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The Role of Brain-Based Learning on the Academic Performance of Students from Level 8-11 Inal Jamea Tus-Saifiyah University, Nairobi

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ABSTRACT
The purpose of this study was to investigate the role of a brain-based learning environment on the academic performance of students from level 8-11 in Al Jamea Tus SaifyahUniversity, Nairobi.The study was guided by the following research question: How can a brain-based learning environment enhance the academic performance of students from level 8-11 in Al JameatusSaifiyah, Nairobi? This study was underpinned on the brain-based learning theory postulated by Caine and Caine. A Mixed Methods design guided the study. The target population was all 50 teachers and 73 students of level 8-11 in AJamea Tus Saifiyah University, Nairobi. The sample size was 50 students and 15 teachers selected through simple random sampling technique. The research instrument used to collect data was a questionnaire. Quantitative data obtained was cleaned, coded and entered in IBM Statistical package for social sciences software to generate frequencies and percentages that summarized data. Qualitative data from open-ended questions were organized thematically and presented in narratives and direct quotes.Key findings of the study indicated that a brain-based learning environment can play a significant role to enhance the academic performance of students from level 8-11 in Al Jamea Tus Saifiyah University, Nairobi. The study recommends that a brain-based learning environment should be created in the University to enable effective teaching and learning to take place.All ethical considerations were adhered to throughout the study.

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I. INTRODUCTION

Learning can be defined in educational psychology as a relatively lasting change in behavior that is the result of experience (Cherry, The Psychology of how people learn, 2019). There are many different theories of how people learn like behaviorism, cognitivism, constructivism and one of them is brain-based learning. "Brain-based learning refers to teaching methods, lesson designs, and school programs that are based on the latest scientific research about how the brain learns, including such factors as cognitive development—how students learn differently as they age, grow, and mature socially, emotionally, and cognitively (Brain-Based Learning, 2013)."

Brain-based learning is based on the structure and function of the brain. Learning will occur as long as the brain is not prohibited from fulfilling its normal processes (Brain-based learning, 2011). According to Jensen (Jensen, n.d.), Brain-Based Learning is the application of a meaningful group of principles that represent our understanding of how our brain works in the context of education. When we talk about an activity or program being "brain based," what we really mean is that it aligns with the way the brain functions naturally. A brain-based program or strategy uses findings from cognitive science to create learning materials, activities or classroom strategies that align with the brain's natural processes and preferences. By leveraging insights from neuroscience, we can help students learn more efficiently (Thought Leaders, 2018). Brain-Based Learning theories/principles attempt to explain how, and under what conditions, learner's brain takes in, processes and memorizes best as educators or teachers employ different classroom instructions to enable different students master knowledge; concepts or solve problems (Chen, n.d.).

Brain based learning is a relatively new idea and requires that educators and neuroscientists work together to create meaningful programs. Specialists in the fields of neuroscience, psychology, cognitive science, and education converge to improve teaching methods and academic programs (Tabibian, 2018).

The concept of brain-based learning did not emerge until the 1980s, driven by the advances in neurobiology and cognitive neuroscience (Jensen, 2008), (Degan, 2011). One of the first researchers to establish the connection between brain functions and traditional education practices was Hart (1983), in his book Human Brain and Human Learning. Other researchers who followed Hart's (1975, 1983) cue and expanded the

understanding of the brain functions into the context of learning examples include Gardner (1983), in his book Frames of the Mind: The Theory ofMultiple Intelligences, which made a connection between brain functions and new models of thinking, and Caine & Caine (1991) who made the connection between brain functions and classroom pedagogy in their bookMaking Connections: Teaching the Human Brain(Degan, 2011).

The publicity for brain research in the 1990s promoted increased emphasis on questions about how the brain learns.LeDoux (1994) found relationships between emotions, memory and the brain. Other researchers (Eden et al. 1996) reported that children learning to read require activation of both the auditory and visual areas of their brains to create meaning. Another study found that the brain stores real-life experiences differently than it does a fabricated story (Schacter, 1996). These findings and others have slowly prompted changes in teaching methods (Kaufman, 2011).

Brain-based education aims to improve and accelerate the learning process by using the science behind learning to select a curriculum and form of delivery for each group of students. When adopting this method, educators must forget established conventions. They must also leave behind assumptions about learning and previous practices. Instead, they must look to the most recent cognitive science discoveries as inspiration for their future lesson delivery (Swan, 2019).

