

Formation and Promotion of the Territory Brand of the Neuromarketing Tools

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Abstract. The article presents a theoretical study of the definition of «a brand of a region» and the attributes of its components, as well as practical recommendations for the rebranding of the territory using of neuromarketing tools. The purpose of this article is to consider the theoretical and practical significance of logos in the creation of a regional brand, as well as the definition of a conceptual approach to the rebranding of the territory on the basis of neuromarketing research. The objectives of the study are: systematization of scientific approaches and views on the definition and understanding of the territory of the brand, its attributes; quantitative study of the degree of attractiveness of logos; determining the ratio of the speed of finding the logo and the degree of its attractiveness; development of recommendations for the reorganization of the territory.

1. Introduction

The increased competition in the inter-regional space determines the need not only for effective use of natural resources, financial, labor, information potential of the territory as a competitive advantage, but also for the formation and promotion of high value of intangible assets through the use of branding tools in the region. With that said scientist [1] considers the brand of the territory from the point of view of a set of exclusive qualities, enduring universal values reflecting originality, uniqueness of original consumer characteristics of this territory and community, and which are widely known, publicly recognised and enjoying stable consumer demand on this territory. Every year the number of brands increases, but taking into account the significant amount of advertising perceived by consumers, each brand is constantly striving to attract and retain the customers' attention [2].

1.1. Theoretical perspective

The formation and promotion of the brand of a particular region has to correspond to both regional strategic directions of development and the objectives of the national policy of the country, since, as A. S. Startseva aptly notes «All regions add up a single brand of the country from their brands. It is obvious that there is a serious need to create positive associations both among Russians and abroad» ([3], 199). The importance of branding of the territory is confirmed by the increase in the number of domestic and foreign studies in the field of analysis of the impact of the territory brand on the inflow of investments [4], [5], [6], [7], [8], etc. It's worth paying attention to the fact that in the study of "brand of the region" definition it is possible to distinguish extended approaches to its consideration. Thus, the first approach focuses on the intangible nature of the brand as a phenomenon, and its

interrelation with a consumer, increasing the subjective level of value of the territory and its attractiveness for both individuals (for example, tourists) and legal entities (investors). The second approach is based on the concept of "territory-plus" which is based on the formation of a unique emotional and positive image, based on a combination of natural, historical, industrial, socio-cultural and other competitive advantages of the territory, which have become widely known to the public, formed through positive associations that encourage the consumption of the territory and remind about it. For example, scientist [9] considers the concept of «geo-cultural branding of territories» as purposeful ontology alignment of a specific cultural space with itself, while territorial boundaries taken in their physical/political and administrative aspects, appear here as the direct expression of a specific geocultural «ad hoc». The third approach combines the identification functions of the brand, its intangible nature and the image of the territory to create a comfortable living environment for both local residents and visitors by ensuring quality satisfaction of the needs of consumers of the territory and obtaining certain benefits.

Thus, the brand of the territory is a complex, multicomponent concept, which continues changing under the influence of external and internal determinants. Constructively, the brand of the territory consists of the following attributes, with the help of which the consumer becomes aware, remembers and perceives the brand: name, word, logo and font style, expression, slogan, color, brand characters, made in a certain design solution, brand image. This way ([10], 42) indicates that the logo as a symbol of the brand, i.e. its physical and symbolic expression is an intangible attribute and "allows you to remember it and interpret it correctly, that is to associate it with a certain place, a set of qualities and other characteristics, as a result, it is incorrect to talk about the brand of the territory without a specially designed symbol (a sign as part of the brand)".

The scientist ([11], 272) expands the concept of "logo" and defines it as a means of identification of any object (for example, a certain territory) in its symbolic form (according to C. Pierce), which is created «on the basis of basic geometric figures-symbols induced with certain sacred meanings and manifested in the compositions of traditional ornament».

