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EXAMINING TEACHERS' PEDAGOGICAL PERCEPTIONS AND PRACTICES
ON THE USE OF BRAIN BASED PROFESSIONAL DEVELOPMENT IN EFL
CONTEXT

CASE STUDY: TEACHER OF ENGLISH AT M'SILA UNIVERSITY

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Requirements for the Degree of Master in Linguistics.

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DEDICATION I

I dedicate this I dedicate this work to my parents who have always been a true blessing,
my sister Malak, you made this journey a real fairytale,
and to the one and only Soufiane Hadj Attou,
thank you endlessly.

The Best is Yet to Come

Riane

DEDICATION II

This work is warmly dedicated to the candles who will always enlighten my life, my parents

Saad and Louiza,

My beloved caring and supportive husband Azzeddine,

My lovely sister Chahrazed and my dear brother Rabie for their support

To all my family and friends.

Sarah

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Abstract

Brain based learning, rooted in neuroscience research, emphasizes the importance of understanding the brain's functioning in educational practices due to the demands of 21st century to develop teaching and learning and enhance student's performance, research on how the brain works and learns is important to guide pedagogy. Accordingly, the present work investigated teachers' perceptions and practices on the use of brain based professional development. The research seeks to provide sufficient information about the use of brain based learning in classroom and the challenges that teachers face when adopting brain based. To achieve the intended aim, descriptive qualitative research method was adopted. The data were gathered through using a structured questionnaire, the population of this study was twenty (20) English teachers at M'sila University. Therefore, the findings revealed that positive perceptions and practices are shown by the teachers of English concerning the use of brain based. In addition to that, teachers have positive attitude toward the strategy and they are willing to initiate it. Thus, it can be concluded that the research hypotheses were confirmed.

Keywords: Brain-Based Learning, Teachers' perceptions, Teachers' practices.

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General Introduction:

Brain is the most complex part of the human body. We could never underestimate this three-pound organ that is instrumentally capable and undeniably the most efficient tool to reach comprehension perfection. It's the only base where the guru and the learner cooperate and play in one team to achieve the result aimed which is basically forming a simpler and easier way to deliver and receive the information. The adoption of knowledge pedagogies that shifts from « knowledge about » which dominates traditional educational practices to 'knowledge of' by allowing students to work with authentic problems that result in deep and meaningful learning and in other words is employing new pedagogues and learning methods was and will always be vital and crucial so through the development of technology and increase in the call for researchers to get rid of the traditional methods and introducing new techniques among academic fields; was significant issue that has been discussed by scholars. In education, the call for researchers to use new methods and prepare students for higher level of learning, on change has been the integration of mind ,in other words there's a need to shift from instruction paradigm to learning paradigm. Hence, designing an effective method that meet the demands of 21st century in order to help learners learn deeply.one that can be used is brain based which is deemed to be a new paradigm for 21st century learning and teaching that provides teachers with the knowledge about how the brain works and learns. Brain based defined a paradigm of learning which addresses student learning from the point of view of human brain to provide meaningful learning using affective instructional practices to ensure student engagement.

Statement of the Problem:

The contemporary educational landscape is marked by an ongoing quest to discover novel pedagogical approaches that can enhance the learning process and cultivate a classroom atmosphere conducive to profound student engagement and improved academic performance.

In response to this educational imperative, Brain-Based Learning (BBL) has emerged as a promising innovation, particularly in the domain of English language instruction. BBL's foundation in neuroscientific principles positions it as a potentially transformative methodology, closely aligned with the cognitive functioning of the human brain.

However, the introduction of BBL into English language instruction raises significant questions and challenges that necessitate empirical investigation. To this end, the aim of this study is to comprehensively understand the implications and practicality of integrating BBL within the English as a Foreign Language (EFL) classroom context. While the theoretical underpinnings of BBL offer great promise, there is a pressing need to explore how this innovative approach translates into tangible pedagogical practices in EFL settings.

Thus, this study will provide a comprehensive insight on teachers' perceptions and use of the BBPD in EFL contexts

Objectives of the Study:

- 1- To provide detailed information about the teachers' perceptions and practices on the use of BBPD.
- 2- To report teachers' perceptions towards the use of BB as teaching method.

Research Questions:

This study stands to answer the following question:

- 1- What are teachers' perceptions towards BBPD strategies and its use?
- 2- What are the challenges that teachers face when adopting BBPD?

Significance of the Study:

The purpose of this study is to examine teachers' perceptions and practices on the use of BBPD. The current study is significant since it has the potential to influence teaching practices, teacher training, curriculum development, student learning outcomes, and the

broader landscape of educational innovation. It can contribute to evidence-based decision-making in education and ultimately benefit both teachers and students in EFL contexts.

Methodology:

The current study is descriptive by nature and the items to provide an insight towards teachers' perceptions on BBPD practices and use in the EFL context. The target population in this study are teachers of English at the University of M'sila. The data collected in such research will be significantly based on the quantitative and quantitative methods as it is the most appropriate way to investigate the teachers' perceptions on BBPD practices and use in the EFL context through statistical analysis. The instrument that is used in this method is a questionnaire in order to gather data about their perceptions and practises of BBPD. While the quantitative measurement will allow us to know the level of satisfaction that teachers hold towards BBPD, the qualitative method will address the research question to explore the challenges that come along with the implication of BBPD in classroom.

CHAPTER ONE:

THEORETICAL PART

Introduction:

In today's rapidly evolving professional world, the need for continuous learning and skill enhancement is paramount. To enhance the effectiveness of professional development programs, it's crucial to delve into the science of how our brains learn and adapt. This is where "brain-based professional development" comes into play. It's an innovative approach that leverages insights from neuroscience and educational psychology to optimize learning experiences for professionals across various fields.

At its core, brain-based professional development is grounded in the idea that the human brain is not a static cognitive organ but a dynamic entity capable of significant change. By drawing upon knowledge from neuroscience, cognitive psychology, and educational theory, this approach tailors learning experiences to align seamlessly with the brain's natural processes. This alignment enhances the efficiency, effectiveness, and long-term retention of newly acquired skills.

Throughout our exploration of brain-based professional development, we will delve into the fundamental principles that underlie this approach. We will also uncover the neuroscience behind effective learning and discover strategies that ensure knowledge retention and practical skill application. Additionally, we will examine real-world examples and case studies across various professional domains, highlighting how brain-based methods can positively impact workplace performance and foster ongoing professional growth.

To illustrate the concept and its practical implications, we will reference the work of renowned researchers and practitioners who have significantly contributed to the field of brain-based professional development. As we embark on this journey into the realm of brain-based professional development, we will gain a deeper understanding of how this nuanced approach can revolutionize how individuals and organizations approach skill development, adapt to change, and navigate the ever-evolving dynamics of the professional world.

I. Brain Based and Its Relation to Neuropsychology

The intersection of "brain-based learning" and "neuropsychology" represents a dynamic nexus between education and neuroscience, offering profound insights into how the brain functions in the context of learning and cognition. Brain-based learning, a pedagogical approach, capitalizes on the principles derived from neuropsychology to craft teaching strategies that align with the brain's innate processes. In this symbiotic relationship, the science of neuropsychology informs educators about the neurological underpinnings of effective learning, while brain-based learning transforms these insights into practical strategies for optimizing educational outcomes. In this brief exploration, we will unravel the intriguing connection between brain-based learning and neuropsychology, shedding light on how this partnership fosters enhanced teaching and learning experiences.

In the last decade, there has been an effort to bring education and cognitive neuroscience together (Howard,2010, p.136) neuropsychology includes the study of psychology that study the structure and function of brain in relation to specific psychological process, the study of neuropsychology constitutes our understanding of human behaviour. Neuropsychology is a branch of psychology that helps to understand the structure and functions of brain, it focuses on the brain and how it influences cognitive function and behaviour and the relationship between cognitive process and the brain.

According to Dr. Soumaya Chandra (2020) “ neuropsychology can be started as a branch of psychology the studies the complex yet very much needed properties of brain which is the controller of behaviour, it is a study of human brain, its various functions, thoughts and their patters of change” understanding how the brain works allows to form a better environment for students, cognitive psychology is the science that look at how mental processes are responsible for our cognition abilities to store and produce new memories, produce language, recognize people and object, as well as our ability to problem solving,

cognition as a concept refers to the mental action or process of acquiring knowledge and understanding thoughts, experience, it encompasses all aspects of intellectual functions and processes such as perception, attention, thought and the formation of knowledge which makes cognition and cognitive neuropsychology deeply related to brain based as matter of fact, brain based is a part of cognitive neuropsychology .According to Walaa El Henawy (2019) “neuropsychology allows educators to create a conducive learning environment that provides the students with the optimal possibilities of success in learning”

Researchers agree that neuroscientific knowledge should be integrated into 21st century teacher preparation and professional development researchers are constantly trying to learn more about the brain and how it works to form an environment that gives student maximum probability of success in learning, neuroscience courses for teachers can improve pedagogy and knowledge of the brain which empowers teachers to meet diverse learners needs (walker et al., 2019, p.89) and equip teachers with tools to help increase student motivation and engagement (Dubinsky et al., 2019) while there has been increased focus on the importance of educational cognitive neuroscience, the research on the outcomes of teacher training in this area is minimal. The connection between Brain-Based Learning and neuropsychology underscores the importance of aligning educational practices with the science of how our brains function. It's a testament to the potential for interdisciplinary collaboration to revolutionize teaching and learning.

1- History of The Brain Based:

In the late 19th century, researchers began studying psychology of learning. In mid-20th century, cognitive science began to emerge, researchers like Erik Jensen and Geoffrey Caine developed the concept of brain-based education.

In 1983, Leslie Hart in human brain and human learning introduced the concept of brain based learning since there is not technology in study it deeply the concept did not get

attention, in 1991, Caine and Caine discovered more about the brain in their book *Making connections teaching and the human brain*, Geoffrey Caine and Renate Caine concluded that students had increased retention and understanding of topics when the brain based is introduced since then, brain based become more common practice In schools, brain based become more accepted during 1990s, Moreover , many studies was published on cognitive and education in order to shift from memorizing information to meaning for learning.

Hart (1983) is the first who connected the brain functions with the traditional educational practices and also who called the brain the organ of learning. In 1950s and 1960s, the field of neuroscience arose, researchers by their contributions led to the development of brain based in 1990s. In 1995, Erik Jensen in his book *Brain Based Learning THE NEW PARADIGM OF TEACHING* tackled the concept of brain-based learning.

Brain based has continued to evolve, researchers worked to develop the concept to create new teaching methods.

2- The Brain and Its Parts:

The brain is the most complicated organ in the human body, the brain is unique since every human has its own brain, it defines who we are and how we act, the brain is a complex organ that deals with emotions, learning, movement and thoughts, the human brain weighs around 1.5 kg. According to Sousa (2022, p.74) the adult human brain is a wet, fragile mass that weights a little more than three pounds (1,5)

The brain is the central organ which is responsible for learning which take place in the brain, therefore, the study of the brain essential for successful learning and also for creating effective instruction according to Jensen (2008, p.63) understanding the human brain improved our learning, many parts of the brain are engaged in the learning process.

Accordingly, Perry (2000, p.54) asserts that teachers do not need to be neuroscientists or psychologist in order to know how the brain structures, functions, and learns. The process

of teaching can become more effective when teachers understand how the brain senses, processes, stores and retrieves information.

Cerebrum: the biggest component of the brain it is responsible for many complex functions including perception, reasoning and memory. It is divided into two parts the left and right hemispheres, the cerebral cortex which covers the cerebrum has four lobes: frontal lobe, temporal lobe, parietal lobe, and occipital lobe each lobe is associated with specific functions. **The frontal lobe:** it is located at front of the brain, it is responsible for problem solving, decision making, planning and reasoning. It plays a significant role in regulate attention and concentration.

