MANAGEMENT OF CONSUMERS' ATTENTION – WHAT CAN THE ADVERTISER DO TO SURVIVE THE MEDIA REVOLUTION

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ABSTRACT: "I know half the money I spend on advertising is wasted, I just don't know which half" joked John Wanamaker, who created the first department store in 1876 [15]. In spite of the passage of time Wanamaker's saying is still in force. However, it may change soon thanks to coming into being of new discipline – neuromarketing, which is combination of advertisements' artistry and sciences (inter alia neuropsychology, cognitive psychology, neuroimaging, cognitive science, psycholinguistics). Neuromarketing postulates using fMRI, EEG, EMG or eye tracking techniques for the purpose of recognising consumers' preferences toward specific goods and brands as well as mechanisms concerning decision-making process related to purchases. The goal of neuromarketing is to obtain the information - the human brain's responses, which marketing stimuli (advertisement) is effective.

Key words: the media, neuromarketing, advertisement

JEL codes:M3, M37, M39

The media and revolution

The media are inseparable element from our reality [Latin: *means, agent*]. Their influence on individual and the whole communities is irrefutable. More than two hundred years ago (1774) Irish philosopher, Edmund Burke, said: *"there were three Estates in Parliament, but in the Reporters Gallery yonder, there sat a Fourth Estate more important far then they all"* [1].

There are a lot of coined terms which describe surrounding world: media civilization (Tomasz Goban-Klas, Polish sociologist, authority on media), mass culture, mediocracy (Philips), The Electronic Republic (Lawrence K. Grossman, former president of NBC News and former president of the Public Broadcasting System [2]).

For every modern firm the main commodity is the information, which comes under the market mechanism and the law of supply and demand. It is said that there is nowadays the information economy, information industry, knowledge based society and the information society.

The media undergo greater digitalization with regard to incredible development of the latest technologies. Lawrence K. Grossman said: *„Gutenberg made everybody a reader. Xerox made everybody a publisher. Interactive telecommunications is making everybody a potential lobbyist."* [3]. Nowadays everyone who has the Internet access is able to establish own radio station, television station or newspaper. The competition on the media market is growing – the number of recipients is limited and the mass media are undergoing the greater fragmentation process. How do advertisers find themselves in such a situation? The result of the scattered media is the cost rise of reaching the recipients. Because the media are not uniform, advertisements have to be more attractive and personalized. More and more popular is direct marketing. Maybe someday there will be the advertising unit elaborated in detail on the basis of databases, directly addressed to the specific recipient. In all probability the contents of such advertising unit will be very interesting, compatible with the social status and lifestyle of every special recipient.

Another problem is the effectiveness of the advertisement and the presence of the science in its realization. The sources of knowledge, which are the foundations of the modern marketing, are

going back to the fifties last century (sic!). Robert Heath (author of *"The Hidden Power of Advertising"* and the founder the Value Creation Company) said, that we live nowadays in "the advertising stone age" [9]. Since then many domains have been developed, such neuropsychology, cognitive psychology, neuroimaging, cognitive science psycholinguistics. The attainments of these domains constitute wealth of information regarding consumers' consciousness and their behaviours as well as factors that are influencing on decision-making process oriented to purchases. The marriage of these sciences and marketing bore fruits in the form of the new discipline – **neuromarketing**, which is probably the only one chance of advertisement to survive the media revolution.

Neuro + marketing

The majority of the widely applied marketing researches consist in direct interviewing, conducting an opinion poll or carrying out a telephone, magazine, etc. survey and audits. Regardless of utilized techniques and statistical analysis for interpretation of results, these researches are unfortunately burdened with error that it is impossible to eliminate using such "out of date" methods. This error is related to consumers' declaration. Modern psychology proves that people very often say one thing and then they do something completely else and what is more they think otherwise. Professor Gerald Zaltman (Harvard Business School) said: *"The world has changed, but our methods for understanding consumers have not. We keep relying on familiar but ineffective research techniques and consequently misread consumers' actions and thoughts. The products we create based on those techniques, simply aren't connecting with consumers*" [4]. It was professor Zaltman who decided in 1998 to take advantage of existing neurobiological technologies in order to check the activity of these brain parts that refer to the decision-making process [5]. The experiment consisted in "looking into" the consumer's brain using MRI (magnetic resonance imaging) and checking *"How consumers think"* (it is also the title of professor's Zaltman book).This is how **neuromarketing** came into being.

Professor Zaltman is the person who is regarded as the founder of the first neuromarketing institute (Harvard University, 1998r.). The term **neuromarketing** has been coined in 2000 by Ale Smidts (Erasmus University, Rotterdam). Nowadays there are 12 neuromarketing institutes that are operating all over the world [10] (Europe, USA). The 13th institute was established in 2007 in Poland (LAB company in Warsaw founded by professor Rafał K. Ohme, Warsaw School of Social Sciences and Humanities).

