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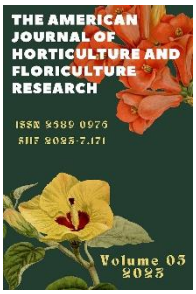

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Research Article

IN THE CEREBRUM, PRINTING AND LEARNING

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ABSTRACT

The work of reflection on learning and the important role the brain plays establishes a referential analysis with the goal of investigating and knowing everything related to the human being's knowledge and the activities he performs during the process of acquiring knowledge. These highlights how important it is to know this organ and how the content can be changed. Additionally, brain plasticity, which is the adaptation of changes or modifications that occur during the learning process, is emphasized. Significant learning is procured through great instructive practices and the utilization of dynamic philosophies, where a proper climate is laid out, in which inspiration assumes a significant part and procedures are as per the substance to be dealt with, which is preposterous without the cerebrum in question. The work is synthesized through analytical research and the use of the inductive method by analyzing the problem from the general to the specific, defining the elements that interfere with learning and the brain's imprint, the relationship with society in the cognition of contents, and the skills necessary for the development in various areas of knowledge. In addition, bibliographic resources are used to relate to the topic being discussed. The work's objective is to examine how the teaching-learning process affects the brain.

KEYWORDS

Mental flexibility; cognition; knowledge; learning; printing.

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INTRODUCTION

Learning is a normal part of life that is responsible for the acquisition of knowledge that is used throughout life and enables human development; It creates from birth, since figuring out how to slither, take things, walk and talk as one of the most fundamental elements of realizing, which are helpful for the turn of events, correspondence, abilities improvement, development and individual preparation. The practice and experimenting of situations that enable understanding and learning the development of countless activities, such as reading and writing, account for a significant portion of growth-related learning; skills that are learned and have a connection to phonological representations (Ros & Cardona, 2016).

The human brain is one of the most crucial organs because it controls thinking, learning, skills, and abilities; allows for the investigation of everyday happenings; Even though it is a rough organ, it is divided into two parts, the right hemisphere and the left hemisphere. Both of these parts have nerve fibers that let information flow from one lobe to another. It is connected to the body via nerve endings, which, depending on their location and function, transmit impulses that enable pain, temperature, sound, touch, and vision (Muoz et al., 2012; Chávez and other, 2019).

The achievement of learning is relevant to the process of synapse or interneuron communication as well as the manner in which cells form impulse-transmitting networks that stimulate the brain and encourage its functions as a central processor; In response to both internal and external stimuli received by the brain, neural plasticity, or the ability of the nervous system to promote neuronal contacts and synaptic efficiency, can be observed (Velásquez et al., 2009; Vasquez and other, 2019; Tuarez and other, 2019). In their book "Making Connections:," the husbands Caine and Caine (1997) Educating and the Human Mind", obviously communicated the requirement for a refreshed information on what occurs during realizing in the cerebrum, which, at All things considered, it is the organ that, through neuronal availability, makes learning conceivable; what served as the foundation for the relationships between neuroscience and learning.

Emotions are cited as a factor in human learning, particularly in students who are confronted with challenging circumstances that hinder academic success, in the work's content. The use of technologies that have become the most important source of information today and have recently made a significant breakthrough as a result of globalization is emphasized. It is important to note that the brain understands and develops the equipment, which are examples of experiences and knowledge as a result of correct and adequate teaching for these purposes,

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which is the reason for all the technological advancements.

MATERIALS AND METHODS

The method used is analogous to the kind of analytical research that conducts an analysis to get a complete understanding of the subject under study. The inductive method we used allowed us to analyze the problem from a general to a specific point of view, defining the connections between brain function and educational teaching. The gnoseological term, which enables the use of texts from previous and current years on research-related subjects, is put into practice; Additionally, the supporting bibliographic references (Hérnandez et al., 2010).

RESULTS AND DISCUSSIONS

The human brain According to Velásquez et al., the brain 2016) is a natural and social organ that is answerable for all capabilities and cycles connected with thinking, instinct, creative mind, perkiness, activity, the composition, the inclination, the heart and vastness of cycles that because of the pliancy comprehended as the capacity that the cerebrum has to change answering the changes of the climate, the associations between neurons, the organization of vessels that give them oxygen are changed and supplements and produce new neurons, so much, during the existence of the individual and not just in immaturity or the primary long stretches of adulthood as recently accepted; It is the brain's capacity to create or search for new alternatives or communication routes between specific and associated process control centers. This ability varies depending on age (children's plasticity is greater than that of adults), the size and severity of the lesion, if any, previous injuries (neuron injuries), and emotional effects. As a result, the human brain responds to other people with its plasticity and absorbs what it is exposed to; As a result, it adjusts its structure and operation to accommodate the numerous stimuli presented by the modern world. Since the brain is one of the most important and necessary organs in the body, it is necessary to study and investigate everything related to it. At the moment, the study of the brain is a complex issue in which each of its parts and the functions they perform are studied.