Parietal lobe: it is located behind the frontal lobe; it plays a crucial role processing semantic and syntactic information.

Occipital lobe: it is located at the back of the brain; it is responsible for visual perception and interpretation of the world.

Temporal lobe: it is located at the side of the brain it is responsible for auditory processing.

Cerebellum: “is the largest area representing 80 percent of the brain by weight “(Sausa 2022 p.15), it is called the little brain as it plays a significant role in the brain including maintaining balance and controlling muscle.

Brain stem: “is the oldest and deepest area of the brain “(Sausa 2022 P .15), it is the connection between the cerebrum and cerebellum to the spinal cord it consists of three main parts: The medulla, oblongata, the pons and the midbrain, it plays role in breathing blood pressure and sleep cycles.

3- Brain Based:

Brain research has provided new knowledge about how the brain learns and works, it is a learning approach that is related to neuroscience, neurolinguistics, is and cognitive

psychology which studies structure and function of human brain. It tries to unite cognitive neuroscience and education.

According to Duman (2007)” Brain research deals with learning teaching processing in classroom concerns, such as all of the sensory perception, consciousness, unconsciousness, attention, attitudes, behaviours, memories, and how emotions affect learning and how the brain works and learning “(p,468). Caine and Caine (2002, p.132) defined BB as the recognition of the brain’s codes for a meaningful learning and adjusting the teaching process in relation to those codes. Without knowing how the brain works, it is impossible to understand the learning process.

Jensen stated that BB the learning with accordance with the way brain is naturally designed to learn (2008, p.4) Brain based includes specific learning processes based on how learners are motivated, how memories are created and how information is presented. Erik Jensen indicated that to comprehend the human learning, you should comprehend the brain.

According to Soumaya Chandra “brain based is the implementation of a significant collection of principles that develop the understanding of how our brain works in the context of education (2020, p.1). Brain based is concerned with achieving powerful learning environment using the way the brain learns to teach the students.

Brain based teaching is described as “ an inter disciplinary approach that applies tactics based on the principles of how the brain works in a school context” (Jensen, 2007, p.5) Jensen added that brain based learning entails active engagement of deliberate methods based on concepts established from neuroscience “and is defined as” learning in accordance with the way the brain is naturally made to learn (p.4), Brain research have allowed an understanding of learning in a deep level, understanding how the brain works in one of the most relevant areas of knowledge today.

BB is concerned with creating powerful learning environment, BB reminds us that if we want things to be better, we'll need to be better informed about the brain (Jensen, 2008, p.3)

4- Brain Based Principles:

The original definition of brain compatible learning by Caine and Caine included 12 essential criteria (1994, p.78). The principles were created to offer criteria for picking curriculum and teaching methods that are in keeping with brain based; these principles include things like making connections to prior knowledge, providing opportunities for practice and feedback, and using strategies to engage different parts of the brain. The twelve principles were developed by Caine and Caine (1994) as a framework to help teachers choose the best brain-based teaching techniques. Wilson (2014) clarifies the following twelve elements of brain-based learning that have come to light as a result of brain research:

- 1- Uniqueness: every single brain is totally unique; teachers should provide various techniques in the classroom to engage the student s brain in the learning process.
- 2- The impact of threat or high stress can alter and impair learning and even kill brain cells.
- 3- Emotions are critical to learning they drive our attention, health, learning and memory, during learning the brain is influenced by emotions and the environment which must be supportive to help student express ideas.
- 4- Information is stored and retrieved through multiple memory and neural pathways.
- 5- All learning is mind body movements, foods, attention cycles and chemicals all have powerful modulating effects on learning.
- 6- The brain is a complex and adaptive system effective change involves the entire complex system.

- 7- Patterns and programs drive our understanding –as intelligence is the ability to elicit and to construct useful patterns.
- 8- The brain is meaning –driven –meaning is more important to the brain than information
- 9- Learning is often rich and non-conscious – we process both parts and wholes simultaneously and are affected a great deal by peripheral influences.
- 10- The brain develops better in concert with other brains – intelligence is more valued in our living social context.
- 11- The brain develops with various stages of readiness.
- 12- Enrichment – the brain can grow new connections at any age. Cognition skills develop better with music and motor skills.

5- Brain-Based in Classroom

A teaching style called "brain-based learning" uses the brain's natural processes to produce meaningful learning (Caine & Caine, 1991). Researchers who study neuroscience and its educational benefits include Jensen (1996, 2004), and Sousa (2001, 2017). These scholars were crucial in advancing this understanding. In order to address problems in a variety of sectors.

The brain-based learning strategy is being further investigated. According to Sousa (2017, pp. 1-4), a teacher's comprehension of how the brain functions during learning improves both the teaching and learning qualities in the context of 21st-century learning. Academic achievements of pupils have been shown to be improved by instructors who adopt brain-based learning. (Akman et al., 2020).

According to studies in neuroscience and education, brain cells (neurons) are reported to become active while being stimulated by the senses during learning, creating connections with one another (neural connections) to preserve the knowledge they have just acquired from the learning activity. Neural networks are created when connections are made in large

numbers. According to Sousa (2017), strong neural networks are dependent on three factors: the student's emotional state, the learning experience, and how valuable and meaningful the learning is to the student. The more neural networks are formed, the more information is retained and stored in the Hippocampus, which serves as long-term memory. (p.89)

The goal of brain-based learning is to help teachers comprehend and grasp the functioning of the human brain. Based on this knowledge, teachers can employ the best techniques to improve the learning of their students. Teachers need to be aware of how much of an impact they have on kids' brain development. Sousa (2017, p. 5). (2017, p. 5). The best ways to get the brain to act, according to Jensen (2004), are through brain-based learning activities including problem solving, teamwork, self-discovery, physical activity, asking more questions than giving answers, and challenging students' senses and minds. These techniques can promote neural connections, boost brain volume, and allow memories to be long-term preserved. The brain-based learning techniques employed can improve students' grasp of 21st century abilities.

The brain-based learning approach believes that various knowledge fields are related and that they share the same information and may be identified and arranged by the brain (Caine & Caine, 1991 and Jensen, 2000.) It is also a strategy specifically designed to appreciate more and provide a thorough consideration towards the students' brain capability in a learning process.

6- Principles for Brain Based Learning:

The "Principles for Brain-Based Learning" constitute a roadmap to unlocking the full potential of education by aligning teaching methods with the natural processes of the human brain. Rooted in the latest discoveries in neuroscience, these principles offer educators valuable insights into how to design and deliver instruction that is engaging, effective, and attuned to the way the brain learns. In this introduction, we embark on a journey to explore

the foundational principles that underpin Brain-Based Learning, shedding light on how they can revolutionize the educational landscape and empower learners to thrive in the 21st century.

- **The brain is parallel processor:** the brain can handle multiple tasks simultaneously; this parallel processing capability contributes to the brain's remarkable abilities and efficiency in handling complex cognitive tasks.

- **Learning engages the entire physiology:** According to Caine &Caine (1990) like the heart, liver, or lungs, the brain is an incredibly complex physiological organ functioning according to physiological rules, everything that affects our physiological functioning affects our capacity to learn. Therefore, the way that student treated in the classroom will affect their engagement and interaction with the teacher.

- **The search for meaning is innate:** The search for meaning appears to be a fundamental aspect of human cognition. Therefore, learners should be curious and try to discover information themselves.

- **The search for meaning occurs through pattering:**

The brain is designed to perceive and generate patterns, learners can learn better when they can create meaning between what they are studying and their personal life then the learner's will feel free to express themselves and engaged in classroom.

- **Emotions are critical to pattering:** Learning is influenced by emotions, they are innate, powerful, and mainly unconscious factors in learning, emotions play a crucial role in human behaviour, emotions and cognition cannot be separated, the learning environment must be supportive and the relationship between the student and the teacher should be cooperated and harmonious since it will affect student achievement.

- **Every brain simultaneously perceives and creates parts and wholes:** The brain is divided into two hemispheres which are different from each other, while one side reduces information into parts, the other side work with it as a whole.

- **Learning involves both focused attention and peripheral perception:** The brain absorbs the information in which it is directly aware and to which it is paying attention, peripheral stimuli also include signals that are within the field of attention but are not consciously noticed, this means that the brain responds to the entire sensory in which teaching or communication occurs. Duman (2006) states that to keep the student's attention on, integrate strong and reformist emotional connections with learning, use humour, allow movement and be aware of external attention.

- **Learning always involve conscious and unconscious process:** We learn much more than we ever consciously understand, most of the signals that we peripherally perceive enter the brain without our awareness and interact at unconscious levels, the teacher needs to prepare the student for learning unconsciously then the student will take the new information consciously.

- **We have two types of memory: a spatial memory system and a set of systems for rote learning:** A spatial memory system is the natural memory that is designed to register which does not need rehearsal, that we remember without doing anything to process it.

However, rote memory includes skills that are dealt with in isolation and organized differently by the brain.

- **The brain understands and remembers best when facts and skills are embedded in natural spatial memory:** Learning is enhanced when embedding is adopted, it is the most important element the new brain-based theories of learning have in common.

- **Learning is enhanced by challenge and inhibited by threat:** Threats can be academics or social, teachers' authority figures and peers can all be threatening in various ways. (Jensen,2000, p.46), the brain learns optimally when appropriately challenged, we learn best when we are challenged and we learn worst when we are threatened, a good challenging activity is a way to awake the student's interest.
- **Each brain is unique:** Each person has a brain which is different from the other, and it plays a crucial role in shaping their thoughts and behaviour.

7- The Educational Benefits of BB PD

Nowadays, teachers are in the need to introduce new methods of teaching to provide students with effective learning and to develop their academic skills through applying brain-based learning. Research on how the brain perceives, processes and retrieves information is important to guide pedagogy, according to Khalil (2019, p.23) who tested this method on Egyptian high school students, the student's speaking and communication skills can be improved.

Febryan (2017) conducted a study, on the impact of brain-based learning on the speaking abilities of SMA students indicated that this strategy was successful in improving the student's communication skills.

Brain based improved engagement by using strategies such as hands on activities, real world connections and multimedia resources. Brain based makes learning relevant and meaningful, also it increased thinking skills such as analysis, synthesis, brain based provide a greater understanding of learning styles.

7-1 Classroom Application:

Brain based gained a wide popularity, teachers began to use brain-based strategies into their classroom through understanding how the brain learns in order to enhance teaching

and learning, according to Patricia Wolfe “the more we understand the brain, the better we will be able to design instruction to match how it learns best “(p.1) brain based helps teachers to employ the best techniques to improve learning.

Implementing brain based in classroom enhance learner achievements and participation by providing them with activities according to their needs in order to help them enjoy their learning and also to create a positive learning environment to reduce stress, according to Jensen (2008).

Some educators guess that it is not possible to apply brain based in classroom because we do not have much information since the field is new.

Brain based is considered one of the most effective strategies that tries to make connections between the human brain and the teaching process, it is positively affect students’ achievements. Therefore, it must be applied in classroom to enhance the learning process.

II. Relating Brain-Based Learning to Education

In the ever-evolving landscape of education, the concept of "Brain-Based Learning" stands as a beacon of innovation and transformation. It represents an approach that places the intricate workings of the human brain at the centre of the educational process. By seamlessly intertwining the latest insights from neuroscience and cognitive psychology with teaching methodologies, Brain-Based Learning reshapes how we understand and practice education. In this introduction, we embark on a journey to explore the profound connection between Brain-Based Learning and education, illuminating how this synergy has the potential to revolutionize teaching and learning for students of all ages and backgrounds.