A great deal of the scientific research and academic dialogue related to brain-based learning has been focused on neuroplasticity. Scientists have also determined, for example, that the brain can perform several activities at once; that the same information can be stored in multiple areas of the brain; that learning functions can be affected by diet, exercise, stress, and other conditions; that meaning is more important than information when the brain is learning something new; and that certain emotional states can facilitate or impede learning—among many other findings.

Given the breadth and diversity of related scientific findings, brain-based learning may take a wide variety of forms from school to school or teacher to teacher. For example, teachers may design lessons or classroom environments to reflect conditions that facilitate learning—e.g., they may play calming music to decrease stress, reduce the amount of time they spend lecturing or engage students in regular physical activity.Research documents are showing that many countries have been using brain-based learning in their schools for instructions. These nations include USA, Turkey, Chile, England, Thailand and others (Connell, 2011).

Brain-based teaching pedagogies are yet to be implemented by most of the teachers in the African continent.The teachers still depend greatly on the traditional lecture method of teaching and most of the students learn by rote learning, hence, effective teaching and learning doesn't take place. Similar conditions prevail in Kenya. Research has indicated that teaching and learning in Kenyan primary schools is characterized by rote transmission, teacher-centered teaching and learning approaches. Such approaches rarely allow internalization of learnt concepts because the more a child is provided opportunity to explore a concept, the more likely that the child will remember it (Dodge, Rudick&Berke, 2015) (Kisirkoi & Godfrey, 2016).

Brain-based learning can therefore be described simply as learning which is based on the structure and function of the brain. Teaching pedagogies are implemented to align with the way the brain learns naturally and as long as the brain is not prohibited from fulfilling its normal processes, learning will occur. Brain-based learning ensures that a conducive environment is created for the students to learn, understand and remember what they have been taught. I have briefly discussed the meaning of brain-based learning and how this concept has developed and evolved over time.

Statement of the Problem

Though extensive research has been done on brain-based learning, not all teachers in Africa, and in Kenya in particular are aware of the findings of these studies. In such a case, teachers should be educated on brain-based learning so that effective learning occurs in classrooms. Accordingly, there will be an urgent need to create positive emotional connections to learning so that long-term learning can be transferred easily and successfully to the real-world. If students feel unsafe, stressed, or are experiencing a low-cycle of brain activity, learning becomes impossible and they may hate the learning process as a whole and drop out. Conventional methods might not be beneficial to students. Studentson average, retain only five percent of information delivered through lecture twenty-four hours later. Teachers try to do the teaching without considering whether the learners are motivated or not (Saad, 2019). Hence, creating an environment that is more brain-friendly may be a way to increase the effectiveness of teaching and learning, and consequently, the academic performance of students in schools.

From real life teaching experiences, there has been a concern that most of the students inAl Jamea Tus Saifiyahdo not participate actively in classrooms and they are not fully motivated towards learning the subject matter. Teachers have observed that students lack attentiveness and are not emotionally connected to the learning process and this affects the retention of the content learnt. One of the main reasons could be that most of the teachers do not create abrain-based learning environmentand this may lead toineffective learning. The

latter demotivates the students and leads to poor academic achievements. From available literature, limited studies have been conducted onthe effect ofa brain-based learning environment on students' academic performance in Al Jamea Tus Saifiyah University Nairobi, hence the need for the current study on students from level 8-11.

Theoretical Framework

The theory that guided my study is the Brain-based learning theory formulated by Renate Caine and Joffrey Caine in 1991.It consists of twelve principles whichare a result ofa cross-disciplinary research. They are as follows:1. The brain is a parallel processor, implying that the brain performs many tasks simultaneously, including thinking and feeling. 2. Learning engages the entire physiology, implying that the brain and the body are engaged in learning. 3. The search for meaning is innate implying that the brain's or mind's search for meaning is very personal.4. The search for meaning occurs through patterning, implying that the brain is designed to perceive and generate patterns and it resists having meaningless patterns imposed on it. 5. Emotions are critical to patterning implying that our emotions are brain based and they play an important role in making decisions. 6. The brain processes parts and wholes simultaneously implying that the left and the right hemisphere have different functions, but they are designed to work together. 7. Learning involves both focused attention and peripheral perception implying that the brain response is to the entire sensory context in which teaching or communication occurs. 8. Learning always involves conscious and unconscious processes implying that there is interplay between our conscious and our unconscious. 9. We have at least two different types of memory: spatial (autobiographical) and rote learning (taxon memory) implying that the taxon or rote memory systems consist of facts and skills that are stored by practice and rehearsal. The spatial or autobiographical, memory builds relationships among facts, events, and experiences. 10. Learning is developmental implying that children, and their brains, benefit from enriched home and school environments. 11. Learning is enhanced by challenge and inhibited by threat implying that students optimally benefit when their assignments are challenging and the classroom environment feels safe and supportive. 12. Each brain is unique implying that when teaching, we need to consider how each student learns most effectively; each student has his or her own unique set of brain strengths and weaknesses (Rane, 2016).