As a result of neuropsychological evaluations of commissurotomized patients—intractable epileptic patients with divided brain—more than 20 years ago, some functions of the left and right cerebral hemispheres were described (Zaidel & Sperry, 1974), which produced the first direct impact on education. A globalist or holistic and intuitive right hemisphere and an analytical, sequential, and detailed left hemisphere were derived from these findings. It had an impact on what was known as "learning styles" in education, a term with which the educational field is well-versed. It's possible that the hemispheric lateralization studies'

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findings were overestimated because the descriptions of how each hemisphere worked were based on observations of chronic patients with divided brains. A brain function that is normal has an intact corpus callosum and allows access to information to both hemispheres almost simultaneously. Verbal comprehension and communication, as well as sequential analysis and planning, are handled by the left hemisphere (on the right). The right hemisphere is responsible for emotion recognition and expression, musical pattern recognition, nonverbal language recognition, self-awareness, and learning ability. Another aspect that aids in comprehending the greater ease of acquiring facts that are "significant" in the teaching-learning process, which leads to a greater understanding of them, is added with the current emphasis on the importance that emotions acquire in learning (Goleman, 1996)

Brain and learning

The brain is the most complex organ in the human body. It is where a variety of functions are performed, including the ability to perceive emotions, beliefs, desires, and intentions. This ability is learned through neuronal connectivity, which is how learning occurs. Manes & Niro (2014) claim that the person who directs us to mental activity—from unconscious processes to philosophically elaborated thoughts—is the one who initiates it. In addition, the neurosciences have made contributions regarding the intentions of the various components of empathy, including the language area, emotional mechanisms, and neural circuits, in order to interpret and analyze the environment. This remarkable advancement reaches its maturity between the second and third decade of life and is being built as human beings acquire knowledge and respond to stimuli from the external environment.

Through its functions, the brain is able to analyze all situations and acquire knowledge to use when necessary; memory is used extensively to carry out certain tasks. Evidence on the impact of the learning experience is one of the main contributions of neurobiology (Alava & Martinez, 2019). Research on the cerebrum affirms that various and complex past encounters are fundamental for learning and educating to be significant. Every complex event leaves information in the brain that connects what the learner is learning to the rest of his or her experiences, past knowledge, and future actions.

Learning and brain development end up being one and the same thing. A person's life experiences literally cause him to form new connections between neurons and secrete chemicals that carry signals (Punset, 2009). What has already been experienced or comprehended is used to interpret new experiences and concepts. It is important to note that the human brain plays an important role in content acquisition and research, allowing the individual to investigate and ingest relevant information that is useful to him or her.

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As a processor that can process multiple events simultaneously, the individual chooses to develop competent skills in various learning areas.

According to Lopez (2000), the brain is a relational data processor that selects, encodes, and combines other data to produce timely and effective information regarding a problem to investigate. It controls not only the body's internal systems but also the sensory organs that are open to the outside world. These organs take information from the environment and send it directly to the brain, where it can be used to study any topic and get relevant results. Cerebrum based learning, through encounters pertinent to the real world, guarantees that understudies cycle this data, so it expands the chance of getting importance and deciphering them, and prompts significant learning in light of logical information in the instructive field, through training, which coordinates the comprehension of information and not remembrance, subsequently, shallow and critical information is underscored.

The individual needs to be aware that the best thing he or she can do is encourage his or her own learning and inquire about how he or she functions and how various learning styles work. According to Jensen (2008), scientists have hypothesized that the brain is altered with each new stimulus, behavior, or experience. One of them occurs in memory, where stimuli are processed and sent in various directions before being easily activated when necessary. There are many different kinds of learning, some of which are obvious while others are less obvious. Ormrod and others 2005), express that certain individuals figure out how to get outer rewards like passing marks, acknowledgment or cash; On the other hand, there are people who do things for obvious internal reasons, such as to feel successful or to make life easier. As a result, comprehend that learning is qualitative as well as quantitative, preparing society for life.