1- Curriculum and Instruction of Brain-Based Learning

Brain based instruction is to pass from memorizing through meaningful learning, it requires three interactive element, relaxed alertness, immersion and active processing

The most successful learning exercises depend a lot on how the brain functions. Schools must first understand how the brain functions and fit instructions to best optimize the brain natural abilities (Hart, 1983, p.56). Neuroscientists and educators have worked together to develop new educational practices. Teachers must assist students in having the right experiences and making the most of them. Understanding how the brain functions most effectively enables educators to set up a learning environment where students have a higher chance of succeeding.

The following ideas for brain-based learning will help pupils perform better in class. For that purpose, Annakodi & Rmakrishnan (2018, p.238) mentioned some instructions, including:

- Anticipation: Before beginning a lesson, give students some specific information to listen to. Alternatively, let them know they will need to retell some information to a fellow student. They will pay close attention and retain more meaningful learning; The brain is more likely to retain information that is relevant and meaningful. Students need to know why what they are learning should matter to them. This is especially relevant to challenged learners. (Willis, 2016)
- Space: Provide adequate personal space for the student. More personal space reduces stress for a learner.
- Location: Another easy thing to implement is location. Memory is very location based. You can vary where you stand in your class as you introduce new content, and/or vary where the students sit or stand.

- **Positive Environment:** First, it is imperative to set a positive and supportive classroom environment. The brain cannot learn well under stress. Higher-level thinking functions are rerouted to basic survival needs. Mirror neurons in our brains cause us to feel similar stress to those around us, causing the learning ability of the entire class to drop. Be sure to maintain a positive learning environment.

- **Optimism:** An optimistic attitude should be modelled every day. Teacher may be the only optimistic person in a student's life. Be sure to model and talk about optimism their future may depend on it.

- **Make connections:** Connections are important for the brain. It can't hold random information; it needs to connect to something else that's already there. You can make connections through your own experience and stories. Children learn best when teachers teach new material first and review previously learned material at the end of instruction.

- **Feedback:** Practice doesn't make anything better unless the practice is accurate. Students need to hear they are on the right track. It works pretty well for motivation, as well. It is best for teachers to teach in short units (1 to 2 segments at a time) and then provide a student led activity time. Students need time to practice the skills they are learning.

- **Brain Breaks:** The brain can only take in so much information at a time. Think of the brain

As a cup, once it is full, nothing else can fit and just runs down the side. You have to empty the cup to allow it to be filled again. The brain is similar. Students need to have time to process new learning in order to make room for more. Be sure to give your students a brain-break every five to 10 minutes. This could be in the form of a think-share-pair, a movement activity, a well-placed joke...the possibilities are endless. Be creative.

- **Talking:** The talking internalizes what they've learned. Give the children a few titbits of information, and then they have "turn and talk" time, where they discuss what they've learned. They love this, and it works.

- **Emotions:** The strong memories are closely related to strong emotional experiences, both positive and negative. The brain performs better in a positive emotional state. Students must feel physically and emotionally safe before their brains are ready to learn.

Teachers can create a positive environment by encouraging and praising their students' efforts.

2- Brain Based Education and Its Scope:

As Renate Caine (2003, p.13) illustrates of her book Making Connections, three interactive elements are essential to this process:

- **Orchestrated immersion:** establishing settings for learning that completely immerse pupils in the educational process. This entails establishing a setting where a learner feels engaged in and living the learning experience. Instructors must immerse students in challenging, dynamic, rich, and authentic experiences. Immersing students in a foreign culture while teaching them a second language is a great illustration. The capacity of the brain to process information in parallel must be utilized by educators. Teachers must prepare the students to learn through learning experiences which require them to give opinions and ideas and be actively involved throughout the whole learning session through a variety of instructional techniques and learning tasks.

- **Relaxed alertness:** reaching an optimum state of mind through the creation of a calm learning environment Teachers must create a calm and safe environment for students to be ready to share their knowledge, accept the knowledge being learnt, and be open to learn something new. Students are given opportunities to relate between what is known to what is

being learnt to generate knowledge through classroom activities done actively. attempting to make learning environments free of fear while keeping them extremely difficult. The goal is to maintain a state of relaxed attentiveness while still creating a difficult setting for students. Kids need to face a task that has personal significance. These difficulties help students' minds reach the desired level of alertness.

- **Active processing:** enabling the learner to actively process information so they can combine and internalize it. A learner is given the chance to actively process material in order to internalize, compile, and relate it through the use of active processing. It takes extensive analysis of the various approaches to a subject and of learning in general for a learner to develop understanding into it. Students are given opportunities to relate between what is known to what is being learnt to generate knowledge through classroom activities done actively.

In order to improve the brain's ability to operate and have an impact on students' learning processes, stimulations and interactions between these crucial components are required. This is because the formation of connections between brain nerves requires complex interactions. Seven essential elements of the learning process have been identified by Jensen (2014, p. 34), and they are engagement, repetition, input quantity, coherence, timing, error correction, and emotional states. By using a brain-based learning strategy, teachers must integrate and emphasize each of these important components.

3- Brain Based Strategies:

"Brain-based strategies" represent a revolutionary approach to education and cognitive enhancement, grounded in the latest findings from neuroscience and cognitive psychology. These strategies harness the power of our understanding of the brain's structure and function to optimize learning, memory, problem-solving, and overall cognitive performance. In this introduction, we will embark on a journey to explore the fascinating

world of brain-based strategies, uncovering how they can be applied in education, personal development, and various aspects of daily life to unlock the full potential of our remarkable brains.

Brain based instruction refers to teaching strategies that are used to enhance the student s ability to process and integrate information in meaningful ways, as it has multiple strategies, brain-based learning also has many classroom applications. For example, both verbal and written information can be included in lessons, which boosts retention. Hands-on activities can also be created, such as providing students with physical clocks to learn time. Another application is modelling assignments on real-world challenges students experience. For example, when teaching about percentages, a shopping activity can be set up. Each item could be on sale and the student challenged to calculate the sale price before they can be rewarded with it. This activity can also be done in groups where they have a budget to follow. This helps them learn problem solving and critical thinking all in one activity, moving outside the lecture and into practical applications of the lesson.

Brain based instruction uses strategies to stimulate the whole brain. Studies on brain-based instruction show increases in students' academic achievement in developing the brain s executive functions that control the student s ability to plan and monitor learning. These brain-based strategies should be used in different levels and content areas in class using movement, music, personal stories, humour, metaphors, colours...etc

It's important to note that not all strategies work for all students. Regularly trying new approaches and working through trial and error is the best way to begin implementing brain-based learning in the classroom.

4- Enhancing Brain-Based Practices Through Teachers' Collaboration:

Brain-based learning was initially designed to inform the instruction of school-aged pupils; it can also serve as a frame work to improve student accomplishment. But, how do

instructors feel about the confluence of neuroscience and education? Several people have used brain-based theory to investigate how a brain-based learning strategy affects pre- and in-service teachers.

The next set of research looked at how instructors felt about brain-based learning and how effectively pre- and in-service teachers responded to a brain-based teaching strategy. (Duman, 2010a; Kayalar& Ari; 2016; Serpati & Loughan; Dubinsky et al., 2013; Duman, 2016a). Early experiences shape attitudes and views about education and learning. Teacher training programs can have a significant impact on how new instructors view learning, which in turn affects how they learn to plan and carry out instruction. Research involving future teachers revealed that they had favourable opinions regarding brain-based learning. (Duman, 2010a; Kayalar& Ari, 2016).

Duman (2010a) delivered information on measurement and evaluation to pre-service instructors at a Turkish university in a true experimental project. Two sets of students were randomly selected, one of which functioned as an experimental group and received education using a brain-based learning methodology, and the other of which served as a control group and received instruction using a more conventional lecture methodology (Duman, 2010a). The Duman (2010a) study set out to look into how a brain-based learning approach affected the performance and attitudes of student teachers. For this reason, Duman (2010a) acquires more data about students' perceptions of the brain-based approach and to complement the quantitative data, researchers decided to utilize a mixed method approach. In addition to pre- and post-tests that compared the students' academic progress with the measuring and assessment material, students were also questioned about their feelings during the learning process. (Duman, 2010a).

Duman (2010a) discovered that even though the pre-test results were not statistically different from peers in the control group, students who were taught the identical material

using a brain-based teaching strategy had a statistically significant rise in academic success scores on the post-test. The qualitative study's findings showed that students' comfortable and supportive feelings allowed them to focus more intently on the subject matter (Duman, 2010a). Additionally, Duman discovered that throughout the in-class brain-based learning exercises, students actively participated and posed more inquiries than their counterparts in the control group (2010a). The results of this study, according to Duman (2010a), may influence future teacher-preparation programs.

Duman (2010a) recommended that the results could be applied to the design of various educational courses to improve student engagement, involvement, and learning outcomes. Because they have less experience, pre-service instructors may be more impressionable. It can be harder to convince teachers with more experience. In order to understand the opinions of in-service teachers about the integration of neuroscience and education, Serpati and Loughan (2012) conducted a survey of 221 US instructors using a Likert scale and 50 open-ended questions. Serpati and Loughan (2012) sought to specifically address statements made in theoretical literature, such as the importance of understanding the brain when developing educational programs or the high degree of teacher excitement for the use of neuroscience in the classroom. To do this, Serpati and Loughan (2012) developed a survey aimed at figuring out what teachers think is advantageous in neuroeducation. The benefits of brain-based learning were then discussed in free-response questions developed by Serpati and Loughan (2012), who also delved into instructors' perspectives on how brain research could improve instruction. The feedback was overwhelmingly supportive, perhaps even exuberant.

Serapati and Loughan (2012) stated that 94% of the teachers polled believed that it is crucial for instructors to be familiar with the neurological underpinnings of behaviour, learning, and cognition. Teachers largely believed that brain-based learning (or

neuroeducation) has potential and is worthwhile pursuing, according to the data acquired from the coding for themes (Serpati & Loughan, 2012). Teachers in the survey also gave information accessibility and relevance to the classroom high marks for the use of neuroscience in teaching. (Serpati & Loughan, 2012).

Study participants were also interested in finding out what common teaching practices should be eliminated and how teacher behaviours could affect the neurobiology and neuropsychology of students (Serpati & Loughan, 2012). The Serpati and Loughan (2012) study corroborated claims in the literature that brain-based learning not only has the potential to influence and improve instruction, but also has the acceptance of teachers who seem enthusiastic about the possibilities of brain-based learning.

Themes arose when interviewees were questioned about the brain-based learning techniques used in their classes. Creating spaces where kids were encouraged to work together and share ideas without concern for judgment from the teacher or their peers was one theme (Kayalar& Ari, 2016). This subject illustrated teachers' knowledge of the importance of fostering relaxed alertness in the classroom, a necessary state for brain-based learning

5- Teacher's Perceptions and Practices About Brain-Based Learning:

Pedagogical practices refer to the methods teachers use before, during and after lessons, the concept of teachers' pedagogical perceptions is informed by these views on pedagogy as well as teachers' knowledge and ideas about the nature of knowledge, successful learning strategies, the results of the learning process and the curriculum.

The concept in this current study refer to EFL teachers knowledge and beliefs regarding brain based pedagogy as well as the degree in which brain based principles were exhibited in the classroom ,teacher s have two points of view , some teachers might view brain based education as an effective approach that considers neuroscience research to

enhance learning and teaching practices and also to help students brains function .On the other hand, some teachers might find it challenging to integrate such approach into their daily teaching practices

Teachers' perceptions will depend on their individual beliefs and experiences, a study conducted by Cagla Atmaca revealed that although about half of the participants had average knowledge about how the brain learns, they still felt the need to be trained so that they could make adjustments in their teaching styles, lack of knowledge it is a reason that hinders the teacher from applying brain based.

Teachers should use non-traditional approaches or strategies including brain-based teaching to incorporate the needs of learners (sausa,1998), teachers would find it easy to teach when the brains are engaged, when the students are focused on the things that they are dealing with, they will be able to learn more information, classrooms that promote brain compatible teaching allow student to experience challenges and be active, engaged and participated in the activities.

