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Advertising as Unwanted Messages and Selective Brain Filters

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Abstract

In the real three-dimensional environment in the human brain, there is only information recorded by the senses. Sensory information is routed to the cortex via the thalamus which has a relay integrative and modular function. All cortex - related information, including advertising messages of course, transduce through the thalamus, integrate here and then passed on to the cortex sensory centers. The cortex sends a signal back to the thalamic reticular nucleus-TRN, which uses the neurotransmitter GABA, to regulate thalamocortical communication, and inhibit transmission of less interesting signals. The TRN is located between thalamus and cortex as a thin lamina of neurons, which may function as an attentional gate. The thalamus can modulate the received information by increasing the essential signals, while less important information decreases or completely extinguishes. On this way, the thalamus selects the information, create the possibility to the individual to fully concentrate on the object of attention, the neurological process of filtering known as sensory gating. Brain filtering is an adaptive strategy, ensures that only the information relevant to our goals is allowed into our consciousness So, the thalamus filters the information, allowing the individual to fully concentrate on the object of attention.

Keywords

Advertising, Selective Filters, Thalamus, Attention, Memory

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1. Introduction

Advertising surrounds us at every step on a daily basis, so Hood finds out the extraordinary amount of promotional information that US citizens are exposed to during the 17 hours of daily activities: “During a typical day, the average American sees over 5000 commercials [1].” A simple account comes up with information about 294 messages per hour, or almost five propaganda messages every minute! What comes from such a large number of information at all, how much can attract the attention of the individual and influence behavior and decision making [2].

The conscious sphere of the brain is protected from the unimportant information by filtering, an impermeable barrier to undesirable data in which the most commonly classified the propaganda messages. Brain filtering is an adaptive strategy, ensures that only the information relevant to our goals is allowed into our consciousness. This keeps us from being flooded with irrelevancies that might distract us [3]. The publication of Aldous Huxley’s *The Doors of Perception* brilliant commentary that the brain and sense organs function as a protective barrier acting like a reducing valve to ration out that “measly trickle of the kind of consciousness which will help us to stay alive on the surface of this particular planet [4].”But how can a person remember some of the TV ads or advertising he heard in the car?

Memory is an ability of human brain to encode, store, retain and recall information about past events or knowledge. By learning something new the brain creates new neuronal connections and new circuits in specific brain areas.

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Memories are formed by neurons that fire in the brain creating and changing connections in the networking. And vice versa, invoking content from memory can be interpreted as a cognitive reconstruction from elements scattered throughout various areas of the human brains. Memories have to be at least partially rebuilt every time they are recalled, but during the time and repeating conversations with friends and family, perhaps allowing details of other people's stories to mix with their own.

Basically, memory can be divided as explicit (contents that the individual is aware of), and implicit (unconscious information stored in the brain but affect behavior). Explicit memory is expressed as an episodic and semantic memory. Episodic memory captures information and events by locating them in time and space, while semantic memory records facts and significance, structures it and connects with episodic details. It is clear that the quality of the stored content depends first of all on the degree of attention to certain content. Attention, or interest stimulates thalamus through cortico-thalamus loops and content signals for which an individual expresses an interest will be further enhanced, resulting in better memorization of that experience. Depending of individual mental capacity, enough repeating the information in working memory then that memory can becomepermanent. Actually working memory as a gateway into long-term storage. The thalamus (comprising many distinct nuclei) plays a key role in facilitating sensory discrimination and cognitive processes through connections with the cortex [5]. The thalamus is coated in a thin neuronal skin called the thalamic reticular nucleus – TRN, so Crick claim: "If the thalamus is the gateway to to the cortex, the reticular complex might be described as the guardian of the gateway [6]."

In order for something to be remembered, a certain degree of individual attention is needed, that is the interest that will enable the passage of information through the brain filters. During selective attention, the thalamic reticular nucleus (TRN) controls the internal attentional searchlight that simultaneously highlights all the neural circuits called on by the object of attention. In other words, he submitted that during either perception, or the preparation and execution of any cognitive and/or motor task, the TRN sets all the corresponding thalamic-cortical (TC) circuits in motion [7]. The TRN is thus viewed as a functional networking filter to regulate conscious perception, which is possibly embedded in thalamic-cortical networks. Based on the anatomical structures and connections, modality-specific sectors of the TRN and the thalamus appear to be responsible for modality-specific perceptual representation [8]. The perceived information thus forms the basis for the formation one of different kind of memory. This is primarily working memory, which in fact denotes a dynamic mental space for storing and manipulating information during everyday activities. Working memory holds information actively being used in cognitive performance. Two important traits of working memory are how many items it can hold, and how efficiently it can be used [9]. Alan Baddley introduces the concept of the episodic buffer in working memory, which integrates important information from working memory components and data from long-term memory [10]. Rehearsal can help consolidate the information from working memory into a more lasting form, only memories that are of significance will transform from short-term memory into long-term memory.

