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**NEUROMARKETING FOR EDUCATION: RETHINKING  
FRAMEWORKS FOR MARKETING ACTIVITIES**

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*Abstract*

The article analyzes the issues of neuromarketing theory and practice applied to education. Frameworks for marketing activities at the modern university are to be expanded due to new challenges. The urgent need to understand the emotional side of the educational process has led to the search for new approaches and tools for academics and practitioners. Neuromarketing is an emerging field that bridges the study of marketing with neuroscience. The importance of the multidisciplinary approach to the problems of modern education is emphasized. The article presents a modern approach to neuromarketing research and its innovative information about neurophysiological reactions during the process of educational activities that helps to enhance its performance. The basic directions of neuromarketing and neurobiological research in education are demonstrated: imbedding neuromarketing in the list of disciplines for a number of economic and managerial training areas; the implementation of neurobiological research results and recommendations concerning the audience's attention, students' engagement, creating teaching materials, instructional websites, e-books and courses, presentations and media, assessment of learning outcomes; using the neurobiological research results in the university marketing activities (advertising campaign, building brand awareness, etc.). The article summarizes the main issues of the neuromarketing studies in education and its implementation based on new research methods such as the Zaltman Metaphor Elicitation Technique (ZMET) and biofeedback.

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**Keywords:** Neuromarketing, neuroeducation, biofeedback, Current Mental State technique, ZMET.



## **1. Introduction**

There are several trends influencing the framework of our future education. The first trend implies the further globalization of education, exponential expansion of teachers' and students' mobility, the emergence of the global educational systems. The second trend is "student-centered" education, based on personalisation to fit in the learners' requirements. The third trend is the high-tech and network pedagogy related to the development of the online education, virtual worlds, neuroinformatics, neuroeducation and cognitive psychology ("pedagogy of NeuroWeb") (The future of education: a global agenda, 2013). All of these trends can be implemented due to the new neurocommunication technologies in the nearest future.

The combination of modern scholars' efforts proceeds in the interdisciplinary research field in order to find new solutions to the vital issues of education. It takes the involvement and combination of multifaceted knowledge, methods, and technologies of two or more academic disciplines in market research activities. One of the so-called "hybrid" areas of research is the relatively new phenomenon of neuromarketing applied to education. The development in neuroscience and using it also for education are the subjects for detailed discussion. Its possible use in education in a wide range of research areas, such as the consumers' emotional attachment and attitudes towards the higher education brand, measuring the student's engagement within the sessions therefore showing accurate real-time feedback to educational professionals, can provide a strong framework on continuous development for the teachers (Miles, 2015).

This paper demonstrates the results of the two alternative approaches to marketing research in education, using non-conventional methods and providing a useful contribution to the educational research area.

## **2. Problem Statement**

One of the popular bloggers, Kathy Sierra, in her post has written "Marketing should be education, education should be marketing". It suggests that neuromarketing data will help educators to make their educational content engaging and relevant (Sierra, 2007). Augmenting this idea to the complex of marketing activities at the university, it can be postulated that all elements of the university's marketing from a product (i.e. curriculum and specialisms' design) to an educational environment (equipment, classes, etc.) can be considered from the neuromarketing standpoint (Angulo-Ruiz, Pergelova & Cheben, 2016).

Complexity of all marketing mix instruments of higher education services are shown in Figure 01.

<b>1. Product</b> Curriculum, Specialisms, Quality level, etc.	<b>2. Price</b> Flexibility, Price level, Terms, etc.	<b>4. Place</b> Channel type, Exposure, Intermediaries, Managing channels, etc.
<b>3. Promotion</b> Brand, Advertising, PR, etc.	<b>Marketing mix for education</b> <b>7-P</b>	
<b>5. People</b> Educationers, Academics, Managers, Customers	<b>6. Process</b> Educational activities, Students' involvement, Physical and emotional well-being, etc.	<b>7. Physical environment</b> Facility design, Equipment, Hand-outs, etc.

**Figure 01.** Expanded marketing mix for education

The importance of the certain marketing instruments, such as a teaching process, a university image, a quality of classwork, the professor attitudes, increases constantly, providing thus comparative advantage in the education market.

There are several areas where the neuromarketing concept can be embedded into educational practice.