Conclusion:

Throughout our exploration of Brain-Based Learning, its relationship with neuropsychology, its application in professional development, and its principles for education, we've uncovered a profound synergy between the intricacies of the human brain and the art of teaching and learning. Brain-Based Learning, informed by neuroscience and cognitive psychology, presents an exciting paradigm shift in education. As it has seen, this approach recognizes that the brain is not a static vessel for knowledge but a dynamic, adaptable organ capable of remarkable growth and change. By understanding the brain's natural processes, educators can craft strategies that make learning more engaging, efficient, and effective. In the realm of professional development, Brain-Based Learning offers a transformative path for individuals and organizations seeking to enhance skills and adapt to

an ever-evolving professional landscape. The application of brain-based strategies in this context paves the way for continuous growth and adaptability.

In conclusion, Brain-Based Learning represents an exciting frontier in education and personal development, offering a profound understanding of how we can harness the power of our brains to thrive in a rapidly changing world. This approach empowers educators, professionals, and lifelong learners to unlock their full potential, fostering a brighter future where knowledge acquisition and personal growth go hand in hand.

CHAPTER TWO:

FIELDWORK

Introduction

This chapter is devoted to the practical part of our study attempting to answer the research questions and understand the research problem about the teachers' perceptions and practices on the use of Brain-Based Professional Development in EFL context. First, we are going to start by presenting the research method, data collections tools, setting and participants, data collection procedure, and then move to the discussion of the results. The discussion of the results consists of two parts; the data analysis, in which we present and discuss the data we collected from the questionnaire, and the discussion of the study results.

To achieve the purpose of the study, certain methodological decisions were taken concerning the research method, data collection tools, selected sample, and research setting that are explained in this section of study.

1- Research Method

Since this study is an investigation that is intended to describe the teachers' perceptions and practices on the use of Brain-Based Professional Development in EFL context, it follows descriptive research method. Then, this research method is designed to provide a picture of the teachers' perceptions and practices. In addition, we have used the quantitative approach as it presents a statistical analysis, i.e. the numerical and graphical representations of data, to describe and explain the teachers' perceptions and practices on the use of Brain-Based Professional Development in EFL context, and the qualitative approach is used to provide more interpretations and deep understandings to our results.

2- Data collection tools

For our research, we used a structured questionnaire to seek teachers' responses as it allows us to collect data from a large number of participants efficiently. The questionnaire

consists of a set of close-ended questions that measure the teachers' perceptions and practices on the use of Brain-Based Professional Development in EFL context.

It is divided into four sections; each one focuses on particular aspect:

Section one: Background information, includes four simple questions about teachers' gender, teachers' age, teachers' qualification, and the number of years of teaching English.

Section two: A scale that aims to answer the research question related to the teachers' perceptions towards Brain-Based Professional Development.

Section three: A scale that aims to answer the research question related to the teachers' practices with Brain-Based Professional Development.

Section four: involves six (06) questions in order to know the degree of use and importance of Brain-Based Professional Development.

3- Setting and Participants

Teachers at the University of M'sila make up the whole population. We dealt with a sample of twenty (20) participants selected randomly, from the entire population. The reason behind such a choice was that random sampling helps us ensure that the selected sample is representative of the entire population so the results obtained from the random samples are more likely to be generalized to the larger population. Moreover, random sampling reduces the risk of selection bias, where certain individuals or groups are intentionally or unintentionally favoured in the sampling process. This bias can distort the results and conclusions of a study which help to investigate teachers' perceptions and practices on the use of Brain-Based Professional Development in EFL context. The study is conducted during the second semester of the academic year 2022-2023.

4- Data Collection Procedure

The data was collected through a questionnaire that was distributed on twenty (20) teachers asked to answer the different questions. The questionnaire was given to them in the morning and handed back in the afternoon.

5- Results and Discussion

Section One: General Information About Teachers

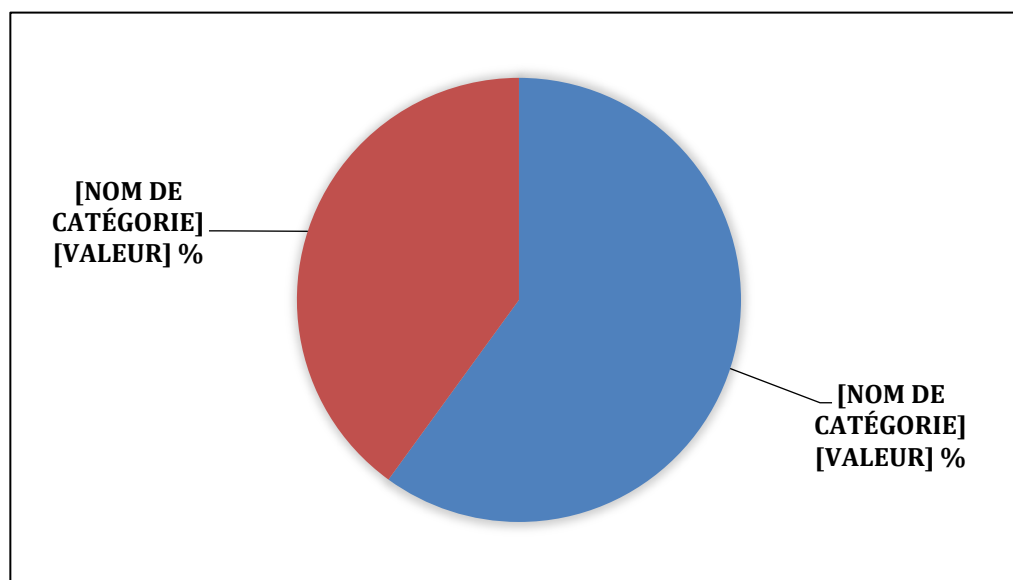
Our aim from this section is to get some personal information about teachers, such as their gender, age, qualification, and how long they have been teaching English.

1- Teachers' Gender

Table N0 (01): Teachers' Gender

Teachers' gender	Frequency	Percentage %
Male	12	60%
Female	08	40%
Total	20	100%

Graph N⁰ (01): Teachers' Gender



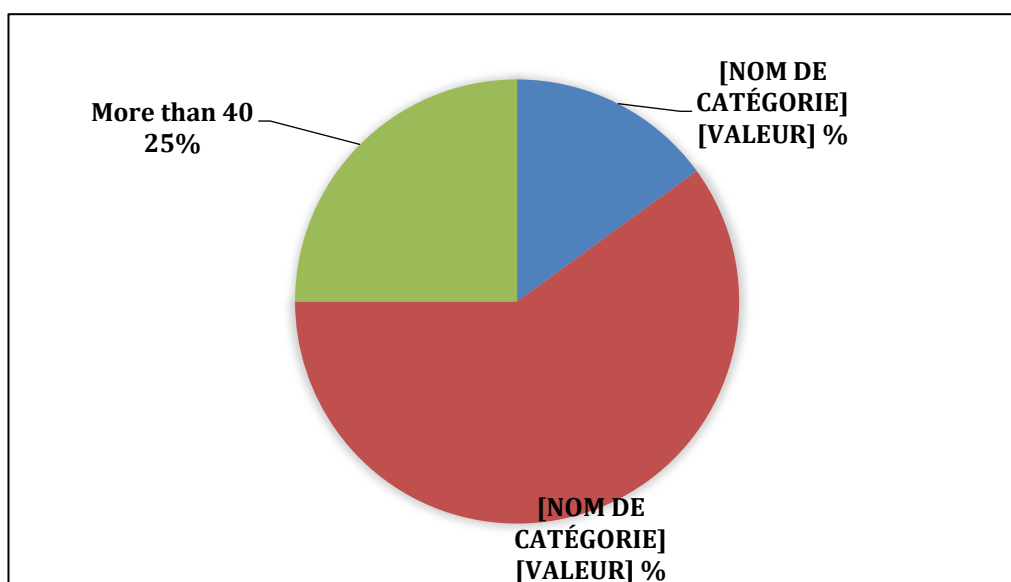
Through the above table and looking at the frequencies of the members of the sample, which are twenty (20) teachers, we note that twelve (12) teachers are male (60%). Whereas, eight (08) teachers are female (40 %). therefore, most of the teachers are males.

2- Teachers' Age

Teachers' age	Frequency	Percentage %
From 25 to 30	03	15%
From 30 to 40	12	60%
More than 40	05	25%
total	20	100%

Table N0 (02): Teachers' Age

Graph N⁰ (02): Teachers' Age



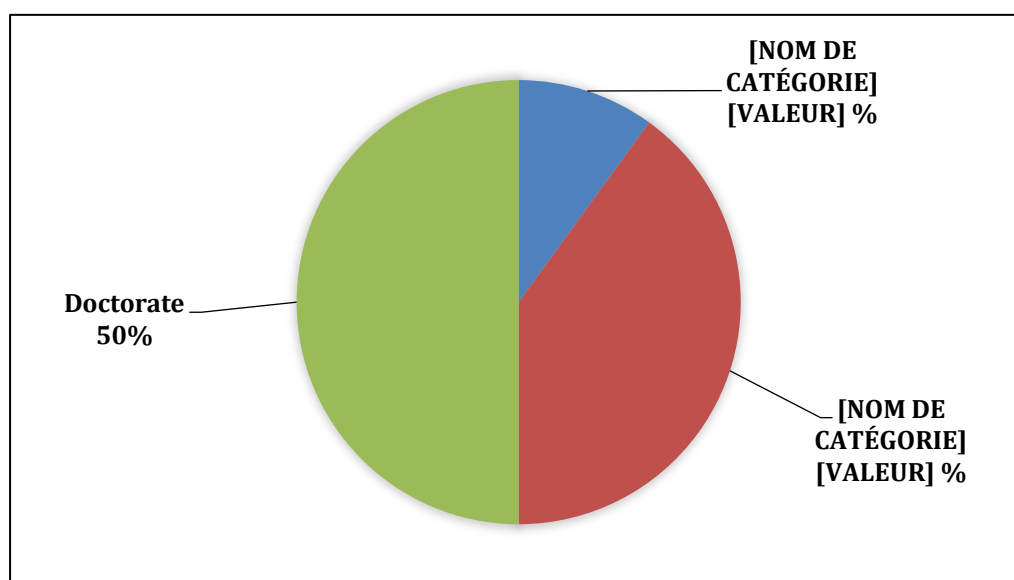
The graph and the table above represent the teachers' age. They are varying from 25 to more than 40 years old. We note that (60 %) represents the majority of the teachers who are between 30 and 40 years. (25%) are more than 40. While (15%) are between 25 and 30 years old. therefore, most of the teachers are (from 30 to 40) years old.

