view of “*sense and respond*” (Grębosz and Wrońska, 2010). It is no wonder that in today's world, the focus of a great deal of consumer science in theory, and marketing research in practice, has taken a lead role in the world of marketing. Author has written that although consumers are presumed to behave, decide and act rationally, that presumption is not always true, and certainly not for many products where emotion plays a role, or has played a role, whether that role is recognized and applauded, or simply part of the almost invisible ‘baggage’ that the product carries with it (Rybanská, 2015).

Mind Genomics comes from the disciplines of statistics (experimental design), consumer research, and with a background in experimental psychology. The original focus was psychophysics, the study of the relation between physical stimuli and subjective responses. Some aspects have migrated into the world of consumer neuroscience, where the focus is on the relation between physical stimuli and neural response. The aim of consumer neuroscience (Neuro Marketing research) is a better understanding of the principles of decision-making and the strategy of customer and consumer behavior in economic processes through neuroimaging and biometric methods, psychological and neurobiological concepts and knowledge” (Berčík

et al., 2016). Mind Genomics, with its history in the sister study of perception, rather than neural processes, is becoming a partner with consumer neurosciences, Mind Genomics showing the underlying decision-making ‘rules,’ consumer neuroscience showing the brain in action, as these cognitive rules are being implemented.

1.1 Sensory Marketing Role on Consumer Behaviour

In their study authors (Garber, Hyatt and Starr, 2003) found that the failure of taste tests to predict the market performance of new food products (cf. Burger King's new French fries, New Coke) illustrate the inability of marketing researchers to perform such tests effectively. “Food scientists, with their expertise at testing the sensory effects of foods, can make an important contribution to the ability of food producers to predict consumer preference and choice. Consumers are the final step in the production chain, it is useful to identify which factors affect their behavioral patterns (Font-i-Furnols and Guerrero, 2014)”. Companies, in search of new methods of reaching the customer, refer to all of their senses (Koszembar-Wiklik, 2019).

Sensory marketing which is one of the comprising methods is; a marketing technique that aims to seduce the consumer by using his senses to influence his feelings and behavior. In sensory marketing, with various stimuli that are sent to five senses, consumer's emotional and behavioral orientations are studied to be affected (Erenkol, 2015). People are increasingly purchasing (e.g., food, clothes) and consuming (e.g., movies, courses) online where, traditionally, the sensory interaction has mostly been limited to visual, and to a lesser extent, auditory inputs (Petit, Velasco and Spence, 2019).

Consumers nowadays are looking forward to a wholesome experience while shopping. They are attracted towards products that appeal to their senses and develop an emotional connect. For this not only the product attributes but the environment at the point of purchase influences their decision (Rajain and Rathee, 2017). Sensory marketing is increasingly gaining importance as a promising approach to effectively appeal to consumers. To predict and monitor the success of sensory marketing activities, it is necessary to assess consumers’ perception of sensory cues (Haase and Wiedmann, 2018).

1.1.1 Selection criteria on buying food products

Food quality and safety belong to the most important factors of building the image of the product, brand, or country of origin at the local, regional or global markets (Horská, Üргеová and Prokeínová, 2011). Extrinsic sensory cues bring numerous advantages to consumers (e.g. empower choice), to producers (e.g. increase consumer loyalty), and to the environment (e.g. reduce food waste) (Jürkenbeck and Spiller, 2021). Consumers eating habits keep changing everyday away from their regular meal, less time and more working hours have left people with the option to just pop in a restaurant or fast-food. The use of five senses in the marketing field helps to arouse customer's emotions and nowadays it is fundamental for the company to differentiate itself from its competitors (Roopchund Randhir *et al.*, 2016).

“Emerging application of human sensory science, namely sensory marketing, as a technique by which knowledge of sensory impressions, i.e., knowledge of sensory experiences, can help sell products and services is presented. Research suggest that shoppers are continually feeling a range of different emotions when they connect with brands. Feelings may be the most effective way to make sure that customers feel positive (Harizi, 2021).