### 2.1. Neuromarketing as a specialism for Business and Marketing students

Confronted by change and technological advancement, curricula and additional educational services (classes, library and information services, recreational programs, etc.) as the central part of an educational marketing mix require constant updating in the light of modern practices. Neuromarketing activities are mostly developed in the research firms and not so much in academia (see figure 02), and still some authors doubt seriously if the subject content at a nascent state can be incorporated into curriculums, however other part of scholars advocate the uses of neuromarketing (as cited in Morin, 2011) and warn that ignoring such a considerable development would mean that learners would be outcasts of current marketing practices and methodological concepts of neuromarketing (Agarwal & Dutta, 2015, p. 457).



**Figure 02.** Map of academic locations that offer neuromarketing education (Bercea Olteanu, 2015, p. 191)

Adapting these new teaching topics and including neuromarketing into the specialisms of Business and Marketing, can provide universities both with technological developments within the curriculum and unique advantage in a highly competitive educational market.

## **2.2. Neuromarketing research for the educational process**

The educational process considered as a marketing mix tool can be also characterized by intensive, intellectual, emotional and physical participation of the students and their involvement due to learning methods and techniques.

Continuous improvement of the educational process to fit in the learners' requirements and to gain constant feedback from students can be also provided by neuromarketing research in education. Such methods and technics as galvanic bracelets to measure levels of engagement with galvanic skin response, MRT to explore the relationship between the biology of the brain and the cognition of the mind, biofeedback techniques to provide direct improvements both for the learners and educators (Norman, 2016, p. 919), are widely used by both academics and practitioners nowadays. A broad spectrum of research areas such as educational site design, creating engaging teaching materials and handouts, e-books and multimedia are of interest for the modern educators.

## **2.3. Neuromarketing applied to communication models of the university**

The educational marketers are compelled to seek a deeper understanding of the emotional connection between their communication strategy and their consumers. The potential competition between the emotional and the cognitive, i.e. dual processing of communications remains a very significant issue in designing the ad's content and format not only for a commercial firm (Daugherty & Hoffman, 2016), but for the university too. The impetus for marketers of higher education to understand how to influence university choice becomes increasingly important (van Dessel, 2005). Using neuroscience to provide emotionality of advertising and branding is vital on the educational market due to competition. The marketers in education are to keep digging deeper into comprehending what their consumers think and how they feel about everything from relationships with services to the connections with the university brand and reactions to its advertising (Zurawicki, 2010).

## **3. Research Questions**

The application of the different neuroscience methods to the modern education has increased dramatically with the development of the new technologies. Despite the basic concept of consumer behavior, embedded in a linear notion of marketing activities in the area of higher education, the researchers are interested in the applicability of the alternative qualitative and quantitative methods, using a non-conventional approach and nonverbal techniques for educational purposes.

The main question for the series of a pilot research conducted at Peter the Great Saint-Petersburg Polytechnic University (Russia) was how to apply a new research paradigm and what the challenges and opportunities of alternative research techniques reveal for the educational practitioners.

### **3.1. The Current Mental State technique (CMS) and its potential for the educational process.**

The first part of the pilot study concerning the biofeedback technique was applied in the form of the Current Mental State complex for the objective assessment of the emotional involvement of the students during their classroom work.

### **3.2. The Zaltman Metaphor Elicitation (ZMET) method for the marketing and communication strategy in the context of the tertiary sector**

The second part of the study employed the Zaltman Metaphor Elicitation (ZMET) method as a non-traditional, qualitative approach to facilitate the necessary training and experience of the marketing practitioners required to effectively replicate the ZMET in the education area to understand the underlying dynamics of the university marketing activities (advertising campaign, building brand awareness, etc.)

## **4. Purpose of the Study**

The research objectives of the pilot studies were to evaluate the potential of the two neuromarketing methods applied to the tertiary sector and to provide the data concerning relationship between the educational organization and its consumers.

The purpose of the Current Mental State research was to investigate if a positive emotional background of teaching enhances the cognitive activity of the students and improves the psychological well-being of the participants.

The pilot ZMET study purpose was to provide the educational marketers with the additional insights into the university brand perception, to offer deeper understanding and to rethink the traditional marketing approaches for the communication strategy and branding.

## **5. Research Methods**

### **5.1. The Current Mental State technique for the educational purposes**

The modern neurotechnologies, including biofeedback, when a person becomes aware of the body's physiological functions, are increasingly involved into education nowadays. On the one hand, receiving a feedback on the heart rate, skin temperature, brainwave activity, blood pressure, respiration, and muscle activity, a person learns how to modify his physiological activity to improve health and performance (de Bruin, van der Zwan, & Bögels, 2016, p. 1182). On the other hand, biofeedback can provide the educational practitioners with the new insights how to design the teaching materials and handouts and foster creativity in the classroom (Peper, 1979).

