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Theory of the Reptilian Brain in Neuromarketing in The Light of Neuroanatomy

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Abstract

This short study is devoted to the theory of the reptilian brain created by Paul D. MacLean, M.D., often cited in neuromarketing today. We reviewed the original MacLean article to identify the brain structures that make up the reptilian brain. Next, the MacLean concept and contemporary neuroanatomical knowledge were compared to the interpretations presented by Patrick Renvoise and Clotaire Rappaile – well-known representatives of the neuromarketing branch. Particularly we focused on the frequent confusion regarding the structures that make up the limbic system with these which are consisted in brainstem.

Keywords: Reptilian Brain; Neuromarketing; Triune Brain

Introduction

In popular publications and conference speeches of various experts, the concept of reptilian brain often appears. Its creator is Paul MacLean M.D. who published the article. The brain's generation gap in 1971. He divided the human brain into three main parts differentiated in terms of age and function. There were the reptilian brain, the old mammalian brain, and the neomammalian brain. However, MacLean not precisely describes the structures of these three parts, mainly the deepest one.

Triune Brain

Of course, MacLean clearly emphasized that the reptilian brain lies at the bottom, and the neomammalian at the very top. However, it does not accurately characterize the structures that make up each layer. He convinced that the reptilian brain (being of course part of the human brain) includes a group of large ganglia which, for short, he called the "R-complex" [1]. But we do not learn about which elements we are talking about. And this is a very important matter, especially in the context of the reptilian brain. We do not find here the information that it is primarily about the brain stem, although we know that this part is the main element of the reptilian brain. The middle floor, which is the limbic system (lat. limbus – ring, because as the ring it surrounds the brainstem). MacLean argued that in 1952, he suggested the term "limbic system" for the limbic cortex and structures of the primary connections. Therefore, the limbic system would include those structures that have connection to the brainstem as well as the limbic cortex. However, he did not mention these structures by name. With the brains of new mammals, the matter is simpler because it is the neocortex. Despite the differences, these parts work together creating one whole brain. Talking about three brains in one is a metaphor. Paul MacLean talked about triune brain but not three in one.

The reptilian brain works in an automatic, non-conscious way. In addition to regulatory and reproductive systems as well as sleep and wakefulness, there is also a reticular formation that is partly responsible for motivation to act. Its main task is to keep us alive. It works by instincts, without reflection, and is responsible for learned activities that can be done without thinking. The old mammalian brain is a generator of emotions and many processes occur unknowingly as well. It includes the olfactory cortex, cingulate cortex, amygdala, hippocampus, thalamus, hypothalamus and a few smaller structures. The fact that the limbic system often works unknowingly does not mean that we cannot realize the emotions we are experiencing. On the contrary, the consciousness enables the cortex to make corrections, for example by strengthening or weakening some affect. In most taxonomies, thalamus and hypothalamus belong to the limbic system. And even if we do not use such a name, we do not consider the thalamus part of the brainstem.

Neuromarketers And The Reptilian Brain

Specialists in neuromarketing, such as [2,3] or Clotaire [2]. Use the concept of a reptilian brain as the buying brain, and this is a key term for them. They reduce the purchase decisions of humans to operations made by the reptilian brain. Thus, if the reptilian brain is a brain dedicated survival and operating instincts, is it possible to say that it is the only recipient of marketing messages? And what

about the emotions? This view is inconsistent. If we use the concept of the reptilian brain, it means that we refer to the brainstem. It is the function of keeping us alive, not generating a range of emotions, which shopping decisions are necessarily associated with. If we compare the functions of the brain floors to Maslow's hierarchy of needs, we would say that the reptilian brain is responsible for physiological and safety needs. The limbic system meets social needs and the need to be appreciated. Whereas the neocortex, after meeting the basic needs, enables pursuing higher goals and achieving self-realization.

While some products are associated with survival (for example, a good car or life insurance), some symbolize the distinction (limited edition of a smart phone) or belonging to an exclusive group (loyalty card of a known brand). Talking about the reptilian brain as a shopping brain is an incomplete claim. Automatic decisions take place in close connection of sub cortical structures, not only within the reptilian brain. Therefore, such a belief is a factual error. During his speech at the TEDx conference on 2013, Patrick Renovoise cited literally the words of Clotaire Rapaille about the reptilian brain. Then he quoted the words of Joseph LeDoux on the amygdala and added that LeDoux means the reptilian brain. Similarly, he interpreted Kahneman's theory of System 1. This is kind of exaggeration.

The amygdala is not part of the brainstem; it is not classified in the reptilian brain. For this reason, we can see here inconsistency. It would be much better if Renvoise did not add his own words to other researchers' statements and if he decided that not only the reptilian brain but also the limbic system, are important for purchasing decisions. Of course, this applies to ill-considered decisions made quickly. We know that emotions are the key to understanding most of decisions we make. And since the old mammalian was considered their domain, it is necessary to end the reptilian brain myth as the main recipient of sales messages. We have two main recipients which, together with the third one, form a brain that cooperates within its structure, being a much more complicated machine than a three-story cake.

Conclusion

The concept of the reptilian brain has entered the language of pop culture, becoming not only a simplification, but also a mistake in the context of neuromarketing. Repeating it in subsequent publications may propagate a construct that is not entirely correct. Therefore, those interested in marketing, and not being neuroscientists, should start their adventure with neuromarketing by reading solid studies, such as, for instance, Berntstone and [4-6]. This way we can build further claims on basic but true knowledge. Thanks to reliability [7,8]. We will avoid mistakes and communicating them to others, which is a very important issue in the world of virally distributed information.

Compliance with Ethical Standards

The author states that this mini-review is part of an entirely original work. This is a research conducted with no conflicts of interests from institutions, colleagues or employees. No copyright was injured. No experiment was led involving humans. The author strongly condemns any kind of predation on other papers, being always alert to any possibility of textual misunderstandings that might give rise to copyright doubts. Now, there is no financial support to this work; the author has sustained the research with its own resources.

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