3- Teachers' Qualification:

Table N0 (03): Teachers' Qualification

teachers' qualification	Frequency	Percentage %
License	02	10%
Magister	08	40%
Doctorate	10	50%
total	20	100%

Graph N⁰ (03): Teachers' Qualification



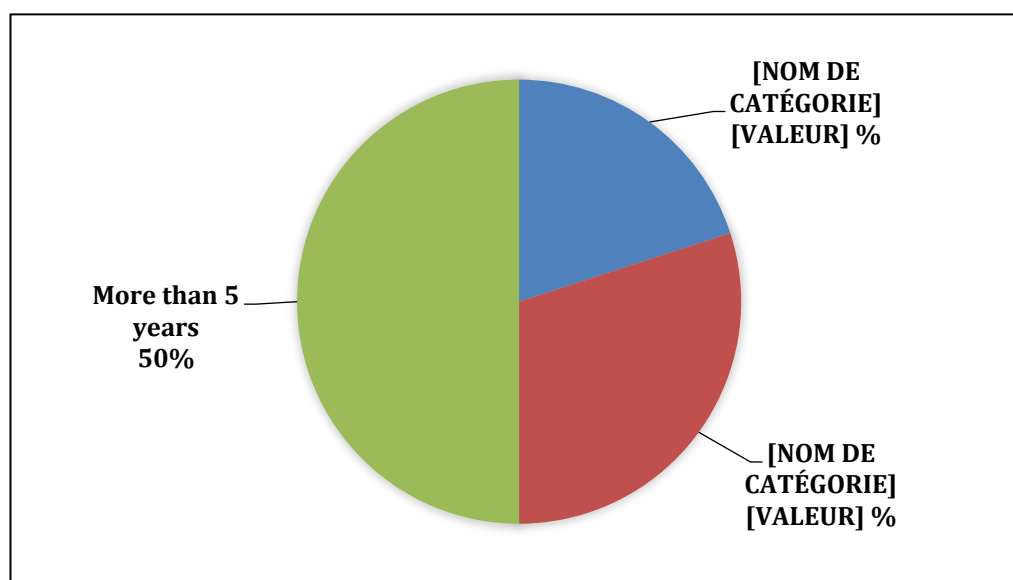
From the results in the table above, we notice that ten (10) teachers of the sample (50%) have doctorate degree, eight (08) teachers (40%) have magister degree. while (10%) of them have license degree. therefore; most of the teachers have doctorate degree.

4- Years of Teaching

Years of Teaching	Frequency	Percentage %
2-5 years	04	20%
5 years	06	30%
More than 5 years	10	50%
Total	20	100%

Table N0 (04): Years of Teaching

Graph N⁰ (04): Years of Teaching



The graph and the table above represent the number of years of teaching. They are varying from 02 to more than 05 years old. We note that (50 %) represents the majority of the teachers whose number of years of teaching English is more than 05 years. (30%) of teachers have 05 years of teaching. While (15%) of them have 2-5 years of teaching English. therefore, most of the teachers have more than 05 years of teaching English.

Section Two: Teachers' Perceptions Towards Brain-Based Professional Development

The following scale aims to answer the research question related to the teachers' perceptions towards Brain-Based Professional Development.

Table N0 (05): Teachers' Perceptions Towards Brain-Based Professional Development

N° Item	Strongly agree		Agree		Neutral		Disagree		Strongly Disagree		Mean	Standard deviation	RANK	LEVEL
	F	%	F	%	F	%	F	%	F	%				
01	03	15%	04	20%	04	20%	08	40%	01	05%	3,40	1,14	09	medium
02	09	45%	07	35%	01	05%	03	15%	00	00%	4,10	1,07	05	high
03	11	55%	08	40%	01	05%	00	00%	00	00%	4,45	0,75	02	Very high
04	04	20%	05	25%	06	30%	05	25%	00	00%	3,40	1,09	08	high
05	11	55%	07	35%	01	05%	01	05%	00	00%	4,35	0,98	03	Very high
06	01	05%	05	25%	10	50%	04	20%	00	00%	3,15	0,81	11	medium
07	02	10%	07	35%	05	25%	06	30%	00	00%	3,25	1,02	10	medium
08	01	05%	06	30%	07	35%	05	25%	01	05%	3,05	0,99	13	medium
09	07	35%	11	55%	01	05%	01	05%	00	00%	4,20	0,76	04	high
10	10	50%	10	50%	00	00%	00	00%	00	00%	4,50	0,51	01	Very high
11	04	20%	07	55%	04	20%	05	25%	00	00%	3,50	1,10	07	high
12	03	15%	03	15%	09	45%	04	20%	01	05%	3,15	1,08	12	medium
13	06	30%	07	35%	04	20%	03	15%	00	00%	3,80	1,05	06	high
dimension											03.71	0.50	high	

Through the above table (05) and looking at the responses of the members of the sample to the statements related to teachers' perceptions towards Brain-Based Professional Development, they have a high level of importance with an arithmetic mean of (03.71); a standard deviation of (0.50). The distribution of responses is:

- The item 10 "The brain-based professional development I participated in enhanced my understanding of how the brain works in relation to learning a foreign language" is ranked first, with an arithmetic mean of (04.50); a standard deviation of (0.51), and a very high level of importance, which means that the study sample members are very highly agreed that the brain-based professional development they participated in enhanced their understanding of how the brain works in relation to learning a foreign language.
- The item 03 "Brain-based teaching methods are practical and applicable in the EFL classroom" is ranked second, with an arithmetic mean of (04.45); a standard deviation of (0.75), and a very high level of importance, which means that the study sample members are very highly agreed that Brain-based teaching methods are practical and applicable in the EFL classroom.
- The item 05 "I face challenges when implementing brain-based teaching methods in my EFL classroom" is ranked third, with an arithmetic mean of (04.35); a standard deviation of (0.98), and a very high level of importance, which means that the study sample members are very highly agreed that they face challenges when implementing brain-based teaching methods in their EFL classroom.
- The item 09 "The brain-based professional development I participated in was well-organized and effectively delivered" is ranked fourth, with an arithmetic mean of (04.20); a standard deviation of (0.76), and a high level of importance, which means that the study sample members are highly agreed that the brain-based professional development they participated in was well-organized and effectively delivered.
- The item 02 "Brain-based teaching methods improve students' learning outcomes" is ranked fifth with an arithmetic mean of (04.10); a standard deviation of (1.07), and a high level of importance, which means that the study sample members are highly agreed that Brain-based teaching methods improve students' learning outcomes.

- The item 13 "I would recommend brain-based professional development to my colleagues who teach English as a foreign language" is ranked sixth, with an arithmetic mean of (03.80); a standard deviation of (1.05), and a high level of importance, which means that the study sample members are highly agreed that they would recommend brain-based professional development to colleagues who teach English as a foreign language.
- The item 11 "The brain-based professional development I participated in increased my motivation to continue learning about brain-based teaching approaches" is ranked seventh, with an arithmetic mean of (03.50); a standard deviation of (1.10), and a high level of importance, which means that the study sample members are highly agreed that the brain-based professional development they participated in increased their motivation to continue learning about brain-based teaching approaches.
- The item 04 "The brain-based professional development that I attended was effective in enhancing my teaching practices" is ranked eighth, with an arithmetic mean of (03.40); a standard deviation of (1.09), and a high level of importance, which means that the study sample members are highly agreed that the brain-based professional development that they attended was effective in enhancing their teaching practices.
- The item 01 "I am familiar with brain-based teaching methods" is ranked ninth, with an arithmetic mean of (03.40); a standard deviation of (1.14), and a medium level of importance, which means that the study sample members are moderately agreed that they are familiar with brain-based teaching methods.
- The item 07 "Professional development is important in enhancing my teaching practices" is ranked tenth, with an arithmetic mean of (03.25); a standard deviation of (1.02), and a medium level of importance, which means that the study sample members are moderately agreed that professional development is important in enhancing their teaching practices.

- The item 06 "I need support to effectively implement brain-based teaching methods in my EFL classroom" is ranked eleventh, with an arithmetic mean of (03.15); a standard deviation of (0.81), and a medium level of importance, which means that the study sample members are moderately agreed that they need support to effectively implement brain-based teaching methods in their EFL classroom.
- The item 12 "I feel more confident in my ability to effectively teach English as a foreign language after participating in the brain-based professional development" is ranked twelfth, with an arithmetic mean of (03.15); a standard deviation of (1.08), and a medium level of importance, which means that the study sample members are moderately agreed that they feel more confident in their ability to effectively teach English as a foreign language after participating in the brain-based professional development.
- The item 08 "The brain-based professional development I participated in was relevant to my teaching context" is ranked thirteenth, with an arithmetic mean of (03.05); a standard deviation of (0.99), and a medium level of importance, which means that the study sample members are moderately agreed that the brain-based professional development they participated in was relevant to their teaching context.

Section Three: Teachers' Practices with Brain-Based Professional Development

The following scale aims to answer the research question related to the teachers' practices with Brain-Based Professional Development.

Table N0 (06): Teachers' Practices with Brain-Based Professional Development

N° Item	Strongly agree		Agree		Neutral		Disagree		Strongly Disagree		Mean	Standard deviation	RANK	LEVEL
	F	%	F	%	F	%	F	%	F	%				
01	10	50%	06	30%	02	10%	01	05%	01	05%	4,15	1,13	03	high
02	07	35%	10	10%	02	10%	01	05%	00	00%	4,15	0,81	02	high
03	11	55%	08	40%	00	00%	01	05%	00	00%	4,45	0,75	01	Very high
04	06	30%	10	10%	03	15%	01	05%	00	00%	4,05	0,82	04	high
05	06	30%	05	20%	04	20%	04	20%	01	05%	3,55	1,27	05	high
dimension											04.07	0.64	high	

Through the above table (06) and looking at the responses of the members of the sample to the statements related to the teachers' practices with Brain-Based Professional Development, they have a high level of importance with an arithmetic mean of (04.07); a standard deviation of (0.64). The distribution of responses is:

- The item 03 "I would like to attend more professional development sessions that focus on brain-based Teaching methods" is ranked first with an arithmetic mean of (04.45); a standard deviation of (0.75), and a very high level of importance, which means that the study sample members are very highly agreed that they would like to attend more professional development sessions that focus on brain-based Teaching methods.
- The item 02 "Brain-based professional development is important for EFL teachers" is ranked second with an arithmetic mean of (04.15); a standard deviation of (0.81), and a

high level of importance, which means that the study sample members are highly agreed that Brain-based professional development is important for EFL teachers.

- The item 01 "I think that brain-based professional development is a valuable tool for enhancing EFL teaching practices" is ranked third with an arithmetic mean of (04.15); a standard deviation of (1.13), and a high level of importance, which means that the study sample members are highly agreed that brain-based professional development is a valuable tool for enhancing EFL teaching practices.
- The item 04 "The brain-based professional development that I have attended has helped me to enhance my teaching practices" is ranked fourth with an arithmetic mean of (04.05); a standard deviation of (0.82), and a high level of importance, which means that the study sample members are highly agreed that the brain-based professional development that they have attended has helped them to enhance their teaching practices.
- The item 05 "The biggest challenge in implementing brain-based teaching methods is overcoming resistance from students" is ranked fifth with an arithmetic mean of (03.55); a standard deviation of (1.27), and a high level of importance, which means that the study sample members are highly agreed that the biggest challenge in implementing brain-based teaching methods is overcoming resistance from students.

Section Four: Use and Importance of Brain-Based Professional Development

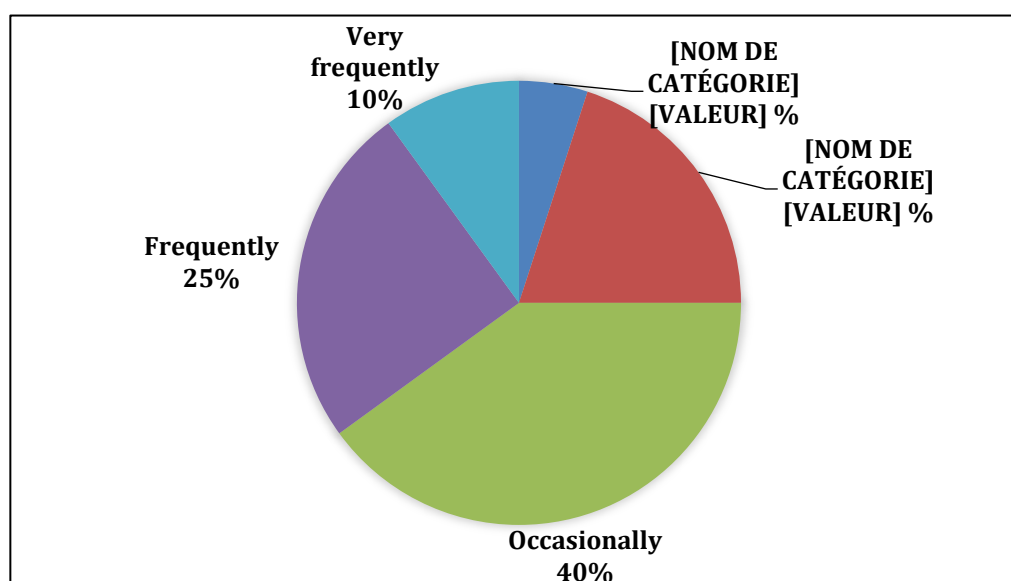
Question 01:

How frequently do you use brain-based teaching strategies in your EFL classroom?