When looking for new information, it's important to take into account our surroundings and use relevant resources. Although the structures of the brain are the same, each brain is unique and is organized and learns differently. Even if two people are twins, they develop in different dimensions as soon as they leave the mother's womb (Tokuhama-Espinoza, 2013). In addition, learning occurs in accordance with students' intelligence and skills in each curricular and extracurricular activity. The significance of taking on abilities from adolescence is fundamental for people, so you can think and break down plainly what is connected with your current circumstance, pursue the most ideal choices in your day to day existence and foster in various instructive spaces. The early stages of knowledge acquisition are enriched by an appropriate environment, resulting in improved brain function for later generations.

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Brain plasticity and learning

Despite the fact that the structure of the brain is generally described, it has a great functioning and learning ability, that skills are acquired and trained as you learn. At the moment, awareness is made of the permuted differences that arise, and as a result, each human being learns in a particular way. According to Aguilar (2003), cerebral plasticity is the capacity to modify one's own organization or functions by adapting to the nervous system and minimizing the effects of various changes or injuries. Neuronal plasticity is crucial for the ongoing process of brain development. The compounds that alter the process and have a significant impact on the central nervous system (CNS) include, but are not limited to: hormones, opioids, neurotransmitters, and other drugs (Vigil et al., 2016).

It is convenient to study the brain in detail, its functions, and the various situations that arise during learning and adaptations to changes, or brain plasticity, the process by which information is acquired and reorganized. The brain is an organ that is capable of converting, ordering, and transforming information, whereas a machine is a physical object that obeys the human being (Saavedra MD, 2001), making a comparison between the brain and a machine could be helpful up to a certain point. It alludes to a machine that is indispensable and adjusts to any climate by rebuilding content. Individual experiences can use the brain's plasticity to create new circuits and improve the effectiveness of existing connections, resulting in more individualized, culturally relevant learning. Known as experience-dependent plasticity, it occurs throughout life and enables extraordinary personal, social, and cultural adaptation and growth (Jiménez et al., 2019).

He elaborates, "in the first years of life the human brain is very susceptible to environmental experiences and also needs them to start functioning properly" (p. 29), following the same concept (Belin & Grosbras, 2010). Sensitive periods are times when the brain experiences and the environment have a significant impact on particular neural structures and circuits. During these periods, the neural circuits are more malleable, receptive to environmental stimulation, and more flexible. Mind intricacy develops and advances consistently, where every individual knows himself and doesn't zero in on instructive curricular plans; Learning is dependent on synaptic communication and the respective development of structures, so the evolution of the human brain requires acceptance (Soul, Brain architecture as responsible for the learning process, 2013). Learning cannot be radiographed by an applied test. The location of the brain's development and the stimuli it receives are linked, according to neuroscientific research, which suggests fostering and developing human abilities.

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Research on learning

When discussing learning, the research that has been conducted takes into account the processes, models, and importance that are generated when acquiring new knowledge. This depends on the kind of training and how difficult it is, which generates a variety of emotions and opens up countless opportunities for decision-making, text comprehension, and knowledge development; the analysis is based on important previously published research that affects teachers' performance. According to Elizondo et al., emotions are a subfield of psychology. 2018), indicating that emotions enable us to acquire knowledge through stimuli related to the individual's conditioning, there are both positive and negative states in learning. Through self-regulation and motivation, a response to the increase in learning is generated during the collection of information, resulting in improved academic performance for both the student and the educator.

On the other hand, Caine's theory is that a better understanding of the new information to be learned will result from the new information being able to be related to the previously known (the conventional concept of "association") and make connections with the content that is already present the more connections between neurons the brain has to learn, which is achieved through rich experience. As a result, the teacher relates his subject to the child's contributions to the learning environment. The concept has been implemented in educational reform; When viewed from a neurobiological point of view, it appears that the child does not arrive at the situation with a brain similar to a "tabula rasa," but rather with a series of experiences from his family and particular socialization that have already enabled the establishment of numerous neural connections in the brain as a result of the learning that has already taken place. The educator will greatly enhance student learning by taking this into account (Saavedra MD, 2001).