Caine and Caine conclude that "Optimizing the use of the human brain means using the brain's infinite capacity to make connections and understanding what conditions maximize this process." They identify three interactive and mutually supportive elements that should be present in order for complex learning to occur: "relaxed alertness," "orchestrated immersion," and "active processing." 1. An optimal state of mind that we call relaxed alertness, consisting of low threat and high challenge. 2. The orchestrated immersion of the learner in multiple, complex, authentic experience. 3. The regular, active processing of experience as the basis for making meaning (Chipongian, 2014).

Caine and Caine have built on the idea of brain-compatible learning with a list of twelve "brain/mind learning principles." These principles synthesize research related to brain and learning from many disciplines and present it in a form that is useful to educators. The twelve principles can function as a theoretical foundation for brain-based learning, and offer guidelines and a framework for teaching and learning (Chipongian, 2014).

Chipongian is also of the view that Caine and Caine do not use the principles to prescribe any single teaching method. Instead, the principles are intended to provide a framework for selecting the methodologies that will maximize learning and make teaching more effective and fulfilling. They may open doors for educators, increase teaching options, or serve as a guidepost to educators already working to implement brain-compatible teaching practices.

II. REVIEW OF RELATED LITERATURE

Brain-compatible learning environments provide significant cognitive advantages for students and greatly improve their academic performance, in contrast with traditional learning environments. Students learn best when they are immersed into the subject areawhich engages all of the students' senses(Barry, 2011).

About 90 percent of the brain's sensory input is from visual sources. In education, the sense of sight usually involves movement, lighting, and color in the classroom. Educators can keep students' attention by moving about the classroom as they teach. Movement provides stimuli for the brain, which increase the brain's ability to learn (Jensen, 2008).Color in the visual environment is particularly important because it affects mood, attention, and memory. Color-coded handouts and notes help students to sort facts and to develop patterns of association that increase the number and complexity of neural connections in the brain to improve learning and memory. Brain-compatible learning environments use colorful visual aids in conjunction with lectures, and with other teaching activities to help fix lessons in students' memories (Barry, 2011)

After sight, hearing is the sense that is most often involved in learning in the classroom. Music can be used in the classroom to accomplish various learning goals including: creating a relaxing atmosphere, establishing a positive learning style and providing a multi-sensory learning experience that enhances

memory.According to Barry, the senses of sight and hearing work very well together to make lessons even more memorable. Using colorful pictures of symbols with songs connects the pictures, words, and music in the brain, thus creating more and more neural connections. Learners are later able to recall all three elements – pictures, words, and music – when they encounter any one element.

Smell and taste are not actively employed in most classrooms to the same extent as sight and hearing. Smell, however – and taste to a lesser extent – is important to learning because it is through the sense of smell that we gather messages about the environment around us and smell plays a powerful role in the way we recall memories (Haughey, 2011).

According to Barry, Brain-based learning is finding its way into more and more classrooms. Bright peripherals and hands-on manipulatives can be found in most American schools.Providing the setting for effective learning using a brain-based model creates an individualized and multisensory approach by fostering learning as a process of discovery, deepening learning (Roizman, 2010). Because brain-based learning environments teach the whole student, by immersing the student's senses in an array of experiences, brain-based learning environments provide significant cognitive advantages for students of every learning modality.

It is important when considering the inclusion of brain-based learning strategies in the curriculum to consider what happens to the brain during stress. There are, in general, two types of stress that students perceive. One type is useful stress (eustress), which occurs in short bursts and is not chronic and acute. This type of stress occurs when the student feelsmoderately challenged and believes that they can rise to the occasion. The negative form of stress (distress) occurs when students feel threatened by an emotion.Csikszentmihalyi (1991) called the challenge that forces students to learn new skills an optimal learning experience. He explains that if challenge is too easy for the students, the students become bored with the subject. On the other hand, if the challenge is too difficult for the students they become anxious, frustrated, and adversely stressed.