Table N0 (07): The Use Frequency of Brain-Based Teaching Strategies in EFL Classroom

Options	Frequency	Percentage %
Never	01	05%
Rarely	04	20%
Occasionally	08	40%
Frequently	05	25%
Very frequently	02	10%
total	20	100%

Graph N⁰ (05): The Use Frequency of Brain-Based Teaching Strategies in EFL Classroom



Looking above at the table N⁰ (07) and the graph N⁰ (05), it shows the responses of teachers to the question: How frequently do you use brain-based teaching strategies in your EFL classroom? According to the results, there is (01) teacher (05%) who has chosen “Never”, four (04) teachers (20%) have chosen “rarely”. While eight (08) teachers (40 %) have chosen “occasionally”, five (05) teachers (25 %) have chosen “frequently”, and two (02) teachers (10 %) have chosen “frequently”. Therefore, the majority of the teachers use occasionally brain-based teaching strategies in their EFL classroom.

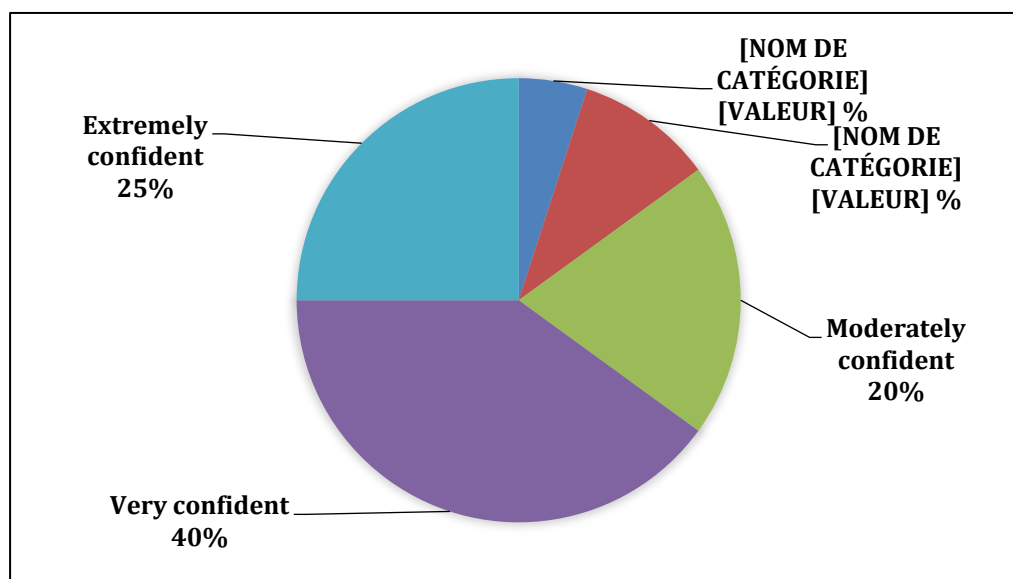
Question 02:

To what extent do you feel confident in using brain-based teaching strategies in your EFL classroom?

Table N0 (08): Confidence in Using Brain-Based Teaching Strategies in EFL Classroom

Options	Frequency	Percentage %
Not at all confident	01	05%
Slightly confident	02	10%
Moderately confident	04	20%
Very confident	08	40%
Extremely confident	05	25%
total	20	100%

**Graph N^o (06): Confidence in Using Brain-Based Teaching Strategies in
EFL Classroom**



Looking above at the table N^o (08) and the graph N^o (06), it shows the responses of teachers to the question: To what extent do you feel confident in using brain-based teaching strategies in your EFL classroom? According to the results, there is (01) teacher (05%) who has chosen “Not at all confident”; two (02) teachers (10%) have chosen “Slightly confident”. While four (04) teachers (20 %) have chosen “Moderately confident”, eight (08) teachers (40 %) have chosen “Very confident”, and five (05) teachers (25 %) have chosen “Extremely confident”. Therefore, the majority of the teachers feel very confident in using brain-based teaching strategies in their EFL classroom.

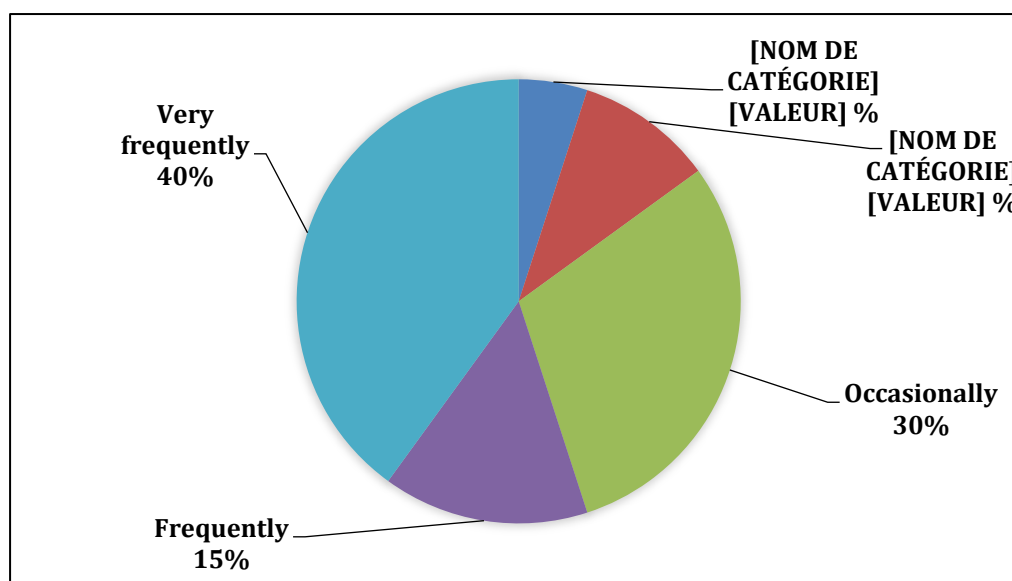
Question 03:

How often do you seek out professional development opportunities related to brain-based teaching strategies?

**Table N0 (09): Professional Development Opportunities Related to Brain-
Based Teaching Strategies**

Options	Frequency	Percentage %
Never	01	05%
Rarely	02	10%
Occasionally	06	30%
Frequently	03	15%
Very frequently	08	40%
total	20	100%

**Graph N⁰ (07): Professional Development Opportunities Related to Brain-
Based Teaching Strategies**



Looking above at the table N⁰ (09) and the graph N⁰ (07), it shows the responses of teachers to the question: How often do you seek out professional development opportunities related to brain- based teaching strategies? According to the results, there is (01) teacher (05%) who has chosen “Never”; two (02) teachers (10%) have chosen “Rarely”. While six (06) teachers (30 %) have chosen “Occasionally”, three (03) teachers (15 %) have chosen

“Frequently”, and eight (08) teachers (40 %) have chosen “Very frequently”. Therefore, the majority of the teachers seek out very frequently professional development opportunities related to brain- based teaching strategies.

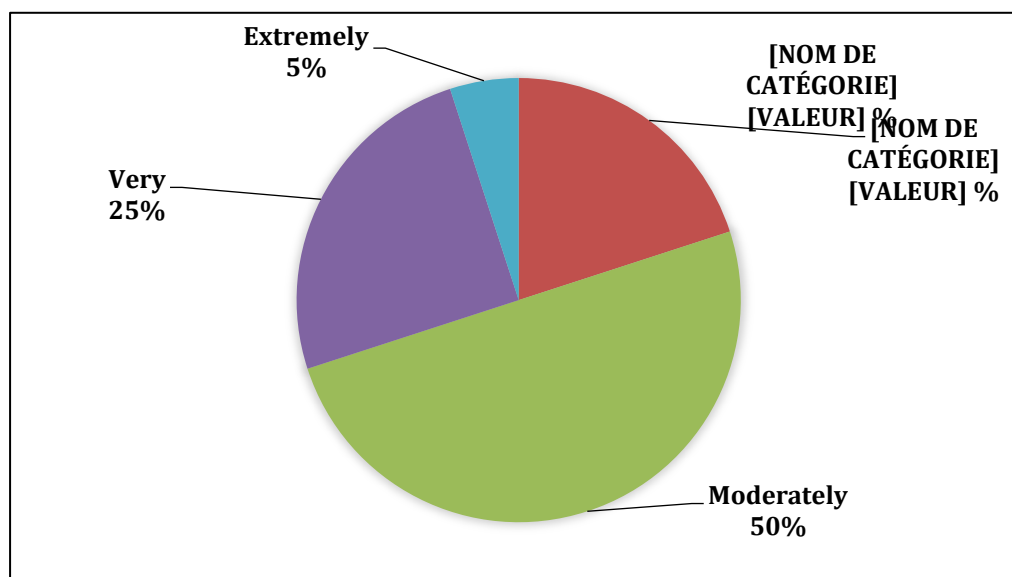
Question 04:

To what extent do you feel that professional development opportunities related to brain-based teaching strategies have improved your teaching practices?

Table N0 (10): Professional Development Opportunities Related to Brain-Based Teaching Strategies and Improvement in Teaching Practices

Options	Frequency	Percentage %
Not at all	00	00%
Slightly	04	20%
Moderately	10	50%
Very	05	25%
Extremely	01	05%
total	20	100%

Graph N⁰ (08): Professional Development Opportunities Related to Brain-Based Teaching Strategies and Improvement in Teaching Practices



Looking above at the table N⁰ (10) and the graph N⁰ (08), it shows the responses of teachers to the question: To what extent do you feel that professional development opportunities related to brain-based teaching strategies have improved your teaching practices? According to the results, there is no teacher (00%) who has chosen “Not at all”; four (04) teachers (20%) have chosen “Slightly”. While ten (10) teachers (50 %) have chosen “Moderately”, five (05) teachers (25 %) have chosen “Very”, and one (01) teacher (05 %) has chosen “Extremely”. Therefore, the majority of the teachers feel moderately that professional development opportunities related to brain-based teaching strategies have improved their teaching practices.

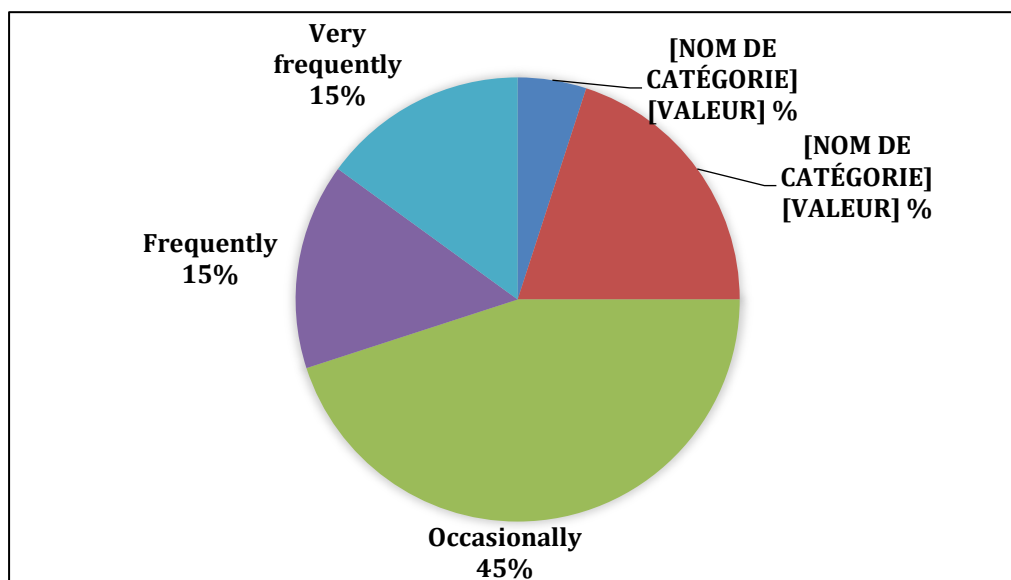
Question 05:

How often do you collaborate with other EFL teachers to incorporate brain-based teaching strategies into your classroom practices?

