How to Cite
Albán, W. E. M., Ruperti, M. J. B., Tumbaco, D. E. S., & Martínez, M. E. M. (2019). Brain and emotions on learning process. *International Journal of Health & Medical Sciences*, *3*(1), 17-20. https://doi.org/10.31295/ijhms.v3n1.108

Brain and Emotions on Learning Process

William Ecuador Martínez Albán
Pontificia Universidad Católica del Ecuador, Portoviejo, Ecuador
Corresponding author email: wilanjose@hotmail.com

María José Briceño Ruperti
Pontificia Universidad Católica del Ecuador, Portoviejo, Ecuador
Email: magito1788@hotmail.com

Dubal Edison Salvatierra Tumbaco
Pontificia Universidad Católica del Ecuador, Portoviejo, Ecuador
Email: dsalvatierra2012@gmail.com

María Elena Moya Martínez
Pontificia Universidad Católica del Ecuador, Portoviejo, Ecuador
Email: mmoya@pucem.edu.ec

Abstract---*The objective of this research was to describe how the brain is fundamental in the teaching-learning process. This analysis has performed considering the importance of neuroscience and its influence on education, another important issue is emotions as stimuli for meaningful learning.*
Keywords--- *brain, neurosciences, learning, teacher.*

1 Introduction

The human being is an enigma that thanks to the history of little by little have been revealed, thanks to a number of investigations and scientific theories today it can be known that man is capable of developing skills and abilities that favor in daily learning This essay aims to specify the characteristics, parts how the human brain learns from the hand of neurosciences (Suarez *et al*., 2019).

It should be noted that the human being is constantly learning and that emotions are based on a complex network of brain areas, many of which are also involved in learning. Some of these brain regions are the prefrontal cortex, the hippocampus, the amygdala or the hypothalamus.

One could say that when a student acquires new knowledge, the emotional and cognitive part operates in an interrelated way in their brain, so that emotion is a guide to obtain learning and that is how positive experiences are distinguished as attractive to learn. and when they are negative experiences, they become susceptible and are avoided.

2 Materials and Methods

This bibliographic research was based on the themes: brain and learning, neurosciences and emotions, with contributions of ideas from different authors and focuses on obtaining the information for their respective analysis and interpretation, the inductive and deductive method was used as a means of verification to determine that emotions are stimulations for learning and that neurosciences contribute in a positive way in the teaching and learning process.

ISSN 2632-9433
Received Jul 27, 2019 / Accepted Sept 18, 2019 / Published Oct 08, 2019

3 Results and Discussions

The brain and learning

Throughout history the human species has been a benchmark in the research field in all areas, but the brain has also been for many years an enigma that thanks to multiple scientific research have been known deeply, the human brain of an adult weighs from 1300 to 1400 grams, the human being has a large brain in relation to the weight of the whole body and the brain is composed of 78% water, 10% water and 8% protein (Reina, 2019).

The most predominant characteristics of the brain are convolutions or folds, these wrinkles are part of the cerebral cortex, this, in turn, is the outer covering of the brain, these folds allow the increase of the surface area the importance of this is that fundamental parts of the brain are attributed nervous system and that its nerve cells are connected by approximately 1.6 million kilometers of nerve fibers.

The brain has a greater extent of non-compromised cortex than any other human species on the planet (Gardner, 1997), on the other hand, the brain has two hemispheres: left and right connected by nerve fibers, another characteristic of the brain is that it has a bulky fibrous tissue Called as a corpus callosum, each side of the brain also processes things differently.

According to Ormrod (2005), he describes the brain as an incredibly complex mechanism and researchers have a long way to go until they understand how it works and why it doesn't always work as well as it should, and the left hemisphere processes things in parts and in a sequential way.