In the first pilot study at Peter the Great Saint-Petersburg Polytechnic University in order to identify the potential of biofeedback for the educational purposes, the CMS (Current Mental State) technique in the form of a hardware-software complex was utilized. This technique allowed to obtain an objective assessment of the students' mental state and emotional well-being based on the cardiorythmography. The result of this quantitative research was a set of parameters displaying the current mental state of the participants.

## 5.2. The structured interview based on the adopted ZMET technique

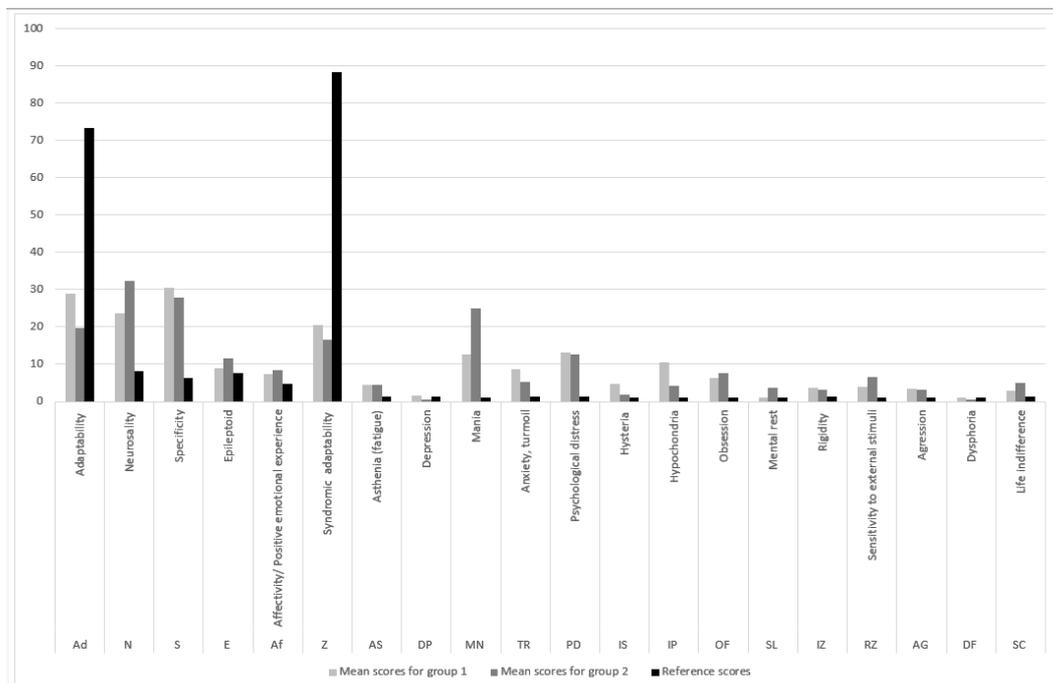
The potential competition between the emotional and the cognitive, i.e. dual processing of communications remains a very significant issue in designing the ad's content and format and the branding activities not only for a commercial firm (Daugherty & Hoffman, 2016), but for the university too. Using neuroscience to provide the emotionality of advertising and branding is vital in the educational market due to the intense competition. The marketers in education are to keep digging deeper into comprehending what their consumers think and how they feel about everything from the relationship with services to the connections with the university brand and reactions to its advertising (Zurawicki, 2010).

## 6. Findings

### 6.1. The Current Mental State Research

To meet the purposes of the first pilot research, two types of the classwork were designed for two focus groups of the students. According to the instructions, the first focus group produced and presented a story using unrelated words, while the second group was instructed to listen to the verbal presentation of learning material, no comments or discussion were permitted. After the classes, both focus groups took part in the biofeedback session and an immediate visual and auditory feedback was presented

The results of the biofeedback session provided the mean scores for 19 indicators of the CMS technique to be compared with the reference scores (figure 03). The second group revealed the lower potential of adaptivity in comparison with the first group and reference scores ( $Ad_2=19.8$  versus  $Ad_1=29$ ). The brief survey of the pilot research results showed the higher adaptability, and the lower affectivity for the first group due to the more comfortable emotional background, also the level of the negative experiences and irritability for the first group was lower, than for the second group (23.6 and 32.4 accordingly).



**Figure 03.** The comparative chart for the mean and reference scores of two focus groups

The results of the first pilot study demonstrated the better emotional background for the first group, positively affecting learning and academic performance by facilitating creative thinking, and problem solving. Indubitably, the future survey should consider replicating the study with a larger sample, pretest, and posttest of the students' CMS. A follow-up study is to establish differences in health, activity and mood as the basic indicators of the CMS of the students during interactive training.