Table N0 (11): Collaboration with Other EFL Teachers To Incorporate Brain-Based Teaching Strategies into Classroom Practices

Options	Frequency	Percentage %
Never	01	05 %
Rarely	04	20 %
Occasionally	09	45 %
Frequently	03	15 %
Very frequently	03	15 %
total	20	100

Graph N⁰ (09): Collaboration with Other EFL Teachers To Incorporate Brain-Based Teaching Strategies into Classroom Practices



Looking above at the table N⁰ (11) and the graph N⁰ (09), it shows the responses of teachers to the question: How often do you collaborate with other EFL teachers to incorporate brain-based teaching strategies into your classroom practices? According to the results, there is one (01) teacher (05%); who has chosen “Never”; four (04) teachers (20%) have chosen “Rarely”. While nine (09) teachers (45 %) have chosen “Occasionally”, and three (03) teachers (15 %) have chosen “Frequently”, and three (03) teachers (15 %) has chosen “Very frequently”. Therefore, the majority of the teachers occasionally collaborate with other EFL teachers to incorporate brain-based teaching strategies into their classroom practices.

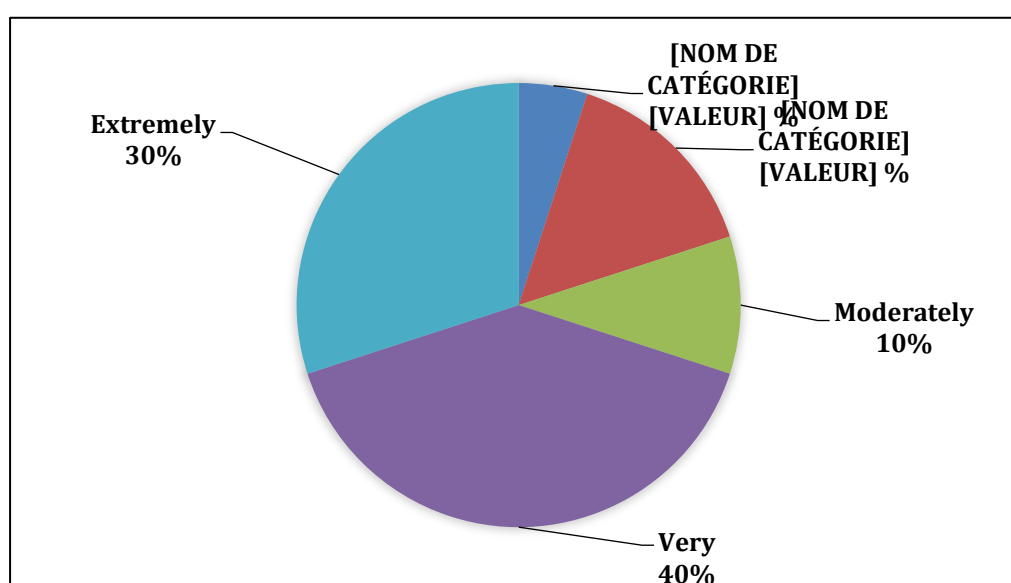
Question 06:

To what extent do you feel that collaboration with other EFL teachers has enhanced your ability to incorporate brain-based teaching strategies into your classroom practices?

Table N0 (12): Collaboration with Other EFL Teachers And the Ability to Incorporate Brain-Based Teaching Strategies into Classroom Practices

Options	Frequency	Percentage %
Not at all	01	05
Slightly	03	15
Moderately	02	10
Very	08	40
Extremely	06	30
total	20	100

Graph N⁰ (10): Collaboration with Other EFL Teachers And the Ability to Incorporate Brain-Based Teaching Strategies into Classroom Practices



Looking above at the table N⁰ (12) and the graph N⁰ (10), it shows the responses of teachers to the question: To what extent do you feel that collaboration with other EFL teachers has enhanced your ability to incorporate brain-based teaching strategies into your classroom practices? According to the results, there is one (01) teacher (05%); who has chosen “Not at all”, three (03) teachers (15%) have chosen “Slightly”. While two (02)

teachers (10 %) have chosen “Moderately”, and eight (08) teachers (40 %) have chosen “Very”, and six (06) teachers (30 %) has chosen “Extremely”. Therefore, the majority of the teachers feel that collaboration with other EFL teachers has enhanced your ability to incorporate brain-based teaching strategies into their classroom practices.

The Results of Study:

1- The Results of Section One: General Information

The study shows that most (60%) of the participating sample are male teachers. Furthermore, the study shows that the majority of the participating teachers are 30 to 40 years old with a percentage of 60%. The study also shows that most of the teachers are PhD holders with a percentage of 50%. In addition to the latter, most of the teachers have doctorate degree and have more than 05 years in teaching English.

2- The Results of Section Two: Teachers' Perceptions Towards

Brain-Based Professional Development

Regarding Teachers' Perceptions towards brain-based professional development, members of the study sample strongly agreed that the brain-based professional development that they participated in significantly enhanced their understanding of how the brain functions in relation to learning a foreign language. They also expressed strong agreement that the brain-based teaching methods are practical and applicable in the EFL classroom. However, they acknowledged that they faced challenges when implementing these methods in their EFL classrooms.

Furthermore, teachers highly agreed that the brain-based professional development that they attended was well-organized and effectively delivered. They also believed that these methods improved the students' learning outcomes and expressed a strong willingness to recommend brain-based professional development to colleagues teaching English as a foreign language. Additionally, they reported that the BBPD increased their motivation to continue learning about brain-based teaching approaches and effectively enhanced their teaching practices.

On the other hand, participants showed a more moderate level of agreement when it came to their familiarity with brain-based teaching methods and to the importance of professional development in enhancing their teaching practices. They also moderately agreed that they require support to effectively implement brain-based teaching methods in their EFL classroom and felt somewhat more confident in their ability to effectively teach English as a foreign language after participating in the brain-based professional development. Lastly, they had a moderate level of agreement that the brain-based professional development that they attended was relevant to their teaching context.

3- The Results of Section Three: Teachers' Practices with Brain-Based Professional Development

The study participants strongly expressed their desire to participate in additional professional development sessions that are centred on brain-based teaching methods. They also displayed a high level of agreement regarding the significance of Brain-based professional development for EFL teachers. Furthermore, they highly agreed on the high value of brain-based professional development as an effective tool for improving EFL teaching practices. Moreover, the study participants widely agreed that the brain-based professional development that they attended had a positive impact on their teaching practices. Lastly, they indicated that the primary obstacle they encountered when implementing brain-based teaching methods is the need to address the resistance from students.

4- The Results of Section Four: Use and Importance of Brain-Based Professional Development

The results of the study, about how teachers of M'sila University see the integration of BBPD in language teaching, show that the majority of teachers occasionally integrate

brain-based teaching strategies into their EFL classrooms. Moreover, a significant majority of teachers exhibits a high level of confidence in employing these strategies within their teaching environments. Additionally, a substantial majority of teachers actively seek out professional development opportunities that are associated with brain-based teaching strategies on a frequent basis.

Furthermore, the majority of teachers feel that professional development opportunities centred on brain-based teaching strategies have moderately contributed to the enhancement of their teaching practices. Similarly, a majority of teachers occasionally engage in collaborative efforts with their EFL counterparts to implement brain-based teaching strategies into their instructional methodologies.

Lastly, the majority of teachers believe that collaboration with other EFL educators has positively influenced their capacity to integrate brain-based teaching strategies effectively into their classroom practices.

5- Discussion of Results:

In order to provide a comprehensive discussion and relate the findings to other research in the realm of brain-based professional development in foreign language teaching, we need to consider reasons behind choosing BBPD and how can BBPD be implemented and how to confront the challenges that come with the process of implementing it.

There are several reasons for which why Brain-Based Professional Development is recommended.

First, Enhancement of the understanding of how the brain Functions. The finding that brain-based professional development significantly enhances teachers' understanding of how the brain functions in relation to language learning aligns with the broader rationale for incorporating neuroscience into education. Research has consistently shown that educators with a deeper understanding of brain function can make more informed instructional

decisions, which makes understanding the reason behind the success of certain teaching methods can help teachers refine their strategies for better learning outcomes.

Moreover, regarding its practical applicability, the strong agreement that brain-based teaching methods are practical and applicable in EFL classrooms is significant, as research emphasizes the need for practical and classroom-ready strategies derived from neuroscience. When teachers understand how these strategies align with brain processes, they can better tailor their instruction to meet the needs of their students.

And finally, BBPD's improvement of students' outcomes is shown in the shared belief among teachers that brain-based methods improve student learning outcomes which is consistent with the research that demonstrates that student engagement and achievement can be positively influenced by pedagogical approaches grounded in neuroscience.

Next, regarding challenges related to BBPD that must be addressed, the study findings provide a certain insight on these challenges. First, we have the support for implementation, as the acknowledgment of challenges in implementing brain-based methods raise questions about how to effectively address these obstacles. Recent research suggests that ongoing coaching and mentorship can provide the necessary support which collaborative professional development, where teachers share experiences and solutions, can also be valuable in overcoming the implementation challenges.

Furthermore, regarding BBPD's relevance to teaching context, the moderate agreement regarding the relevance of brain-based professional development to teachers' specific contexts highlight the importance of tailoring training to individual needs, as research has shown that contextualized professional development is more likely to be embraced by teachers and yield positive outcomes.

And finally, regarding familiarity and confidence, teachers' moderate agreement on their familiarity with brain-based teaching methods and the importance of professional

development in enhancing their teaching practices indicate a need for targeted training where research underscores the role of ongoing, job-embedded professional development that gradually builds teachers' confidence and competence in implementing these methods.

Now, how can we sustain motivation and continuous learning? First, let's start with motivation for further learning. The finding that professional development increases teachers' motivation to continue learning about brain-based teaching approaches align with research on the importance of intrinsic motivation, as to sustain this motivation, educational institutions should promote a culture of continuous learning and provide opportunities for teachers to explore neuroscience-informed teaching practices further.

Finally, concerning collaborative efforts, the study highlights that many teachers engage in collaborative efforts with their EFL counterparts to implement brain-based teaching strategies. This collaborative approach aligns with research indicating that peer support and sharing best practices can be powerful motivators for professional growth.

6- Recommendations and pedagogical implications:

To advance this field, further research should be into specific strategies and approaches for overcoming implementation challenges, tailoring professional development to diverse teaching contexts, and sustaining teachers' motivation to continue learning about brain-based teaching practices. Additionally, exploring the integration of technology and digital tools in brain-based language teaching could be a valuable area for future research.

To enhance the effectiveness of brain-based professional development in foreign language teaching, it is essential to offer customized training programs that cater to teachers' unique needs and teaching contexts. One-size-fits-all approaches may not effectively address the diverse challenges and requirements of different educators. By tailoring professional development content to individual circumstances, instructors can better grasp the practical

relevance of brain-based teaching methods and their applicability in specific classroom settings.