2. Data and Methods

This study is created to understand, How sensory is effecting buying of products like sight, smell, hearing, touching and taste? Results of several studies conducted by many researchers has proved to many results and analysis on sensory marketing. The main objective of this study seeks to analyze and examine the effect of sensory marketing on buying food products. In order to collect and interpret the primary data, is used the last technical upgrade (Porretta *et al.*, 2019) “Mind Genomics” is the study of mixtures, the study of everyday stimuli, to understand the rules of choice, to discover what is important to a person and what is not. Mind Genomics highlight which variables of the topic have more interest and which do not have interest, how people answer in different ways for one aspect of the topic.

For this study we have 35 respondents from Slovakia where is been presented for a situation in today’s store, respondents are asked to choose one description from 1 to 5 (1 is Unlikely, 5 is Likely), and participants described themselves by gender and age. Raw materials are created in order to ask for a question which “tell a story”, for each question provide four separate answers in the form of simple sentences, and we have provide four answers for each question to where participants paint a word picture in the mind.

These answers are combined in small vignettes, vignettes are little stories about the topic that respondents rate, can consist of 2, 3 or 4 questions and one answer from each question, and have a combining rule: Only one answer can be used from each question area at a time. Each respondent sees and rates 24 different vignettes, so all vignettes are different and all people see different vignettes. For our study we have with 35 people, the system creates 35x24 or 840 different vignettes.

Figure 1 shows the self-profiling questionnaire as the respondent sees the questionnaire. The set-up is completed ‘templated,’ allowing the researcher simply to fill in the key information. Question in Figure 1 instructs the respondent to define herself or himself on gender, age, and where the person shops. The actual screen has a drop-down menu.

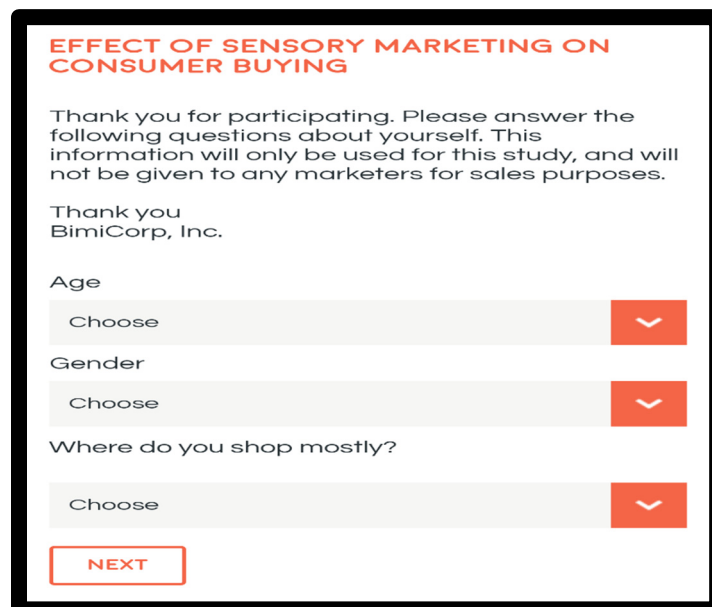


Figure 1 – Mobile view of Self Profiling Classification

Source: BimiLeap

Figure 2 shows a 3-element vignette, prescribed by the underlying experimental design. Each respondent evaluated a unique set of 24 vignettes, comprising 2, 3 or elements.