The study of the attractiveness and recognition of the logo of the territory and the brand as a whole is carried out both with the help of classical methods: survey of respondents, focus groups, etc. and with the use of neuromarketing research tools [12], because there is a big difference between what people say and what they do (buy). That is why the use of neuromarketing as an interdisciplinary area of research allows to better understand the decision-making processes in order to improve marketing and sales operations [13]. In the analysis of modern literature, we have identified several areas of neuromarketing research conducted by scientists. In this connection, the theoretical foundations of neuromarketing are considered in works of [14], [15], [16], [17], the conducted research of which is of exclusively fundamental nature, and the studied concepts and technologies of neuromarketing, its advantages over other types of marketing, the given examples of real cases in Russia and abroad can become the basis for applied research using neuromarketing tools.

A number of scientists [18], [19] etc. consider neuromarketing as an instrument of the raise of the company's efficiency of activity. The economic component of neuromarketing and its application in the sphere of production and trade (trade neuromarketing) are considered in these publications, i.e. the research focuses are shifted in the direction of using the results of integration of spheres of activity for a modern enterprise in the information age.

The use of neuromarketing as a new tool in the study of consumer behavior is considered in the works [20] [21] in which only some theoretical and methodological aspects of consumer neuromarketing are studied, the breadth of the study of the subject is shown, which consequently forms prerequisites for author's own research. Also, neuromarketing is not only used to identify consumer preferences, but can be useful in case studies of consumer problems and hidden communications [22].

Oshmarina Y [23] studied theoretical bases of formation and promotion of emotional branding taking into account the neuromarketing approach to the works [24], [25], [26] explored special aspects of sales of emotions, while neuromarketing as a new research tool of brands is described in the

publications of M A Chaikovskay, etc. [27]. Thus, as Hsu M [28] notes, the consumer appreciates the perception of the brand and the emotions they receive, remembers its mental image and, as a result, buys it. That is why these areas form the basis for further scientific research of the brand of the region and the attributes that comprise it. Taking into account the historically developed specialization of the Republic of Crimea as a tourist region, the availability of all necessary resources for development of medical, cultural, educational, event, ethnographic, cruise, health and other types of tourism specified in the State program for the development of resorts and tourism in the Republic of Crimea for 2017-2020, approved by the Council of Ministers of the Republic of Crimea №650 from 29.12.2016, there is still an objective need to improve the efficiency of the region's promotion and recognition in particular at the world tourism market due to geopolitical changes. Admittedly the sanctions barriers, problems with transport, information and financial accessibilities reduce the attractiveness of the Crimea as a resort for foreign tourists, especially from Western and Eastern Europe, America, Ukraine, which necessitates the search for new markets to promote the Crimea's tourism products, such as future-oriented markets of the countries-participants of the BRICS, SCO and the countries of Asia-Pacific region, because they show the greatest increase in travelling activity [29].

Given that the ultimate goal of territory branding is to have the greatest positive impact on the future behavior of potential consumers, effective emotion stimuli, such as a memorable logo, include consumers reactions, and specifically changes or activation of emotional states [30], that is why positive stimulation can have a significant impact on the degree of probability of purchasing or selecting goods and services in the territory.

2. Methodology

Memory, affectus and persuasion are the three main cognitive motivational foundations in the processing of consumer information [31]. Attracting consumers' attention is one of the first steps to the processing of advertising information, which requires the use of stimulus as an impulse that provokes cognitive operations. When consumers observe a certain exciting sequence, they unconsciously react (exaltation), which result in increased attention in order to achieve more accurate memorization [32]. Stimulus becomes important through the association process for remembering other elements of advertising (e.g. brand's name, brand's logo), because visual attention is essentially reactive and primarily driven by stimuli [33]. Consequently, we assume that the logo of the region, as a stimulus, with a recognizable and memorable design will intensify attention and cause certain cognitive operations in comparison with logos without them. To measure the response of respondents to the proposed logos, we offer an assessment of the following neuromarketing metrics.

