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Neuromanagement – may the neuroscience be an innovation in sales management

Abstract

In the papers on many scientific areas there are mentioned neuroscience as a new way of understanding what people want and why do they behave in a specific way. As a result it should not be a surprise that neuroscience has become the object of attention in many works on management world around. Neuroscientists keep on trying to measure the neurons and to encode their activities in an understandable and predictable way. The researchers are looking for factors and variables and their impact on selected human brain areas. As a result they deliver conclusions that could be summarized as “some factors may influence human behavior and elicit expected reaction”. E.g. colors, music, voice, shape, environment, management style, motivators etc. have a great impact on the way people react, choose and value things as well as how do they perceive stimulus. As the use of neuroscience in other areas than medicine seems to be in a prenatal stage it is significant to check if that type of knowledge may be useful in developing management and understanding peoples’ reactions. It is worth asking, does the neurobiology is on the level that is sufficient for taking results as general rules and truth and could it, as authors assure, discover the source code of human behavior.

Keywords

neuroscience, strategy, strategic management, sales, sales management

Introduction

Thanks to social cognitive neuroscience researchers have discovered a new possibility of watching feelings, hidden thoughts, values and behavior. At least according to N.Doidge¹. The breakthroughs that have been announced thanks to the use of fMRI² equipment were initially disapproved by the scientists coping with management. Nowadays they tend to treat neuroscience and particularly neuroimaging as a new approach. Still fresh and unsure but prospective. Former the prefix neuro referred to the biology but nowadays it seems to have changed and covers the whole nervous system. As E.R.Kandel, J.H.Schwartz and T.M.Jessell³ state neural science is aimed at explaining the activities of the body and the state of the mind as a result of the activities of the brain. It is to answer the question what is happening inside the brain producing individual's behavior and how the external stimulus influence that relation. It is to understand the mental processes on the basis of the visible (thanks to fMRI) brain reactions. Biology is combined here with thoughts, attitudes and other hard to measure things. They assume that behavior is rooted in inherited genes and environment. That allow them to testify the influence of the environmental factors on the brain reactions and call that a neuroscience. Similar definition use M.F.Bear, B.W.Connors and M.A.Paradiso⁴ though they emphasize brain and its testing according to the external impulses rather than consider DNA and inherited features. The term neuroscience broadens and covers now many scientific fields and directions as biology, chemistry, physics as well as psychology, sociology etc. In the early '90 J.Panksepp⁵ described research of emotion as a different approach than described above cognitive or behavioral neuroscience. The term social affective neuroscience coined as an answer to the expectations to the modern approach to neuroscience appears to have great impact on public lured by tempting fMRI photographs. So it is not a great surprise that appear terms as neuropsychology, neurosociology, neurolinguistic, neuromarketing, neuromanagement and even neuroeconomy. The aim of the paper is then to find out does the neuroscience deliver reliable solutions and is ready to use in managing organizations.

¹ Doidge N., *The Brain That Changes Itself. Stories of Personal Triumph From the Frontiers of Brain Science*, Penguin, New York, 2007

² fMRI – Functional Magnetic Resonance Imaging – equipment used for imaging activities of selected areas of ones brain while he or she is acting. It checks the level of oxygen brain saturation. Primarily used for discovering the sources of decision making, nowadays widely used for explaining human behavior. The term is widely described in Huettel S.A., Song A.W., McCarthy G., *Functional Magnetic Resonance Imaging*, 2nd Ed., Sinauer Associates, Sunderland, MA, 2008

³ Kandel E., Schwartz J.H., Jessell T.M., *Principles of Neural Science*, 4th ed, McGraw Hill, New York, 2000

⁴ Bear, M. F., Connors B.W., Paradiso M.A., *Neuroscience: Exploring the Brain*, 3rd ed., Philadelphia, Lippincott, 2006

⁵ Panksepp J., *A role for "affective neuroscience" in understanding stress: the case of separation distress circuitry*, [in:] Puglisi-Allegra S, Oliverio A. *Psychobiology of Stress*. Dordrecht, Netherlands: Kluwer Academic, 1990, pp. 41–58