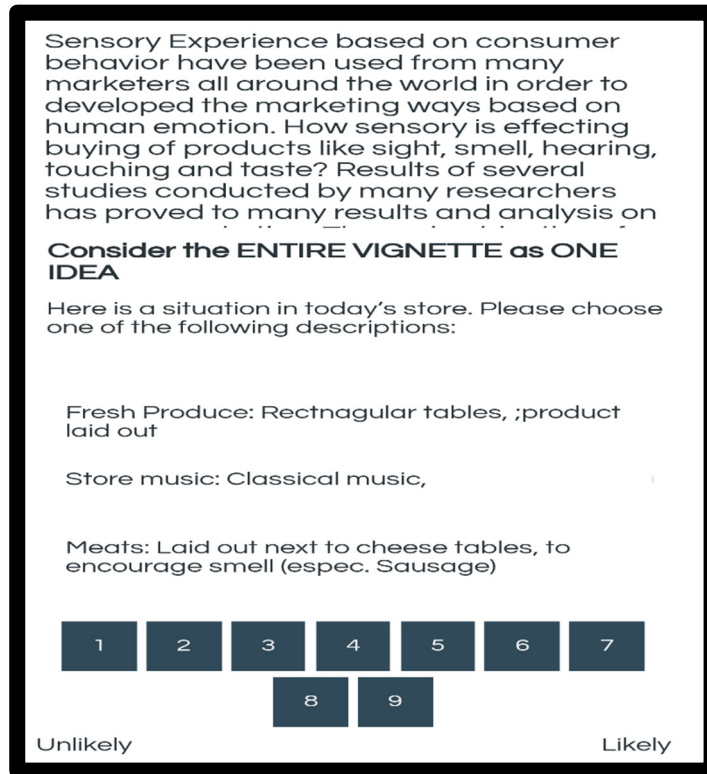


Figure 2 – Mobile view of a 3-element vignette
Source: BimiLeap

To understand the mind, Mind Genomics has developed the strategy to transform the 1-9 scale used by BimiLeap (application in website) to create two scale points: low/weak feeling and high/strong feeling by creating binary variables. Ratings of 1-6 on the scale transformed to 0 (i.e., low / weak feeling), Ratings of 7-9 on the scale transformed to 100 (e.g., high / strong feeling). When the scale is 1-7, then ratings of 1-5 transformed to 0, 6-7 to 100, when the sale is 1-5, then ratings of 1-3 transformed to 0, 4-5 to 100.

Ordinary Least Squares Regression shows how many rating points come from each answer, i.e., each independent variable in the regression model. Regression run at the level of the individual respondent, making the statistics much stronger and then combine the data from the relevant group. Rating points are the regression coefficients and answers are also called elements or messages.

Experimental is design created in order to test everyone with a unique set of 24 vignettes, and individual data can be analyzed separately. Mind Genomics transform ratings (1-6 → 0, 7-9 → 100) by average relevant groups (total, ages, gender, mind-set segments). In the experiment additive constant is baseline and percent of people who would say yes, interested, even without elements are showed.

Rating Points

- Positive – adds. E.g., +8 means that when the element is inserted into the vignette, an additional 8% of the respondents go from a low of 1-6 to a high of 7-9.

- Negative – subtracts. E.g., a -8 means that when the element is inserted into the vignette, 8% of the respondents who were positive change (would rate the vignette 7-9) change their rating to neutral or negative (would rate the vignette 1-6).
- Strong positive > 8, strong negative < -6.

3. Results and Discussion

The Total Panel in this experiment is distributed in the Table 1, where the category of female participants is higher than males and the group with demographics characteristics is characterized from new generation from 18-34 years old.

Table 1 - Distribution of respondents and selection, based on the self-classification

Total	Gender		Age							Where do you shop mostly?			
	Male	Female	13 - 17	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Supermarkets	Retail Stores	Farms Market and Bakery	Everywhere where is food
35	12	23	0	5	18	6	5	1	0	22	0	1	12

Source: Author's elaboration

About the question of the study, where participants shops more, most frequent answer is at Supermarkets in 22 participants and the rest of them are not addicted to be focused only in one place to shop, but they can shop everywhere where food.

From the results of Table 2, based on respondent answers, is easily understandable that Males have strong positive feelings on fresh products section, from their look and the sound of music at the moment that they are shopping and also on the description of food. The second category Females are focused on beverages section, by smelling the products. What is interesting for the group sampling in Slovakia is that group ages from 18-24 have strong positive feelings on choosing products from smelling them, listening a good music at the moment of shopping and they buy products by evaluating them by sight. The generation 35- 54 are focused and have strong positive feeling on buying fresh products with detailed description, which is highly linked with smell, sight and touch.