Thus, at the first stage in order to determine the attractiveness of the logos of the Republic of Crimea, we conducted a marketing study which was attended by 1,370 respondents from different regions. The results were processed using economic-mathematical and statistical methods of analysis implemented in the SPSS environment. The segmentation monitoring was carried out and socio-demographic criteria were distinguished due to which the grouping of the subset was done in the study. In the next step, respondents were asked to rate each logo on a scale from 1 to 24, thus giving the lowest score "1" to the logo they liked the least and the highest "24" to the one they liked the most. The calculation of the degree of attractiveness of the logo was carried out according to the formula (1):

$$IPR = \frac{\%critics - \%sup\ porters}{\%respondents}, \quad (1)$$

where, IPR is the attractiveness index of the logo;

% of critics — percentage of respondents who think the logo is not attractive;

% of supporters — percentage of respondents who find the logo attractive;

% of respondents — total number of the respondents.

In the following step, the subconscious attractiveness of the logos by respondents was studied in order to assess the attractiveness of the studied logos with the neuromarketing method using a high-quality stationary eye-tracker (Eye-tracker) VT 3mini with Mangold Vision software, by generating a graphical image of the testees' eye movements, by reflecting them on heat maps, which represent the

concentration of the testees' fixation. The testees were asked to examine the logos within 5 seconds. The visual stimuli were projected onto a 24-inch monitor with a resolution of 1920x1080 pixels. The eye tracker was located at 600 mm distance from the monitor. The angle of correction did not exceed 0.5°, which corresponds to inaccuracy of about 5 mm. The detection algorithm for finding the center of the pupil has reliability of 98% with accuracy of its determination of the zone of ± 1 mm. The recorded eye movements include fixation (when the eye stops and focuses) and saccades (when the eye moves between the fixation points). The number and duration of fixation are often used to research consumers' behavior because the obtainment of the information is done during fixation.

Further, in order to determine the dependence of the degree of attractiveness of logos on the speed of their finding, an experiment was conducted, which was attended by 44 testees with different socio-demographic characteristics. Thus, during the experiment, the testees were offered 12 visual stimulus materials (each logo was represented by 4 collages), on which logos of varying degrees of attractiveness were randomly placed in different variations among the logos of other cities of Russia and of the world. By summing saccades expressed in milliseconds, the average speed of finding logos of high, medium and low degrees of attractiveness was obtained in different gender-age groups. At the final stage, we have come up with the conceptual approaches to the rebranding of the territory, based on the correlation of the data obtained as a result of the study.

2.1. Application of the method

In order to determine the degree of attractiveness of the logos of the Republic of Crimea, we conducted a marketing study which was attended by 137 respondents, the share of whom is 37.5% and 62.5%, respectively, of different age categories: "up to 21" — 41.2% of respondents; "22-34" — 16.9% of testees; "35-46" — 21.3% of people; groups "47-60" and "over 60" formed 15.4% and 5.1% of people in the survey, respectively.

The study was carried out in several stages. At the first stage, respondents had to choose the logo of the Republic of Crimea they liked the most from the offered options (see figure 1).



Figure 1. Logos of the Crimea Republic.

Through the unlimited time visual study of the offered logos we have obtained the results of the most attractive logos for respondents, regardless of their gender, age and occupation.

The data show that the most attractive logo for respondents is the logo № 18, which was chosen by 17.5% of respondents, almost equally divided opinions of respondents regarding logos №16 and №20, they drew attention of 11.7% and 10.9% of people, respectively. The same number of respondents, whose share is 0.7%, chose logos №23 and №24. The studies have shown that regardless of the gender of the respondents, the leading positions in the attractiveness are occupied by logos № 18, №17, №16, but as for the place of residence, for residents of the mainland of the Russian Federation, the most attractive, in addition to the mentioned above, is the logo №22. It should be noted that the most attractive logos were chosen by the respondents for the following reasons: «evokes joyful memories of the beauty of the Crimea», «reminds of summer, sea, vacation», «depicts the famous landmark of the

Crimea», «depicts The Swallow's Nest on the background of the sea», etc. Thus, respondents are more attracted to the logos, which depict the nature and sights of the Crimea.