Peering inside customers' heads – 1st method

One of the easiest neuromarketing tests is based on the basic instrument from the psychologists' workbench – measurement of the reaction time. By using personal computer it is possible to measure how fast studied person will answer the asked question– it is not essential whether the button "yes" or "no" has been pressed. The reaction time is the neurophysiological phenomenon and human does not have possible influence on it. It reflects the emotional state and the motivation of the studied person. The reaction time is useful to verify if studied person perceive a brand positively as well as its susceptibility to competition's influence.

Peering inside customers' heads – 2nd method

It has elapsed more than 35 years since Edward Purcell and Felix Bloch independently discovered Nuclear Magnetic Resonance (NMR) (1945) and before Magnetic Resonance Imaging (MRI) has been put into clinical practice. This method, which enables obtainment of contrast soft

tissues images and does not expose the patient to ionizing radiation, has revolutionised medical diagnosis.

The improved version of MRI – fMRI (Functional Magnetic Resonance Imaging) represents the energetic economy of the brain (blood oxygenation, glucose combustion - the BOLD effect (Blood Oxygenation Level Dependent)) which reflects mental processes (the neuroimaging results are represented in the form of the heat map (Figure 1), where the red colour corresponds to high activity of the given area). The more a structure is active, the more energy it consumes.

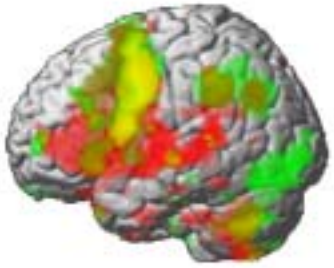

Figure 1 The heat map – the result of neuroimaging (fMRI)
Source: http://digitalspotlight.wordpress.com/2008/03/25/would-you-have-a-few-minutes-for-a-brain-map/

As the topography of the brain centres is known (responsible for happiness, fear, decision-making process, sense of eyesight, hearing and touch, etc.), it is possible to ascertain what emotions (or if any) has evoked specific advertisements and what was its intensity! Professor Rafal Ohme said, that application of fMRI consists in "thoughts detection which are still the unknown for our »ego«." [6].

In 2004 Daimler AG corporation (formerly DaimlerChrysler), which is the owner of brands such as Mercedes-Benz®, Smart® and Maybach®, took advantage of fMRI to test what are the men's reactions to different car models. The results were surprising: attractive cars cause stimulation of the same brain regions as faces [9][10].

In the 44th volume of *Neuron* (October 13, 2004) Read Montague, a neuroscientist at the Baylor College of Medicine in Houston, TX, USA, published the results of his study [11]. The test (called the "Pepsi Challenge") was concerning consumers' preferences and attitudes toward two very well-known and nearly identical beverages with regard to the chemical composition: Coca-Cola® and Pepsi®. In the study participated 67 subjects. The first task was to express the opinion concerning beverages taste (the cups were unmarked). In this trail Pepsi® was chosen as more tasty drink. The second test was also related to the taste preferences, but this time subjects knew what they were drinking. It is surprising that the same people who chose Pepsi at first, in this trial decided to Coca-Cola! The last stage of this study was based on similar assumption data, but additionally the consumers' brain activity was tested using magnetic resonance. According to fMRI Pepsi® selection stimulated brain centres responsible for the reward system (ventromedial prefrontal cortex (*VMPFC*)). In the case of the subjects who chose Coca-Cola® quite different brain centres were activated - the hippocampus and the lateral prefrontal cortex (*LPFC*), structures responsible for self-esteem.

Montague proved that the brand choice takes place in the deep structures of consumers' brains and it is in fact unconscious process.

Peering inside customers' heads – 3rd method

The next non-invasive method of measuring brain activity applied in neuromarketing is encephalography (EEG). Encephalograph (instrument that looks like a swimmers cap that holds imbedded tin electrodes) measures frequencies on the scalp that appear due to cortex neurons'

activity (for example, TV advertisement might be a stimulus) (Figure 2). These frequencies are related to the waves of different length (1-100Hz). Delta wave (3Hz or below) may occur during the sleep, alpha wave is evoked by relaxation and beta, when studied persons are alert, anxious or concentrated [12].

Figure 2 EEG test while watching TV advertisements
Source: Chyłkiewicz J., Co kupuje nasz mózg, Newsweek, April 2007

The EEG method was used to verify the efficiency of the Nivea® brand campaign created by TBWA Paris which Poles have pleasure to watch this year.

During the „Neuromarketing & Subconsciousness" conference in Sopot (Poland), January 17-18, 2008 professor Rafal Ohme presented how EEG has contributed to the improvement of Nivea® advertisement. This advertising spot lasted 60seconds. The application of EEG methods enabled choice of the best scenes which had positive influence on brand perception and proved its effectiveness. As a result the advertisement's duration has been shortened to 30s. It is too early to discuss the effects of the campaign at the moment [7].

Peering inside customers' heads – 4th method

The measurement of the facial muscles' electrical potential is surveyed in order to evaluate reactions to specific advertisements. It is performed using an electromyograph (EMG). Knowing which muscles represent specific emotions (smile, frown, etc.) it is possible to verify whether advertisement is perceived positively.

Peering inside customers' heads – 5th method

Application of different eye tracking technologies allows precise determination of the gaze points and eye movements when a studied person is looking at the press advertisement.