Possible applications of neuroscience in sales management

P. Ekman⁶ carried out studies on emotion imaging. Showing pictures of people originating from one culture to persons from another end of the world, he has proven that the motions expressed on faces are universal and easy to read disregarding the place the viewers or the people in the picture come from. He concludes that the ability to communicate without words formed in this way developed along with evolution and was or perhaps still is immensely important among numerous tribes and variety of dialects. It is particularly important while recognizing the intention of aliens. He indicates that people who are born blind mimic their emotions in the same way as those who can see. The universal nature of faces has become a significant step in the studies on the visual effects of emotions and processes taking place in the brain, he also showed that they refer to human beings in general, not only to particular persons or environments. However, as he writes in the further part of his paper, there is, at least to a certain extent, the possibility to manage emotions and, for example, restrict their reflection in the expression of the face or gestures. This, however, requires development of the ability to control the emotions, which in turn cannot be fully controlled on the level of the cerebral cortex activity. In fact, every grimace or movement of the muscles finds its equivalent in the activity of corresponding part of the brain, muscular reactions and their visual effect. It gives an important foundation for the justifiability of applying neuroscience to discovering the technical source of human emotions and activities. Ekman in his earlier publication⁷ discusses the questions of mental conditions of telling the truth or lies and the methods of their detection on the level of watching the person talk. While examining the mentally disabled, he comes to the general conclusions concerning the methods they appear, including the cerebral areas activity in his studies. He finds that false statements are detectable, disregarding the person, while mental activity mimics and gestures while telling lies are very close to, if not the same, as those of people in whom no mental disease was found. The conclusions of the studies could be applied in conducting negotiations, interviews, talks to employees, property security and a number of other activities inside organizations referring to human management, which includes sales team management. However, as it seems, the conclusions do not fully solve the issues concerned and do not provide a clear answer every time. Thus, it is not a coincidence the variographic tests based on similar assumptions are not completely recognized in most judicial systems as a lie detection method. There are numerous indicators that the problem is far more complex and the suggested form of its measurement not always generates reliable solutions.

⁶ Ekman P., *Emotions Revealed. Recognizing Faces and Feelings to Improve Communication and Emotional Life*, Times Books, New York, 2003

⁷ Ekman P., *Telling Lies: Clues to Deceit in the Marketplace, Politics, and Marriage*, 3rd ed., W. W. Norton & Company, New York, 2009

D.Berreby⁸ achieved similar results. However, he refers to the fMRI in a wider way and he examines altruistic behaviors and the willingness to assist others. He expresses an opinion that the studies of the mind shall prove that race, culture or nationality of people do not affect their emotions or brain activity. They are close and conditioned by individual characteristics of each respondent, not the community they originate from. This is how neuroscience is engaged to the fight against prejudice and stereotypization, which finds a well deserved place in the sciences about management, particularly in multicultural and transnational organizations.

The issue of presentation vivid in the sales department and its projected perception and valuation occurring in the recipients' minds also is a question discussed by the researches using brain imaging. It may also be referred to the offers presented during sales negotiations and questions related to the presentation of products in the points of sale, e.g. retail networks. According to Ch.Moore⁹ or M.Moffitt¹⁰, in a decision making situation the potential buyer's party rather thinks of the future rather than considers historic experience or current restrictions. Thinking about the future and placing oneself in it presents a situation that seems to meet the criteria allowing for directing the researchers of neuroscience thereto. A paper on perception of the future was published by a controversial author, D.Ariely¹¹, basing on the conclusions from the use of fMRI for years. Together with G.Loewenstein, they prove, in virtue of the experiments and interviews, that along with the growth of sexual excitement the predictions of the respondents concerning their future reactions to the selection of partner vary. The predictions of one's own reactions of the respondents, e.g. to rejection, vary along with the change of their state of mind. Persons in whom higher excitement has been detected state in the results presented that not only they are willing to try to make a relationship with the potential partner again, but also they would threaten him or her or even invade them. People of lower state of emotions present an opinion that in the future they would not look for further attempts to make a contact at all. This could be applied, for example, in the methods of making systems encouraging sales people to further visits, in spite of being rejected by the buyer. The real action, however, in the authors' opinion, is conditioned by current feelings. It may appear, after all, that the attitude described, is not constant in time and the actual future response is conditioned by the current situation. So the state of mind A brings about better prediction of our own actions and attitudes in the future state A. In state B, prediction of response in a hypothetical state A often impedes the right prediction of our own behaviors. In a moment when, for example the respondent evaluates him/herself as "happy", he/she may not be able to predict his/her own attitude for a situation in which he/she would have to be "sad" and vice versa. Therefore, it may also be reasonable to examine the brain while making a purchase decision in the context of conclusions concerning the state of mind while making such

⁸ Berreby D., *Us and Them. Understanding Your Tribal Mind*, Little, Brown&Company, New York, Boston, 2005

⁹ Moore Ch., *The Mediation Process. Practical Strategies For Resolving Conflict*, Jossey Bass, 2nd ed., 2003

¹⁰ Moffitt M., Pleadings in the Age of Settlement, *Indiana Law Journal*, vol.80, 2004