In the second stage, respondents were asked to describe the feelings they had about the logo they liked the most. For this reason emotions were divided into two groups: situational and stable. It should be noted that the differentiation of emotions according to respondents' gender and age haven't given any significant results, while the results of the division of the testees according to the occupation have shown that the most liked logo causes stable emotions (lightheartedness, serenity, attentiveness, inspiration, harmony, pride, unity, life, etc.) among 54% of respondents involved in the humanitarian sphere. The majority of respondents (47.96%), engaged in technical work, the most liked logo is associated with safety, bliss, greatness, trust, thoughtfulness, comfort, beauty, love, determination. And the most liked logo causes situational emotions (gratitude, cheerfulness, inspiration, fun, delight, amazement, rejoicing, curiosity, nostalgia) among 36% of respondents involved in creative work. The majority of respondents (57.14%), engaged in humanitarian work, the most liked logo is associated with passion, kindness, excitement, admiration, interest, hope, attractiveness, surprise, affection.

At the third stage, respondents were asked to point out which colors they associate with the selected situational and stable emotions that the most liked logo causes, depending on gender and occupation. The results of the study have shown that the prevailing color associated with positive situational emotions among respondents regardless of their gender and occupation is yellow, while white, blue and purple are far behind. This means that in order to cause positive situational emotions among people, the predominant color in the image must be yellow and, conversely, white, blue and purple must be excluded.

It was also found out that the most attractive colors which cause positive stable emotions among respondents regardless of their gender and occupation are red and blue, while green is slightly behind and orange, purple, lilac and pink are far behind. This means that in order to cause positive stable emotions among people, the predominant colors in the image must be red and blue, and green must be also presented. An important fact is that the presence of black and purple colors on the logos is likely to cause no positive emotions in respondents.

At the next stage, the degree of attractiveness of each of the offered logos was revealed. Thus, respondents who rated the logo from 1 to 12 points inclusively comprised a group of critics, while the number of respondents who gave from 13 to 24 points comprised a group of supporters. According to the results of the calculations, the following ratios of logo numbers with the values of attractiveness indexes were distinguished: 1 (-0,23); 2 (-0,23); 3 (-0,19); 4 (-0,05); 5 (-0,26); 6 (+0,02); 7 (-0,21); 8 (-0,06); 9 (-0,03); 10 (+0,05); 11 (+0,14); 12 (+0,12); 13 (-0,17); 14 (-0,15); 15 (+0,24); 16 (+0,33); 17 (+0,28); 18 (+0,51); 19 (+0,32); 20 (+0,03); 21 (+0,17); 22 (-0,23); 23 (-0,12); 24 (-0,17). For the results interpretation the authors offer a scale of assessment of the attractiveness degree presented in the table 1.

Table 1. Scale of assessment of the attractiveness degree of logos.

Value of attractiveness	Characteristics of the degree of attractiveness
[0,5; 1,0]	High degree of attractiveness of the logo
[0,01; 0,49]	Average degree of attractiveness of the logo
[-0,49; 0]	Low attractiveness of the logo
[-1,0; -0,5]	Absolutely unattractive logo

Thus, logos with №№ 6, 10, 11, 12, 15, 16, 17, 19, 20, 21 have an average degree of attractiveness; logos with №№ 1, 2, 3, 4, 5, 7, 8, 9, 13, 14, 22, 23, 24 have a low degree of attractiveness. It should be noted that absolutely unattractive logo of the Republic of Crimea has not been revealed. However, according to the testees, the only one with №18 has the highest degree of attractiveness. The symbol with №1 is now officially registered logo of the Republic of Crimea, but according to the results of the study it has a low degree of attractiveness.

The study of visual attention is of practical interest because it is an additional tool used in the cognitive processing of visual information [34]. In relation to consumer behavior research, approximately 70% of purchasing decisions are made in the store [35]. The same can be said about the choice of the territory as a place of rest with associative recognition of its brand. Consequently, the interrelation between visual attention and consumer behavior has numerous impacts in the context of consumer decision-making. The technology of eye tracking provides an opportunity to research the interrelation between visual attention and consumer behavior [36], [12].

To assess the attractiveness of the studied logos at the next stage, the subconscious attractiveness of logos for respondents was researched by generating a graphical image of the testees' eye movements, by reflecting them on heat maps, which represent the concentration of the testees' fixation. This being said, the red color indicates an area with high concentration of fixation, then yellow and then green. Concentration of testees' attention on the basis of their fixations is visualized on the heat map presented in figure 2.