The first eye tracking methods were applied more than 100 years ago. These techniques were very invasive then – direct, physical contact with the cornea was essential.

Methods that are applied nowadays are not so drastic. For example electrooculography (EOG): by applying this technique it is possible to measure the electrical potential difference between two sides of the eyeball; the photoelectric method: it is based on the physical phenomenon that enables the measurement of the light reflected by the eye on cornea during eye movements (the corneal light reflex test); the vision activity screening: the images of eyeball movements are registered and afterwards digitally processed. The first appliances of the type mentioned above resembled helmets and were quite uncomfortable to. Appliances used nowadays look like (un)typical displays which have embedded cameras registering eye movements.

The results of such study have a form of recording which represents the fixation points - that is the points where the gaze stops and saccades -gaze "jumps". Afterwards the data of this type is processed. Depending on the software it is possible to obtain the image that represents fixation points and its frequency as well as "saccades' route". The other form of visualization is a heat map.

Kath Straub, PhD, CUA carried out a study of the Sunsilk® advertisement (Figure 3). He proved that the application of eye tracking might be helpful in creating better composition – effective advertisement [13].

Figure *3 Sunsilk® advertisement – before and after modification*
Source: http://www.humanfactors.com/downloads/may08.asp#kath

The woman on the left side (Figure 3) looks directly at someone who see this advertisement. In the right picture the woman peeps at the product. Which version of the advertisement is effective? Both of them were put to the eye tracking test. The results are presented in the form of the heat maps (the red colour represents points of the most often fixation).

Figure 4 Sunsilk® advertisement – heat maps
Source: http://www.humanfactors.com/downloads/may08.asp#kath

The heat map (Figure. 4) gives occasion to observe that the sight of the woman on the left side concentrates the least on the product! It is paradox because this product is the aim of that advertisement.

The advertisement has been modified in the way that woman looks at the product and for that reason person who see this advertisements moves the sight on this product (the heat map is the confirmation).

More and more companies offer such studies, for example Eyetracking Ltd. located in Warsaw (Poland).

The eye tracing is considered as a method which will become the basic element of marketing studies or even replace them. The sight is not prone to all kinds of verbal suggestions and that is the reason why the data obtained in this way is objective.

Case studies

Sony BRAVIA® LCD TV advertisement was one of the most popular in 2007. Swedish indie folk singer Jose Gonzalez, whose cover of The Knife's "Heartbeats" was the musical setting of that advertisement, sold much more compact disks just after the broadcasting of that spot. The advertisement was realized at Gilbert and Leavenworth Street in San Francisco, where were bouncing 250 thousands of coloured rubber balls. The image was registered by 23 cameras. Lasting three days photos were supervised by Juan Cabral and Fallon London Agency. Nicolai Fuglsig was responsible for the direction. Besides the commercial success the authors of that advertisement got the *Palme d'Or* („Golden Palm") at The Cannes Film Festival (June 2006).

Researchers from Laboratory & Co decided to conduct neuromarketing studies in order to check what has contributed to the success of this advertisement. In the study participated 50 subjects. They were watching Sony BRAVIA® advertisement and in the same time the electrical activity in their brains (EEG) and skin conductance responses (SCR) were registered. The results were surprising. The 17th second of the advertisement (Figure 5) caused significant increase in neurophysiological emotional reaction. It has been proved that it was the reaction to the scene presenting a frog jumping out of the gutter. What is more this scene has been shot accidentally and subjects who so the spot were not even conscious of its appearance!

Figure 5 Sony BRAVIA® LCD TV advertisement. The 17th second of the advertisement.
Source: http://testdifferent.com/pdf/Case%20sony%20artykul.pdf

The studies have proved that scenes considered often as insignificant are in fact of the fundamental importance. In the case of this advertisement the frog was so-called peripheral signal. Owing to that signal the recipients' favour has been held till the end of the spot [6] [14].

Summary

The hitherto achievements of neuromarketing are used by concerns such as Coca-Cola, Procter & Gamble, General Motors, Eastman, Kodak, Nestle [5].

The capabilities of this new discipline make it possible to determine precisely the consumer's reaction to specific advertisement (its image, musical setting, slogan or colours). Neuromarketing enables detection of unconscious consumer's behaviours. Owing to that, the company which uses neuromarketing studies to test its advertisements might be certain (in all probability) that the advertising campaign absorbing large sum of money will be effective.

The usefulness of different neuroimaging methods in neuromarketing researches has been studied recently – for example positron emission tomography (PET) or Infrared spectroscopy (IR spectroscopy). Artificial neural networks (ANN) might be used to test the effectiveness of advertising slogans.

Neuromarketing proves that the effectiveness of advertisement does not correspond to the popularity of the spot as well as the expenses born by the producers. It corresponds to level of emotional influence, because from a psychological point of view decisions oriented to purchases depend on emotions.

According to Robert Heath contribution of psychology to advertisement production will increase its effectiveness by at least 30%! [9].

Neuromarketing research is undoubtedly the future. It is difficult to evaluate the effectiveness of this marketing strategy nowadays, because too few studies have been conducted.

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