¹¹ Ariely D., Loewenstein G., *The Heart of the Moment. The Effect of Sexual Arousal on Sexual Decision Making*, *Journal of Behavioral Decision Making*, vol. 19, 2006, pp.87-98

decision as the decisions are largely dependent on this in terms of future predictions. Other researchers confirm it formulating similar conclusions based on their experiments, however referring them to various specific areas, such as acceptance of risk¹² or paradoxes and effects¹³. D.Gilbert¹⁴ treats thinking about the future from a slightly different perspective, in the context of the decisions made. He does not only think that people only are able to do so, but, as a rule, they also think in a misleading way. Taking the assumption that future is undetermined as a starting point, he compares it to a *carte blanche* that the brain fills with images of the present and to a lesser extent – with past experiences. As an example he gives experiences proving the existence of the blind spot¹⁵ in the eye. Although in some places the eye does not transmit any picture, it is printed with the shapes and colors originated from the blind point contours. As a result, some individual respondents may not realize its existence. It has been applied, for example, in the production of printed film to be pasted on window glass, not significantly restricting the vision of the viewers from one side and enabling the viewers from the other side to watch the printed space. The blank spaces of the printed surface are at decoding stage covered with pictures and colors adjacent to dark areas. This has been used, without limitation, in the advertisements pasted on the windows of buses or buildings.

D. Gilbert based on this principle his conclusions on future prediction. He focuses on the sense of happiness and unhappiness, satiety and hunger and a number of other dichotomic and antonymous variables and their effect on the way the future effects of present events will be evaluated. He comes to the conclusion that the evaluation and vision of the future changes along with the change of feelings. It refers both to everyday matters, such as the wish to eat a dish in a few hour interval and evaluation of the effect of disasters of lucky winnings on the future years of life. The author also presents experiments¹⁶ in which the respondents are to find whether they prefer various or the same dishes they define as their favorite, while choosing one meal per month in a given restaurant. In as much the respondents declare to choose variety in so far they are disappointed that they have not been served their favorite dish in a real situation. He writes that this is due to the fact of perceiving a monthly visit in a diner as twelve simultaneous visits instead of ones spaced with time interval. In effect, prediction meeting the expectations does not comply with the actual needs. And this could be applied to training the sales teams on the way of conducting commercial talks, for example.

¹² Bilgin B., LeBoeuf R.A., Looming Losses in Future Time Perception. *Journal of Marketing Research* 47:3, 2010, pp.520-530

¹³ Zushi N., Curlo E., Thomas G.P., The reflection effect in time-related decisions. *Psychology and Marketing* vol. 26(9), 2009, pp. 793-812

¹⁴ Gilbert D., *Stumbling on Happiness*, Knopf, 2006

¹⁵ Blind spot (ang), scotoma, mroczek - martwy punkt w polu widzenia ludzkiego wzroku

¹⁶ Jako, że są to pojedyncze eksperymenty z udziałem relatywnie niewielkiej grupy badawczej, trudno nazwać je badaniami, stad stosowane jest określenie doświadczenie.

The researchers studying the application of neuroscience to marketing go a little further. They analyze the effect of subliminal and interactive advertisements¹⁷, the ways of perception of characters and other elements contained in the messages or they search for the elements that are received unconsciously¹⁸. They base on the assumption that a significant part of consumer decisions and attitudes takes place outside their conscious selection, which represents an important foundation for further research. Tversky and Kahneman examined the aversion to loss as continuum on which profit may be marked on one side of the axis and loss on the other. They came to the conclusion that the fear of the loss of resources already possessed affects the actions and attitudes of people to a higher extent than the willingness to gain profit. Kahneman and Novemsky¹⁹ analyze to in relation to attitudes, while Tom and Craig – in relation to neurons. Sivakumar²⁰ translates it to considerations on fixing the level of prices (i.e. one of the marketing „P”) in relation to the level of product and service quality standard. He looks for correlations and confirms the conclusion that the customers’ sensitivity to losses (deterioration of quality, raising the price) is by far higher than to profits. Hermann et al. analyze the correlation between the method of making a decision and its final effect and the variety of the offer the customer encounters²¹. Reimann et al.²² provide conclusions from using fMRI [functional magnetic resonance] for such analyzes, generally confirming the thesis that feeling of loss or profit characteristic for the situation are based on the activity of appropriate neurons. The results of the research could be translated both to the ways of motivating sales teams and the way they conduct negotiations with the clients. However, the authors of some recognized marketing publications approach the question from a distance²³, usually not suggesting neuromarketing as knowledge each person dealing in marketing should acquire. And they are right, because experiments are made in laboratories and do not have to be translated into the actual consumer behavior. Harrison and Rutstrom indicate numerous doubts on the applications of the conclusions obtained in laboratory extensively in real life²⁴.