Figure 2. Heat map of logos attractiveness.

Figure 2 shows that the highest concentration of fixations is reflected in the logos with №№ 6 and 18. It can be assumed that this can be observed due to the fact that these logos attract the respondents' attention on the subconscious level to the greatest extent. And their set of colors shows that respondents have associations with positive situational and stable emotions.

At the sixth stage, in order to define the dependence of the degree of attractiveness of logos on the speed of their finding, an experiment was conducted, in which 44 testees participated having different socio-demographic characteristics. Among the respondents there were 50% of men and 50% of women in the following age categories: "under 21" - 22 people, "21 – 35" - 16 respondents, "36 – 50" - 6 people. The validity of this selected subset is explained by the fact that the eye tracker VT 3mini is highly sensitive equipment and with aging the testees find it more difficult to pass the calibration process, which affects the representativeness of the data. The speed of finding the logo of interest was defined by summing the length of saccades in ms in the process of finding it.

Thus, during the experiment, the testees were offered 12 visual stimulus materials (each logo was represented in 4 collages), in which the logos of the Crimea Republic of varying degrees of attractiveness were randomly placed in different variations among the logos of other cities of Russia and the world.

In the course of the experiment, the testees had to find the offered logos during unlimited period of time and then fix their results by clicking the computer mouse on the selected object. Thus, the average speed of finding logos of high, medium and low degrees of attractiveness in different gender-age groups was obtained by summing the saccade expressed in milliseconds (ms) (see table 2).

Table 2. The average speed of finding logos of high, medium and low degrees of attractiveness, ms.

Age	Logo with a high degree of attractiveness	Logo with an average degree of attractiveness	Logo with a low degree of attractiveness
Women			
Up to 21 years	4839,05	7463,48	5394,46
21-35 years	4874,47	8369,03	5499,06
36-50 years	3975,75	5887,77	5121,02
Men			
Up to 21 years	6481,48	7293,71	5587,73
21-35 years	4311,34	8353,09	5143,44
36-50 years	9274,75	10776,33	5908,92

Given that the minimum speed of finding the logo by a testee was 1412 ms., and the maximum — 19016,75 ms., as a result, the difference between the data was quite large. Therefore, for the interpretation of the data the authors offer a scale for assessing the speed of finding logos in terms of degrees of their attractiveness (see table 3).

Table 3. The scale of assessment of the speed of finding logos.

The value of the speed of finding	Characteristics of the speed of finding
[1412; 4932,95]	High speed of finding
[4932,96; 8453,9]	Moderate speed of finding
[8453,91; 11974,86]	Average speed of finding
[11974,87; 15495,82]	Low speed of finding
[15495,83; 19016,77]	Very low speed of finding

Thus, the logos were found with a high speed in case their total value of saccades were in within 1412 ms to 4932,95 ms. The logos with the total value of saccades of the testees which were within 4932,96 ms to 8453,9 ms had a moderate speed of finding. The logos which were found by testees in the time interval from 8453,91ms to 11974,86 ms are characterized by an average speed of finding, while the logos with a low speed of finding have the total value of the saccades within 11974,87 ms to 5495,82 ms, and logos fixed by testees from 15495,83 ms to 19016,77 ms have a very low speed of finding. Regardless of age, the logo with a high degree of attractiveness is found very quickly. The share of respondents under the age of 21 is 43.5%, the share of testees from 21 to 35 years is 60% and 66.7% of the testees formed the group from 36 to 50 years. In picture 6 the dependence of the testees' age and the speed of finding a logo with an average degree of attractiveness are shown.

A moderate speed of finding prevails while finding this logo. In this connection, 60.9% of respondents found the logo with a moderate speed in the "up to 21" category, 60% of the testees found it in the "21-35 years" group, and only 33.3% found it with the same speed in the "36-50 years" group. As for picture 7, it shows the dependence of the testees' age and the speed of finding a logo with a low degree of attractiveness.