2. Selective Filtering

The selective brain process as a concept of the perceptual defense is developed by psychologist Donald Broadbent, in their work *Perception and Communication*. Commenting the part of book on selective brain filtration phenomenon, Moray says: "His theory assumes that information entering the central nervous system can be thought of as arriving along certain 'channels' and that a 'filter' can select one (or occasionally more) channels and suppress the input along others [11]." There is still debate regarding where in the brain this filtering takes place, but it is known that the two sides of the brain filter information differently. The left controls information important for language abilities and goal-directed actions. The right controls a broader visual-spatial attention that allows us to take in new experiences on the boundaries of our awareness [3].

How to focus on what one person says when manypeople speaking simultaneously - famous "The cocktail party effect"? Du Plessis in his book *The Advertised Mind*, explains the details of this phenomenon. The room is full of noisy people, everyone is talking about the same volume. While you are barely following the interlocutor, someone in a nearby mentions your name. Du Plessis further explains: "You involuntarily switch your attention to the person who mentioned your name, and listen a few words of that conversation. You realize the participants are not talking about you, but about some else with the same first name, and switch your attention back to your companion [12]." Du Plessis proposed a mechanism that allows tracking the desired content named *the supervisory attentioning system*. The author points out that this model is not based on any knowledge about the areas that have been found in the human brain, this is an objective possibility. Further emphasis: "It is an abstract model of what kinds of elements there *might* be in a brain, or logically *should* be in a brain if the model is correct [12]."

There are several different processes that help concentrate on interesting sounds, including visual signals, and the use of both headphones to more accurately locate sound sources. In a noisy environment, visual information is used simultaneously with audio information. Most people look at the person they want to hear and it helps. One ear is focused on the desired speaker, and the other is a monitor to compare the background noise with what we want to listen to. It is therefore important to have both good ears. The listener easily distinguishes voices of different heights and tones, for example, men and women, which significantly helps otherwise, communication would be impossible in a noisy environment. What determines which information will pass into our consciousness, and what ends up on the impermeable dam of our brain`s filters? When the cortex receives a type of information which is consider it a priority, it sends a signal back to a part of the thalamus known as the thalamic reticular nucleus-TRN. Located between thalamus and cortex is a thin lamina of neurons called the thalamic reticular nucleus, which may function as an attentional gate [13]. TRN uses the neurotransmitter GABA, to regulate thalamocortical communication, and inhibit transmission of other less interesting signals from the thalamus to the cortex. In cooperation with the associative cortex, (over the thalamo-cortical-thalamic loop), the thalamus can modulate the received information by increasing the essential signals, while less important information decreases or completely extinguishes. In this way, the thalamus selects - filters the information, allowing the individual to fully concentrate by the object of attention.

A study was conducted on mice with and without the gene to determine the impact of the ErbB4 gene for attention. ErbB4 normally decreases the influence that the cortex has over the reticular nucleus. Without ErbB4: “Cortical feedback to the reticular thalamic nucleus is stronger, and thus there is greater suppression of irrelevant data both within a sensory modality (demonstrated by better selective attention to one sense) and between sensory modalities (demonstrated by impaired switching between visual and auditory tasks, the brain thinks that the auditory task is just more “noise”), [14].”

When the researchers attached probes to the mice to measure brain activity, they found mice without ErbB4 had brain regions that were acting independently, rather than together in synchrony. In particular, the researchers studied the prefrontal cortex - normally associated with decision-making - and the hippocampus - a region that supports memory. These two regions coordinate for a variety of brain tasks, including memory and attention [15].

3. Conclusion

EEG monitoring of electrical activity in both the cortex and the thalamus neurons has been reliably proven that activities in one region affect events in another area. The cortex and the thalamus are in a continuous conversation [16]. Continuous cooperation between these regions is very important in the process of selecting signals from the environment that are of particular importance to the subject. Thalamus can modulate the received information in association with associative cortex by enhancing those that are currently important, while minimizing alien or unobtrusive information, enabling the individual to concentrate on what matters to her at a particular moment.

What's the most common reaction to unwanted Email messages? It is estimated that it takes an average of less than two seconds to make a decision and posting messages from the mailbox is deleted. The brain automatically rejects unwanted contents, the most often including advertising messages. Brain filtration reacts like an inborn Adblocker, classifying an advertising messages as spam, and rejecting them immediately. Regardless of whether the supervisory attention is activated in the human brain, or brain activated some other mechanism, the fact is that uninteresting content has no attention, or even completely rejected. In any case, advertising that has not attracted attention is being ignored and such content is not memorized.

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Biography

Branislav Ranisav Tanasic, Narrower areas of interest are subliminal marketing Has own EEG laboratory (Electroencephalographic laboratory). A wide field of interest and published papers result in membership in the publishing board of several international journals: *Canadian Journal of School Psychology, Journal of Marketing Theory and Practice, Tourism and Hospitality Research,* Work experience: Long-term professor in several high schools, currently employed at the National University, and also engaged as a lecturer at the Faculty of Management, Sremski Karlovci, on the subjects: *Management, Marketing, Marketing Management, Human Resources Management, Communication, Small and medium-sized enterprises.*

Nenad B. Tanasic, Born in 1989, he completed a master's degree in economics, a master of teakwondo-black belt. Winner of numerous tournaments in Serbia and abroad. He published several papers, with his father Branislav, co-author of the textbook *Basics of Neuromarketing*. He continues his education in doctoral studies.