For example, musicians process music in the left hemisphere also people who are left-handed almost half use the right hemisphere for language instead higher level mathematicians who are accustomed to solving problems they activate their right hemisphere more during the execution of these tasks, while beginner mathematicians who perform these activities generally occupy their left hemisphere. People who are skilled in gross motor function are controlled by the right hemisphere, while fine motor skills depend on the left hemisphere (Tuarez *et al.*, 2019).

The right hemisphere quickly recognizes negative emotions instead of the left hemisphere quickly captures positive emotions Ornstein & Sobel (1987), the brain is divided into four areas called lobes and their respective names are: occipital, frontal, parietal and temporal.

In addition, the human brain has two hemispheres that work interconnected, the right side is creative and the law is academic or detailed. The mental abilities of the hemispheres, which were identified by Nobel Prize Roger Sperry in 1960, are distributed and integrated throughout the cerebral cortex. For example, if we listen to a song, the words will be processed in the left hemisphere while the music will be processed by the right (Ortiz, 2009).

The limbic brain represents 20% of the volume of the brain and it governs emotions, attention, sleep, smell and scientists also define that there is no limbic system, but specific structures which process emotions, such as tonsils LeDoux (1996), but others like MacLean in 1990 proposed that the middle area of the brain is the limbic or emotional area.

The brain is the most complex organ that humans have, it is in charge of sending orders to the conscious and unconscious functions that are carried out in the body, through science, nowadays it is known that the brain is composed of 100 one billion nerve cells called neurons which communicate with each other by electrical impulses, each electrical impulse is a fragment of memory.

Experts Sholberg and Mateer in 1989 defined executive functions as a set of cognitive processes, including anticipation, choice of objectives, planning, behavior selection, self-regulation, self-control and the use of feedback. Thus, they describe among their components the direction of attention, the recognition of priority patterns, the formulation of the intention, the plan of achievement, the execution of the plan and the recognition of achievement.

Finally, Mora (2011), cited in BBVA argues that the human brain is the main means of importance in teaching and in the training of learning.

Neurosciences and emotions

Neuroscience contributes to learning, so that the set of scientific disciplines that studies the brain and complexity, conceiving the multiple intelligences and problems of such learning in the proper construction of memory. Learning is an essential part of our lives, we need to constantly acquire new knowledge and put it into practice to adapt properly to the environment, meaningful learning (Díaz Barriga & Hernández, 2010; Mendoza *et al.*, 2019).

Emotions are the acquisition of knowledge is the so-called emotional learning, in which, through the association of a certain stimulus with an emotion (conditioning), that learning arises and, therefore, these stimuli cease to be emotionally neutral to acquire an emotional value or meaning (Smith & Kosslyn, 2007).

Emotional learning can be obtained through the so-called instrumental conditioning, or operant, introduced by Thorndike in 1975 that consists in the development of new behaviors based on their emotional consequences.

Another element that is closely linked to emotions and that is crucial to favor Learning is motivation, which can be described as the force or action resulting from emotional components (Borod, 2000). Motivation is closely related to emotions because it reflects the extent to which an organism is prepared to act physically and mentally in a focused manner, and the emotional response constitutes the way in which the brain evaluates whether or not to act on things.

In this investigation it was determined that the brain is one of the complex organs of the human being and that is the theory of multiple intelligences Gardner's where it analyzes the hemispheres of the brain and defines that each side of the brain processes things in a way different, Ormrod in his book Human Learning, specifies that the brain does not always work as it should and that the left hemisphere is responsible for processing things sequentially, instead, the right hemisphere is responsible for the recognition of emotions, Ornstein and Sobel, they argue that the brain is made up of four lobes, in this way LeDoux, in his book The Emotional Brain, contemplates the specific distribution of emotions.

In his book Teaching Strategies for Meaningful Learning, Díaz Barriga proposes that learning is constant and that it does last over time is a significant learning, on the other hand, Smith & Kosslyn, in his work called Cognitive Processes: Neural Models and Bases, he states that a determining factor in the learning process is stimuli and finally in Borod's neuropsychology of emotion, he adds motivation as a result of emotional components.