The logo with a low degree of attractiveness was found almost as quickly as the logos with a high and a moderate speeds. It should be noted that at the end of the experiment the testees distinguished the most memorable and the most liked logos. Thus, 55.26% of men remembered mainly the logos of high and low attractiveness, while 83.33% of women consider the logo of medium attractiveness to be the most memorable. The control question at the end of the experiment was: «Which logo was the easiest for you to find?». Women, despite the previously mentioned memorable logo, said that it was easier to find a logo with an image of The Swallow's Nest, which has a high degree of attractiveness, as according to their opinion, it is associated with love, using the image of a famous architectural

symbol and has an effective color scheme. Men, on the contrary, noted that it was easier to find a logo with a low degree of attractiveness, since they probably have a more developed verbal and logical memory, i.e. it is easier for them to find not a logo that is associated with something, but the one that is easy to read.

3. Results

As a result of the conducted research, the following conclusions can be drawn:

- in order to increase the recognition and memorability of the regional logo, it is necessary to use a combination of letters and symbolic images that characterize significant attractions;
- for the association of the regional logo with positive situational emotions, the prevailing color in the logo must be yellow, and for the association with stable emotions red and blue colors are to be used, while black and purple colors should be excluded in the logo;
- in order to increase the speed of finding the logo among women, it must be created in terms of associative, imaginative concept, and for men there must be a verbal emphasis on the symbol.
- our study can be supplemented with additional observations, as well as with a study of the best possible scenarios of placing logos on promotional materials.

Thus, there is an objective need for the formation of a tourist territorial brand taking into account the recommendations, the implementation of which will form a positive associative image of the tourist territory, and the use of the logo with a high degree of attractiveness will contribute to its rapid appearance on printed advertising information and other products in the process of promoting the territory at regional and international tourist exhibitions, the result of which will be the increase of the competitiveness of the region and the country as a whole in a rapidly changing market environment.

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References

- [1] Kotler F 2009 Attracting Investments, Enterprises, Residents and Tourists to Cities, Communes, Regions and Countries of Europe *Advertiser: Theory and Practice* **2** 31–45
- [2] Fett M 2011 Neuromarketing in Sports How Emotions strengthen the Consumers Perception of Brand Master's Thesis of Martin Fett *Universita della Svizzera italiana Lugano, Faculty of Communication Sciences* 1–29
- [3] Startseva A S 2014 The Phenomenon of «Cultural Brand» in the Process of Creating the Image of Russian Regions *Bulletin of MGUKI* **4(60)** 195–200
- [4] Kalkova N N, Klevets N I 2007 Assessment of investment attractiveness of recreational areas (on the example of Crimea) *Culture of the Peoples of the Black Sea Region* **120** 120–125
- [5] Jacobsen B P 2009 Investor-Based Place Brand Equity: A Theoretical Framework *Journal of Place Management and Development* **2** 70–84
- [6] Zenker S 2011 How to Catch a City? The Concept and Measurement of Place Brands *Journal of Place Management and Development* **4** 40–52
- [7] Anttiroyko A 2014 City Branding as a Response to Global Intercity Competition *Growth and Change* **2** 78–96
- [8] Jacobs J 2015 The Economy of Cities *Public Administration Review* **1** 201–210
- [9] Zamyatin D 2013 Geo-cultural Branding of Territories: a Conceptual Framework <http://www.russ.ru/layout/set/print/pole/Geokul-turnyj-brending-territorij-konceptual-nye-osnovy>
- [10] Pankrukhin A P 2002 Territory Marketing: Tutorial *Moscow: RAGS* 328
- [11] Gilevich Ye V 2001 Semiotic Basis for Brand Identification *Scientific Potential: Works of Young Scientists* **3** 271–275