Table 2 - Distribution of respondents and selection, based on the self-classification feelings

	Group	Total	Male	Female	18 -	25 -	35 -	45 -
	Base Size	35	12	23	5	18	6	5
	Additive Constant	59	55	60	33	64	80	61
	Question A: Describe the fresh produce section and product, look'							
A	1 Fresh Produce: Rectangular tables, ;product laid out	4	14		7		8	10
A	2 Fresh produce: Long tables, set up so you can look, smell, and touch (through a gauze)	3	10				6	16
A	3 Fresh produce: Theme areas for different colors and smells, highlighted for your enjoyment	2	13				10	30
A	4 Fresh produce: Full price and lower price sections as produce ages	7	5	9	6	5		18
	Question B: Describe the fresh produce section and product, sound'							
B	1 Store music: Sounds of nature,	3	10		13		6	
B	2 Store music: Classical music,	2	4	4	8	3		
B	3 Store music: Pop-jazz				5		14	
B	4 Store music: Fast tempo	4	10	3		3	8	
	Question C: Describe the meat section							
C	1 Meats; Laid out on shelves in attractive packages				14	3		
C	2 Meats: Laid out to give a sense of color, with whole meat visible	8	16	4	19	8		9
C	3 Meats: Laid out next to cheese tables, to encourage smell (especially. Sausage)	5	18		18	7		
C	4 Meats: Show of the same meat under three common types of lights in the home to be interesting	3	2	2	17	5		
	Question D: Describe the beverage section							
D	1 Beverages: Fresh roasted coffee in bags with theme of the week, so you can smell	8		14	14	6	2	7
D	2 Beverage: Table with theme of sodas, their sounds of being poured, and smells	4		9	20	8		

D 3	Beverage: Light show of same beverages under three common types of lights in the home to be interesting			6	7		
D 4	Beverage: Different coffees pods show, and a demonstration of a different pod (dark roast(each 30 minutes, with chance to taste the pod for 10 cents (one pods for each four people)	6		13	3	16	

Source: Author's elaboration

Three New-to-the-World Mind Sets

One of tenets of Mind Genomics is that within any experience, especially micro-experiences, such as shopping, people differ from each other in systematic ways called mind-sets. The analogy is to the genome. Genomes have alleles, different forms, which express themselves in different traits, possibly in different behaviors. Carrying that analogy forward, Mind Genomics creates these mind-sets by clustering the pattern of coefficients of the individual models relating the binary rating (here positive emotion) to the presence/absence of the elements in a study (here 16 answers to the questions, i.e., elements). The within-subjects experimental design allows the researcher to create the model (equation) separately for each respondent, and then cluster the respondents based upon the pattern of coefficients (excluding the additive constant.) The metric for 'distance' upon which the clustering is based is defined as (1-Pearson R).

The metric takes on the value 0 when the coefficients for two respondents show a Pearson R of 1.0. The metric takes on the value 2 when the coefficients for two respondents show a Pearson R of -1. As a rule of thumb, there should be fewer mind-sets, rather than more (parsimony) and tell a story (interpretability). 35 Three mind-sets emerged for these data, and for clustering based upon the coefficients for 'Likely'. The additive constant and the coefficients for three mind-sets appear in Table 3. All three mind sets show high to moderate coefficients 55-74, so that it is the elements which will drive the rating of 4-5, viz., 'likely.' It is clear from Table 3, that there are three different mind-sets, with strongly positive coefficients, reaching and exceeding the cut-off for statistical significance.

The mind-sets can be named by considering the commonalities of the elements generating the highest coefficients.

Table 3 – Mind Sets

	Group	T o t a l	M S 1	M S 2	M S 3
	Base Size	3 5	1 4	1 0	1 1
	Additive Constant	5 9	7 4	5 5	5 5

Strongest Elements – Mind-Set 1					
D 4	Beverage: Different coffees pods show, and a demonstration of a different pod (dark roast (each 30 minutes, with chance to taste the pod for 10 cents (one pods for each four people)	6	1 9	6	
D 1	Beverages: Fresh roasted coffee in bags with theme of the week, so you can smell	8	1 5	8	
D 2	Beverage: Table with theme of sodas, their sounds of being poured, and smells	4	1 4		4
A 4	Fresh produce: Full price and lower price sections as produce ages	7	1 1	5	9
D 3	Beverage: Light show of same beverages under three common types of lights in the home to be interesting	1	1 0		
Strongest Elements – Mind-Set 2					
B 1	Store music: Sounds of nature,	3		1 9	3
B 4	Store music: Fast tempo	4		1 7	7
C 1	Meats; Laid out on shelves in attractive packages	- 1		1 5	
C 4	Meats: Show of the same meat under three common types of lights in the home to be interesting	3		1 4	
C 2	Meats: Laid out to give a sense of color, with whole meat visible	8		1 2	1 7
B 3	Store music: Pop-jazz	- 4		1 2	7
Strongest Elements – Mind-Set 3					
A 1	Fresh Produce: Rectangular tables, ;product laid out	4			2 2
C 3	Meats: Laid out next to cheese tables, to encourage smell (especially. Sausage)	5		6	1 8