¹⁷ Ohme R., Matukin M., Beata Pacula-Leśniak B., Biometric Measures for Interactive Advertising Research, *Journal of Interactive Advertising*, 2011, 11(2), pp.60-72

¹⁸ Ohme R., The Subconscious as the Third Dimension in Advertising, *American Academy of Advertising Newsletter*, 5/4, 2009, pp. 1-5

¹⁹ Novemsky N, Kahneman D., How Do Intentions Affect Loss Aversion? *Journal of Marketing Research*: Vol. 42, No. 2, 2005, pp. 139-140.

²⁰ Sivakumar K., Examining Loss Aversion for Quality Versus Loss Aversion for Price. *The Journal of Marketing Theory and Practice* vol. 19:3, 2011, pp.317-324

²¹ Herrmann A., Heitmann M., Morgan R., Henneberg S.C., Landwehr J., Consumer decision making and variety of offerings: The effect of attribute alignability. *Psychology and Marketing* vol. 26(4), 2009, pp.333-358

²² Reimann M., Schilke O., Weber B., Neuhaus C., Zaichkowsky J., Functional magnetic resonance imaging in consumer research: A review and application. *Psychology and Marketing* 28:6, 2011, pp. 608-637

²³ Pilarczyk B., Mruk H., *Kompedium wiedzy o marketingu*, PWN, Warszawa, 2007

²⁴ Harrison G.H., Rutström E.E., *Risk Aversion in the Laboratory*, 2008, pp.41-196

This is like sales that need to be differentiated from marketing²⁵. Neurosales function more as an interesting new trend not completely verified in the innovative thinking about sales department and sales management.

Summary

Although only selected examples of research on the state of mind with the use of fMRI have been presented and selected methods of using their results for sales team management, on this foundation a conclusion can be constructed that the research and suggestions derived from them may explain the irrational choices, varied decisions and projections in time, but they also may represent guidelines, for example, for sales people on concluding transactions. On one hand encouraging them to finalize the transaction in a situation when the client seems to be about to accept the offer, on the other in the situation of its rejection - not to give up and keep trying as the decision of the potential buyer depends on his varying state of his mind. Wang and Minor²⁶ formulate numerous issues in the marriage of social sciences with the effects of tests with the use of psychophysiological techniques. They particularly refer to the reasonability and restricted reliability of the effects of such tests. They state that the objections are in as much important that they may restrict or totally impede the application of them in management.

The conclusions from neuroscience could also affect the restrictions in accepting of decisive role of rationality (or tending to a situation in which rationality has been achieved to the utmost extent possible) in the choices made and may represent explanation and argument for the critics of the theory of rational behavior of both the buyer and the seller. Although theoretically they could serve for example for recognition of employees' attitudes and affect the programs of their change or enable the development of innovativeness and entrepreneurship²⁷, such application of fMRI is difficult to be found in the references. It could also be a new paradigm in management stating that decisions are made with dominating effect of emotions and the state of mind instead of the rationality of the decision maker. However, it seems, this would be a premature conclusion at the present stage of research.

The present perception of neuroscience as the tool set in testing the theoretical constructs of decision making or deciding games may be a starting point in thinking about its wider application, nevertheless it now encounters certain barriers. The first is the interdisciplinary nature of the field coming across a certain resistance of the environments originating from each of them. Another barrier is formed by relatively fresh conclusions, unverified on large groups. It is also significant that the tests are carried out in laboratory

²⁵ Pindelski M., *Sprzedaż a marketing (Sales vs Marketing)*, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Poznaniu, [in ed.:] B.Pilarczyk, Z.Waškowski, vol. 135, 2010, pp.11-19

²⁶ Wang Y.J., Minor M.S., Validity, reliability, and applicability of psychophysiological techniques in marketing research. *Psychology and Marketing* 25(2), 2008, pp.197-232

²⁷ Żukowska J. Pindelski M., *Innovations of Enterprises and the Knowledge-Based Economy*, [in:] A.P.Balcerzak, Innovative Potential in the Dynamic Knowledge-Based Economy, The Knowledge & Innovation Institute, Warszawa, 2011, pp. 117-138

conditions, usually not reflecting common situations people find themselves in. Moreover, it is necessary to make several rigid assumptions concerning the correlations, e.g. combination of activity of a cerebral area, muscular contraction, words, intentions and predictions expressed and legibility of reactions. Declining them discredits the reasonability of applying this method to discovering anything. So, although the general direction of research seems to be interesting and promising, its expansion beyond the laboratory conditions may still take a long time and at the present stage of knowledge, drawing explicit conclusions concerning sales department management seems to be unauthorized.

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