4 Conclusion

The human brain is the organ where all kinds of information are stored and processed; nowadays it is a fact that the proper handling of emotions can greatly intensify the motivation in the student and, therefore, their learning. In addition, the new student-centered teaching proposals emphasize the fact that each learning brain is a unique and unique reality, and this can have greatly influenced by the context and experience under which the process was carried out cognitive.

Finally, the most important thing is to teach for life and not teach content, an education full of motivation, stimuli make students look differently at the social context and can achieve their goals and achievements.

References

Borod, J. (2000). The neuropsychology of emotion

Díaz Barriga, F, Hernández, G. (2010) Teaching Strategies for Meaningful Learning, McGraw Hill, Mexico, DF

Gardner, H. (1997). Multiple Intelligences. Paidós Barcelona

LeDoux, JE (1996). The emotional brain, New York: Simon and Schuster.

Mora, C., Tittensor, D. P., Adl, S., Simpson, A. G., & Worm, B. (2011). How many species are there on Earth and in the ocean?. *PLoS biology*, *9*(8), e1001127.

Ormrod, JE (2005). Human Learning (4th ed.) (Pp. 3-33). Madrid, Spain: Pearson Prentice Hall.

Ortiz, A. (2009). Learning and behavior based on the functioning of the human brain. Barranquilla: Litoral

Reina, A. L. V. (2019). The brain and learning on initial students. *International Journal of Health Sciences*, *3*(2), 38-43. https://doi.org/10.29332/ijhs.v3n2.329

Smith E, Kosslyn S. (2007). Cognitive processes: models and neural bases, Pearson Educación, SA, and Madrid.

Sobel, D., & Ornstein, R. (1987). Healthy pleasures. *Reading*.

Suarez, A. M. S., Martinez, M. E. M., & Mendoza, L. R. M. (2019). Brain and learning. *International Journal of Social Sciences and Humanities*, *3*(2), 128-135. https://doi.org/10.29332/ijssh.v3n2.302

Tuarez, M. A. V., Delgado, R. I. Z., Teran, O. V. T., & Martine, M. E. M. (2019). The brain and its role on learning process. *International Journal of Physical Sciences and Engineering*, *3*(2), 27-33. https://doi.org/10.29332/ijpse.v3n2.326

Mendoza, L. R. M., Martinez, M. E. M., & Suarez, A. M. S. (2019). The brain as a fundamental axis in learning process. *International Research Journal of Engineering, IT & Scientific Research*, *5*(4), 38-45. https://doi.org/10.21744/irjeis.v5n4.689

Biography of Authors

William Ecuador,
Rector, Municipal Educational Unit "El Porvenir", studied at the Universidad Laica Eloy Alfaro de Manabí; It has participated by providing and receiving different types of training.
Email: wilanjose@hotmail.com

María José,
Administration and accounting engineer, graduated from Universidad Laica Eloy Alfaro de Manabi, currently working in the millennium education unit Replica Manta, Manta-Montecristi, Jaramijo.
Email: magito1788@hotmail.com

Dubal Edison,
Administration and accounting engineer who graduated from Universidad Laica Eloy Alfaro de Manabi, has held different administrative positions in the ministry of education.
Email: dsalvatierra2012@gmail.com

Maria Elena,
Master in Pedagogy, Master in Management and Educational Leadership, Specialist in Management and Educational Leadership, Diploma in Innovative Pedagogies, Bachelor in Chemistry and Biology, Director, Rector and Vice-Rector of important Educational Units of the city of Quito, teacher trainer at national level, Editorial Director and book writer for Senderos Ediciones. University professor, Director of Teaching and currently Coordinator of the Master Program in Innovation in Education and Postgraduate Director of the Pontificia Universidad Católica del Ecuador.
Email: mmoya@pucem.edu.ec