C 2	Meats: Laid out to give a sense of color, with whole meat visible	8		1 2	1 7
A 2	Fresh produce: Long tables, set up so you can look, smell, and touch (through a gauze)	3			1 4
A 3	Fresh produce: Theme areas for different colors and smells, highlighted for your enjoyment	2	5		1 4
Not strong for any mind-set					
B 2	Store music: Classical music,	2		2	4

Source: Author's elaboration

3. Discussion

How good is the potential innovation? - The Index of Divergent Thought (IDT)

Mind Genomics generates new opportunities for products (as well as services). The data presented here suggests three groups. How can we measure the promise of the information? Are these high impact elements simply 'departures' at random from mediocrity, or are there really these mind-sets out there?

The study has divided the respondents by the pattern of their coefficients in the clustering stage of analysis. The clustering gives us a sense of how many people are in each new cluster (viz., size of market, given by the base size), and the messages or ideas which appeal to the people in the market (given by the magnitude of the coefficients, especially the ones that are highlighted.)

The Index of Divergent Thought (IDT) weights the coefficients by the size of the mind-set. We are looking for big values of IDT, either because the mind-set is big, or if the mind-set is small, then elements with very high coefficients, 'breakthrough ideas', even breaking through to a smaller group of consumers, but doing so strongly.

Table 4 – The Index of Divergent Thought

Group	Total	Segment 1 of 2	Segment 2 of 2	Segment 1 of 3	Segment 2 of 3	Segment 3 of 3	
Weight	1	0.457	0.543	0.4	0.286	0.314	
Base	35	16	19	14	10	11	Sum
Regression Coefficient 0-9.99	14	4	7	2	5	6	38
Regression Coefficient 10-14.99	0	4	6	3	3	2	18
Regression Coefficient 15-19.99	0	0	1	2	3	2	8
Regression Coefficient 20+	0	0	0	0	0	1	1

Weight (Base/Total)	0.333	0.152	0.181	0.133	0.095	0.105	Sum
Regression Coefficient 0-9.99	4.7	0.6	1.3	0.3	0.5	0.6	8
Regression Coefficient 10-14.99	0	0.6	1.1	0.4	0.3	0.2	2.6
Regression Coefficient 15-19.99	0	0	0.2	0.3	0.3	0.2	1
Regression Coefficient 20+	0	0	0	0	0	0.1	0.1

Source: Author's elaboration

How many of these elements score 0- 4.99; 5-9.99; 10-14.99; 15-19.99, 20 and higher. When we look at the total number of elements scoring in these ranges, and when we look at the number 'weighted or corrected for base size' we get a sense of the potential of major discoveries. The idea research reveals a great number of high scoring elements, with large-base sizes.

4. Conclusion

The strategy of sensory marketing may be one of the smartest ways for any company to trigger emotion instantly in their audience, and maintain long-term engagement" (Harizi, 2021). Product description, packing, smell, sight and sound plays a significant role in the interactions between consumers and their decision making. Marketers manipulate the exterior of the packaging to influence consumer expectations, experiences, and behaviors (van Esch, Heller and Northey, 2019).

Mind Genomics creates these mind-sets by clustering the pattern of coefficients of the individual models relating the binary rating (here positive emotion) to the presence/absence of the elements in a study. Mind Genomics is that without any experience, especially micro-experiences, such as shopping, people differ from each other in systematic ways called mind-sets. Sensory Marketing is a Science which have to be in the attention of marketers in order to know better their costumers and to create creative strategies by attracted them and by creating their needs.

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