- [12] Pieters R, Warlop L 1999 Visual Attention during Brand Choice: The Impact of Time Pressure and Task Motivation *International Journal of Research in Marketing* **16** 1–16
- [13] Grabner D B, Huber M 2016 The Effect of Neuromarketing Elements at the Pos on the Consumer's Decision Making Process in the Retail Sector *Journal of Business and Economics* **7(2)** 276–283
- [14] Zurawicki L 2010 Neuromarketing: Exploring the Brain of the Consumer *Hardcover*: 42-53 <https://www.springer.com/br/book/9783540778288>
- [15] Korsheva M A 2018 Neuromarketing and prospects for its development in Russia *Management Sciences in the Modern World* vol 2 **1** 125–128
- [16] Korneyeva N S 2018 Neuromarketing: How Does it Work? *Derzhavinsky Forum* **6** 43–51
- [17] Peshkova T A 2018 Neuromarketing as a modern form of marketing *University and Real business* **1** 203–212
- [18] Shevchenko M S 2018 Neuromarketing in Business as a Way to Attract Customers *Economy. Control. Finance* **2(12)** 121–127
- [19] Dorzhiyeva S CH 2018 Neuroeconomics and Neuromarketing as Tools of Modern Enterprise Activity *Russian Economic Online Magazine* **3** 30–35
- [20] Kuznetsova O A, Slevareva A S, Kazakova YU O 2018 Neuromarketing as a Phenomenon of Consumer Manipulation *Economy and Entrepreneurship* **8(97)** 832–836
- [21] Shevtsov V V, Yefimkin YA S 2018 Neuromarketing as a Tool to Conquer the Buyer's Brain *Innovative Development* **5(22)** 171–173
- [22] Yoon C, Gonzalez R, Bechara A, Berns G S, Dagher A, Dube L et al. 2012 Decision Neuroscience and Consumer decision making *Marketing Letters* **23** 473-485
- [23] Oshmarina Y A 2018 Emotional Branding and Neuromarketing *Brand Management* **1** 2–11
- [24] Sinyayev V V 2017 Neuromarketing as the Emotional Component of Commercial Success *Education. The science. Scientific Personnel* **3** 123–126
- [25] Sokolova Ye G, Rogatykh D A 2018 Neuromarketing or How to Sell Emotions *World Science* **5(14)** 364–370
- [26] Hammou K A, Galib M H, Melloul J 2013 The contributions of neuromarketing in marketing research *J. of Management Research* **5(4)** 20–33
- [27] Chaykovskaya M A, Ostashko T N 2014 Neuromarketing: the Newest Brand Recognition Tool *Regional Economics and Management* **2-2(02)** 42–45
- [28] Hsu M, Yoon C 2015 The neuroscience of consumer choice *Current Opinion In Behavioral Sciences* **5** 116–121
- [29] Yarosh O B, Mitina E A 2019 Theoretical Foundations of Territory Marketing, Its Role and Place in the Modern Economics *Marketing in Russia and Abroad* **2(130)** 3–12
- [30] Cheng F F, Wu C S, Yen D C 2009 The Effect of Online Store Atmosphere on Consumer's Emotional Responses: an Experimental Study of Music and Colour *Behaviour & Information Technology* **28(4)** 323–334
- [31] Johar G V, Maheswaran D, Peracchio L A 2006 Mapping the frontiers: Theoretical advances in consumer research on memory, affect, and persuasion *J. of Consumer Research* **33(1)** 139-149
- [32] Jeong E J, Biocca F A 2012 Are there optimal levels of arousal to memory? Effects of arousal, centrality, and familiarity on brand memory in video games *Computers in Human behavior* **28(2)** 285–291
- [33] Itti L 2000 Models of Bottom-Up and Top-Down Visual Attention. Dissertation (Ph.D.) *California Institute of Technology* https://thesis.library.caltech.edu/4722/1/Itti_1_2000.pdf
- [34] Wästlund E, Shams P, Löfgren M, Witell L and Gustafsson, A 2010 Consumer Perception at Point of Purchase: Evaluating Proposed Package Designs in an Eye-tracking Lab *Journal of Business and Retail Management Research* **5(1)** 41–50
- [35] Clement J 2007 Visual Influence on In-store Buying Decisions: An eye-tracking Experiment on the Visual Influence of Packaging Design *J. of Marketing Management* **23(9)** 917–928
- [36] Orquin J L, Loose S M 2013 Attention and Choice: A Review on Eye Movements in Decision Making *Acta Psychologica* **144** 190–206