The application of emotional states to learning isn't always going to be helpful because it is based on conditioning that doesn't apply when a student has health issues. When the student sees a wall that makes it hard to find an easy and practical solution, which helps the student perform better, the teacher takes into account the student's progress and the teaching strategies she teaches during pedagogical hours to fix this problem. In response to students' lack of interest in the study, teachers choose to learn teaching methods. For this reason, we have the proposal of (Arellano et al., 2017), on mental learning styles, the Kolb and Herrmann model to further develop preparing. Since the 1950s, various ideas have been developed based on the aforementioned designs. While these ideas have revolutionized the chair in educational facilities and been beneficial to society,

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they also generate some uncertainty when selecting a model, which is related psychologically.

The Kolb and Herrmann model and other cognitive learning styles have a specific relationship with emotions, do not completely depend on them, and can be applied without difficulty. In turn, they make it possible to grow training rates. However, it is thought that the required academic performance does not depend on the student but rather on other factors, like family relationships, difficulties getting into an institution, and status.

Methodologies are connected to the development and application of learning skills in education. Sobrado et al. () state: 2002), they say that when managing and processing information, connections are made between the information to be learned and previous knowledge. However, the scope of understanding and learning shouldn't be offended if problems arise when perceiving new information. In the past, the teacher was in charge of how to learn and what was taught. Now, thanks to new approaches to education, it is said that the teacher is concerned with the pedagogical progress of the student, where they acquire significant knowledge. This is in addition to the fact that the student learns what has been explained.

According to Cortés-Cortés (2019), physical education teachers know from their daily training that adolescents can develop leadership, teamwork, logical reasoning, anxiety control, and personal self-care skills through physical activity. They have a positive effect on students' learning and integral development and are important every day. In general, engaging in physical activity has a positive and motivating effect, which can inspire you to keep working out. Endogenous endocannabinoids and opioids (encephalin, endorphins, and dynorphins), which have various functions in the CNS, are thought to be the source of these effects during exercise.

A recent study (Haakeret al., in Nature Communications) 2017), demonstrates that opioids regulate social threat learning in humans. It lends credence to the idea that physical and mental health could both benefit from exercise. Pedagogical resources are used to establish how methodologies for children's first education are implemented. Esteves et al. () state: 2018), the didactic materials support the transmission of knowledge, which has an impact in early childhood, when children are more likely to be exposed to stimulating environments that encourage an affinity for new knowledge.

Teachers can now easily access texts, understand the psychology of their students, and update their specialized knowledge thanks to a recent technological development. Tasks are sent electronically using technology, making it easier for students to access network-based information; In order to prevent academic failure, it is suggested that

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they visit pages where practices are carried out on particular subjects.

The expansion of globalization in ICT makes it possible to find information on any topic, which is important for both teacher and student education; Although it is necessary for teaching about the rules that must be followed for the preparation and delivery of tasks via mail, the use of technologies is controversial due to the impact they have on the institution. The brain is an important organ that is responsible for learning and knowledge development. Based on practice and experience, it rests through sleep where learning processes are regulated, consolidates content, acquires new skills, and improves adaptability to new situations, allowing an optimal concentration to develop specific tasks performed day-to-day. According to Sandoval (2018), it says that there is a great diversity in terms of the characteristics, applications, and functions that allow being an object of multidimensional study to show if they are useful for the teaching and In addition, it encourages the growth of academic activities. When learning new information, brain functions are involved. According to Wuth (2009), in order to attain true learning, information must be processed in order to become knowledge. Executive functions, which are necessary for the neuronal and metacognitive performance of the human being when performing neutral functions, are carried out by the prefrontal lobes of the cerebral cortex and the limbic system as a biological substrate for language development, problem-solving, planning, and task execution. In conclusion, it should be emphasized that the various teaching methods mentioned in the preceding paragraphs are essential for academic performance, behavior, and interaction with the environment. It has also been demonstrated that the development of learning is due to the importance that the brain exerts over the other organs and the activities that allow us to perform. The emotions that are derived from the executive functions that are carried out in the frontal lobes generate that the student has better concentration and performance in their daily activities.

CONCLUSION

The mind is an organ where you can store, change, change and alter data, it has various capabilities and on account of examination about it is known inside and out the way things are made and the exercises it controls. Learning has taken place in society, but it would not be possible without the brain's ability to function. It has been mentioned that, if we acquire the skills and information that are essential to our daily lives, we will be able to find solutions to various problems in our environment. It is concluded that brain research and learning enable a better understanding of the vital organ's functions, with an emphasis on its role in the collection of knowledge from experiences, activities, and a plethora of other factors that

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determine an individual's level of learning, highlighting their interdependence.

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