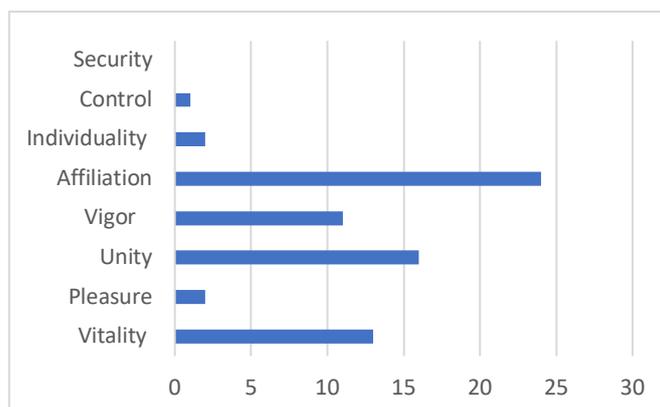
## 6.2. The structured interview based on the adopted the ZMET

According to the original technique (Zaltman, 2016, p. 99), respondents at Peter the Great Saint-Petersburg Polytechnic University were asked to find and choose the picture that indicated what the university brand meant personally to them. Next, respondents were asked to give their picture a title, comment on it and describe the emotion associated with the picture (Fig. 04).



**Figure 04.** Examples of the selected images for the ZMET

This procedure allowed to obtain less information from the respondent than the original ZMET; however, it was possible to cover a larger sample in a shorter period of time. The picture selected by a respondent was a starting point for the researchers to identify the words, collocations and metaphors in order to present the perception of the university. In order to simplify the original version of the ZMET, the respondents were asked to express their attitudes and perceptions toward to the subject topic only in one word. The Osgood semantic differential (evaluation, potency, and activity) (Evans, 1970, p. 96) was chosen to summarize the study's results. The set of 8 bipolar scales (Affiliation - Deficiency of traditions; Control – Lack of Control; Security – Vulnerability; Pleasure - Discontent; Unity – Separation; Individuality – Similarity; Vitality – Apathy; Vigor – Weakness) was allocated in 3 dimensions (Figure 04).



**Figure 05.** Distribution of the answers for the bipolar scales

As Figure 05 shows, the scale of “Affiliation” is the most expressed scale that reflects thoughts, attitudes and perceptions of 24 respondents (34%). The students perceive the university as a place where the traditions are very strong and it is congruent to the dimension “Strength” of the semantic differential. The students' perception of the university as something powerful and stable is also confirmed by the analysis of their individual comments. However, it must be pointed out that not all the students evaluated the scale “Affiliation” as a positive factor. Three respondents wrote in their comments to the pictures, that “traditions inhibit innovations”.

The scale “Unity” is presented in the pictures of 16 respondents (23%). The respondents feel involved into the university’s life and emotionally attached to it, considering it as a “home”, “secure place”, to some extent.

The vision of the university as a place of the students' potential self-actualization is relevant to the scale “Vitality”; 13 respondents (19%) chose it. Another 11 respondents (16%) perceive the university as the opportunity to achieve a success in their future life and become a leader (scale “Potential”) (Ababkova, 2016, p. 230).

Using the ZMET as an alternative qualitative method applied to marketing research and communications, the university can reveal latent reactions to its brand and detect the gaps between consumer perception and the brand image. On the basis of the ZMET technique, it is possible to adjust the brand of the university and to rethink traditional marketing approaches. What is more interesting, this research method can provide useful developmental threads not only for a brand’s rebuilding or adjusting an advertising campaign, but also for rethinking other elements of the marketing mix, such as the educational process, people and physical environment at the university.

## **7. Conclusion**

This paper presents the forward-looking insights and the future directions where the university can enhance consumer engagement and marketing activities through the further study and applications of neuroscience and non-linear marketing research methods. However, the business implications of employing neuroimaging in marketing analyses are becoming more mainstream, the potential applications in educational market research, innovation, services’ development, loyalty programs and other areas of the university marketing activities are still restricted. A growing number of the universities is beginning to invest in neuroscience to help them improve the processes. The educational practitioners (and the educational marketers, too) traditionally avoid studying emotions. Using neuromarketing as a tool, the academia and practitioners are better equipped to test the attractiveness of the teaching materials and handouts, and to compare the alternative communications. In a nutshell, neuromarketing in education could help to uncover what gains the attention of the learners, what engages their emotions and what does not, and what and how they remember. Both methods can offer deeper understanding and rethinking the frameworks of marketing activities of the higher education.

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