Moreover, establishing support networks or communities of practice is crucial. These platforms provide teachers with opportunities to collaborate, share their experiences, and collaboratively troubleshoot challenges associated with implementing brain-based teaching strategies. Such collaborative environments foster a sense of belonging and mutual support among educators, enabling them to navigate the complexities of integrating brain-based methods into their teaching more effectively.

To ensure a seamless integration of brain-based principles into foreign language teaching, educators should incorporate these principles across the curriculum, assessment strategies, and classroom activities. A holistic approach ensures consistency in teaching methods and reinforces the benefits of neuroscience-informed strategies. This alignment between theory and practice helps teachers develop a deeper understanding of how brain-based methods can enhance language learning outcomes.

Additionally, active engagement in research is encouraged. Teachers should be provided with resources and opportunities to conduct action research within their classrooms, investigating the effectiveness of brain-based teaching methods. This engagement not only reinforces their understanding but also contributes to the broader knowledge base on the practical applications of brain-based principles in language education.

Lastly, to address student resistance and promote effective learning, educators should explore strategies to actively engage students in the learning process while aligning classroom practices with brain-based principles. Encouraging student participation, providing meaningful and contextually relevant materials, and fostering a positive classroom environment can all contribute to enhancing student engagement and learning outcomes within the framework of brain-based teaching.

Limitations

As every scientific study has its limitations, our study also has some limitations which we will talk about in the following:

First, the limitation of self-report bias, as participants' responses may be influenced by social desirability bias, where they provide answers that they believe are socially acceptable or expected, rather than their true opinions. This can lead to an overestimation of the positive effects of the professional development. Moreover, measuring the impact of professional development on student learning outcomes is complex as it can be challenging to isolate the effects of brain-based training from other factors influencing student achievement.

Conclusion

The findings of this study underscore the significant benefits of Brain-Based Professional Development (BBPD) in the realm of foreign language teaching. The findings highlight three key reasons for recommending BBPD: enhancing teachers' understanding of brain function, practical applicability in the classroom, and improving student outcomes. However, the study also sheds light on challenges related to BBPD, including support for implementation, relevance to teaching contexts, and the need for familiarity and confidence among educators.

To address these challenges and sustain motivation for continuous learning, it is essential for educational institutions to foster a culture of ongoing professional development. This can be achieved through strategies such as ongoing coaching and mentorship, contextualized training tailored to individual needs, and job-embedded professional development. Additionally, promoting collaborative efforts among teachers to share experiences and best practices can further motivate professional growth in the field of brain-based teaching approaches.

General Conclusion:

Researches on how to develop the humanity have never stopped since the need to find new ways and strategies have ever existed. Brain-Based is an approach upon which studies have relied to achieve the professional development in the field of language teaching. It is an approach that emphasized the importance of understanding how the brain works in order to enhance learning outcomes. It involves considering factors such as cognitive development, memory, attention, and motivation when designing educational programs and classroom practices.

The present study findings confirm the researches conducted in this matter. As in the case of teachers of English language at the University of Mohamed Boudiaf in M'sila, the importance of Brain-based has been proved. This study has revealed that BBPD enhances teachers' understanding of how the brain functions, emphasizing the importance of incorporating neuroscience into education for more informed instructional decisions. Additionally, it recognizes the practical applicability of brain-based teaching methods, emphasizing the need for classroom-ready strategies derived from neuroscience that can be tailored to meet the needs of students. Moreover, the belief that BBPD can improve student learning outcomes align with research on the positive influence of neuroscience-based pedagogical approaches.

Furthermore, the study presents the challenges associated with BBPD implementation, emphasizing the importance of ongoing support, mentorship, and collaborative professional development. It highlights the need for tailoring training to individual teaching contexts, as contextualized professional development is more likely to yield positive outcomes. The study also emphasizes the importance of targeted training to enhance teachers' familiarity and confidence in implementing brain-based methods.

Regarding motivation for continuous learning, the study reveals that BBPD increases teachers' motivation to explore brain-based teaching approaches further. To sustain this motivation, educational institutions are encouraged to promote a culture of continuous learning and provide opportunities for teachers to delve deeper into neuroscience-informed teaching practices.

Finally, the study highlights the value of collaborative efforts among teachers, emphasizing that peer support and the sharing of best practices can be powerful motivators for professional growth in the context of brain-based teaching strategies.

In essence, this study not only reinforces the importance of integrating neuroscience into education but also provides a roadmap for addressing challenges and sustaining motivation in the ongoing journey of professional development in foreign language teaching. It underscores the potential for improving teaching practices and, ultimately, enhancing the learning experiences of students through the thoughtful incorporation of brain-based approaches.

List of References:

- Çagla Atmaca (2016) Brain Based Learning practices of teacher educators in an English language teaching programme.
- Caine, G; Nummela. Caine, R (1994) Making connections: Teaching and the human brain.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development. Learning Policy Institute.
- Dr Saumaya Chandra (2020) Neuropsychology and brain-based learning: understanding the phenomenon and their relationship.
- Dr. Nesrine Hassan Refki Mounir. (n. d). The Use of Based Learning to Create Effective and Low Stress.
- Duman, B (2010) The effects of brain-based learning on the academic achievement of students with different learning styles, <http://eric.ed.gov/?id=EJ919873>.
- Duman, B (2007) “celebration of the neurons” The application of brain-based learning in classroom environment.
- El Henawy. W (2020) The effect of brain-based learning on the academic achievement of students with different learning styles.
- Hart, L.A. (2002) Human brain and human learning; Covington, WA: books for educators.
- Howard-Jones, P. (2010). From brain scan to lesson plan. Neuroeducation research network, 246263.
- Immordino-Yang, M. H., & Damasio, A. (2007). *We Feel, Therefore We Learn: The Relevance of Affective and Social Neuroscience to Education. Mind, Brain, and Education, 1(1), 3-10.
- Jensen E. p (2008) Brain based learning: The new paradigm of teaching.
- Jensen, E. (2013). *Tools for Engagement: Brain-Based Strategies for the Classroom and Beyond. Corwin.

John Medina Brain Rules: 12 principles for surviving and thriving at work, home and school.

Renate Nummela Caine and Geoffrey Caine (1990) Understanding a Brain Based Approach to learning and teaching.

Sausa, D. (1998 -2011) How the brain learns Corwin press.

Sousa, D. A. (2017). *How the Brain Learns. Corwin.

Willis, J. (2016). *Research-Based Strategies to Ignite Student Learning: Insights from a Neurologist and Classroom Teacher. ASCD.

Appendices

People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
University of Mohamed Boudiaf- M'sila
Faculty of Arts and Languages
Department of English

Dear Teachers,

This study aims to assess teachers' pedagogical perceptions and practices on the use of Brain-Based Professional Development in EFL context. Your answers to this questionnaire will be of great contribution to this research as they help us in collecting the data that is indispensable to the completion of this part of the investigation. We will be grateful if you can complete it sincerely. Please answer each question and justify your answer when necessary. Thank you for your collaboration.

Section One: General Information

1. Gender: 1- Male ☐

2- Female ☐

2. Age: a- 25 to 30 ☐

b- 30 to 40 ☐

c- More than 40 ☐

3. Degree:

Magister ☐

Doctorate ☐

3. How long have you been teaching English?

2-5 years ☐

5-10 years ☐ More than 10 years ☐

Section Two: Teachers' Perceptions of Brain-Based Professional Development

N°	Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1	I am familiar with brain-based teaching methods.					
2	Brain-based teaching methods are related to brain-based information					
3	Brain-based teaching methods are practical and applicable in the EFL classroom.					
4	brain-based professional development that is effective in enhancing my teaching practices.					
5	I face challenges when implementing brain-based teaching methods in my EFL classroom.					
6	I need support to effectively implement brain-based teaching methods in my EFL classroom.					
7	brain-based professional development I participated in was relevant to my teaching context.					
8	brain-based professional development should be well-organized and effectively delivered.					
9	The brain-based professional development is supposed to enhance my understanding of how the brain works in relation to learning a foreign language.					

10	brain-based professional development I participated in increased my motivation to continue learning about brain-based teaching approaches.					
11	I feel more confident in my ability to effectively teach English as a foreign language after participating in the brain-based professional development.					
12	I would recommend brain-based professional development to my colleagues who teach English as a foreign language.					

Section Three: Teachers' Practices with Brain-Based Professional Development

N°	Item	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1	I think that brain-based professional development is a valuable tool for enhancing EFL teaching practices.					
2	Brain-based professional development is important for EFL teachers.					
3	I would like to attend professional development sessions that focus on brain-based Teaching methods.					
4	Brain-based professional development helps me to enhance my teaching practices.					
5	The biggest challenge in implementing brain-based teaching methods is overcoming Resistance from students.					

Section Four: Use and Importance of Brain-Based Professional Development

1. How frequently do you use brain-based teaching strategies in your EFL classroom?

- ☐ **Never**
- ☐ **Rarely**
- ☐ **Occasionally**
- ☐ **Frequently**
- ☐ **Very frequently**

2. How confident are you in using brain-based teaching strategies in your EFL classroom?

- ☐ **Not at all confident**
- ☐ **Slightly confident**
- ☐ **Moderately confident**
- ☐ **Very confident**
- ☐ **Extremely confident**

3. How often do you seek out professional development opportunities related to brain-based teaching strategies?

- ☐ **Never**
- ☐ **Rarely**
- ☐ **Occasionally**
- ☐ **Frequently**
- ☐ **Very frequently**

4. How important do you find professional development opportunities related to brain-based teaching strategies to improve your teaching practices?

- ☐ **Not at all**
- ☐ **Slightly**
- ☐ **Moderately**
- ☐ **Very**
- ☐ **Extremely**

5. How often do you collaborate with other EFL teachers to incorporate brain-based teaching strategies into your classroom practices?

- ☐ **Never**
- ☐ **Rarely**
- ☐ **Occasionally**
- ☐ **Frequently**
- ☐ **Very frequently**

6. Do you feel that collaboration with other EFL teachers has enhanced your ability to incorporate brain-based teaching strategies into your classroom practices?

- ☐ **Not at all**
- ☐ **Slightly**
- ☐ **Moderately**
- ☐ **Very**
- ☐ **Extremely**

Thank you for your help and support

الملخص

التعلم القائم على الدماغ، والمستند إلى أبحاث علم الأعصاب، يشدد على أهمية فهم وظيفة الدماغ في الممارسات التعليمية نظرا لمتطلبات القرن الواحد والعشرين لتطوير التعليم والتعلم وزيادة أداء الطلاب. تعتبر الأبحاث حول كيفية عمل الدماغ وكيفية تعلمه مهمة لتوجيه منهج التدريس. وعلى هذا السياق، قامت الدراسة الحالية بدراسة تصورات وممارسات المعلمين فيما يتعلق باستخدام التطوير المهني القائم على الدماغ. كما تسعى الدراسة إلى توفير معلومات كافية حول استخدام التعلم القائم على الدماغ في الفصول الدراسية والتحديات التي يواجهها المعلمون عند اعتماد هذا النهج. ولتحقيق الهدف المقصود، تم اعتماد أسلوب البحث الوصفي النوعي. كما تم جمع البيانات من خلال استخدام استبيان منهجي مهيكّل، وكانت مجموعة الدراسة تتألف من عشرين (20) معلما للغة الإنجليزية في جامعة المسيلة. بالتالي، كشفت النتائج أن المعلمين لمادة اللغة الإنجليزية يظهرون تصورات وممارسات إيجابية فيما يتعلق باستخدام التعلم القائم على الدماغ. بالإضافة إلى ذلك، يتمتع المعلمون بموقف إيجابي تجاه هذه الاستراتيجية وهم على استعداد لتبنيها. وبالتالي، يمكن الاستنتاج من ذلك أن فرضيات الدراسة تم تأكيدها.

الكلمات الرئيسية: التعلم القائم على الدماغ، تصورات المعلمين، ممارسات المعلمين.