Brain-based learning is not only about providing an optimal environment for all the basic senses in the classroom; it is also about helping children to reduce distress in order to promote brain health and improved learning. When the brain is in distress,the brain becomes unable to correctly interpret subtle clues from the environment, to store and to retrieve information correctly, to recognize patterns and relationships, and to hold information in long-term memory. For students, this means a reduction in the ability to learn and to succeed in school.

As educators, we are responsible for helping students to learn. This means not only teaching our students, but also providing them with an environment for learning that reduces distress. To this end, educators need to adopt classroom rules and behaviors that reduce students' experiences of embarrassment and humiliation. Students need enriched learning environments with plenty of support from educators, from other responsible adults, and from their peers. Educators need to be sensitive to signs of students' distress, and they need to help students to overcome their fears and insecurities in the classroom (Barry, 2011)

As I have mentioned earlier, Brain-Based learning pedagogies are not applied effectively in Africa. Jacob Kola and Michael Olu (Kola and Olu, 2018) explain that the learning environment in Nigeria is another problem where many teachers are making mistakes. The human brain is like an individual who requires a good environment to function well. The brain of the students need good learning conditions to function properly. The learning condition of most Nigerian science students is deplorable. Students sit for hours without a break to refresh, walk around, take snacks, drink water and take fresh air outside the classroom. They argued that the teacher should support more physical activity, recess, and classroom movement.

Likewise, schools in South Africa today face an increasing demand in their attempts to ensure successful learning in the classroom. Educators are faced with a plethora of tasks, ranging from teaching, assessments, administration to coaching extra-mural activities. Often educators complain about the workload preventing them from fulfilling their main purpose and resulting in poor student performance. Furthermore, information presented in the learning environment isn't always done in a manner leading to maximizing learning, resulting in a negative impact on learning outcomes. Traditional teaching approaches are quickly losing their ability to challenge, motivate and engage students in ways that are compatible with their digital lives in a techno-centric society. Very often the needs learners may have are not taken into consideration in lesson planning, regarding optimizing cognitive processes and the dominant learning styles they may have. All these factors may lead to shallow processing of information (Roux, 2015).

UNESCO published a report in 2012 that constituted a survey by the Ministry of Education, Science and Technology (MOEST) on the implementation of free primary education (FPE) in Kenya. The research design entailed collecting and analyzing gender and age-specific enrolment data for each district, including new admissions, repetition and drop-out data on the number and ratio of teachers in the sample districts. Additionally, the researchers used checklists and field notes to record their observations on the status of school facilities, school compounds and physical conditions of classrooms. Classroom observations included walls, roofing, window lighting, ventilation and acoustics as well as the condition of furniture, chalkboards and visual aids. Focus group discussions that were conducted among learners, teachers, parents and school committee

members tended to centre on issues of affordability and quality – in particular, the problems caused by overcrowding, mixed age groups and poor facilities. The report (2005) paints a bleak picture of primary schooling within the sampled districts. The stark narrative is interlaced with quotations from the focus groups and photographs showing dilapidated buildings, learning spaces with no place to sit or write, makeshift classrooms and open air latrines. The study calls upon the government to assist in improving the physical conditions of schools at the most basic level through the provision of clean water and separate toilet facilities for boys and girls (UNESCO Institute for Statistics, 2012).

Hence, from the above reports, we can conclude that the learning environment, in Africa generally and Kenya particularly,is not conducive to brain-based learning. The physical conditions of the schools have to be vastly improved and the teachers need to be trained further, so that brain-based learning strategies can be effectively implemented in classrooms. This study attempted to discuss how a brain-based learning environment can enhance the academic performance of students from level 8-11 in Al Jamea Tus Saifiyah, Nairobi.

III. METHODOLOGY

This study used a mixed method approach. Specifically, the study used a convergent parallel mixed method design (Creswell, 2014). The convergent parallel mixed methods design was preferred because the researcher prioritized the methods (qualitative and quantitative) equally and kept the strands independent during data collection and analysis, and then mixed the results during overall interpretation. It was also preferred because the researcher compared and related data collected and analysed easily before making interpretation. A convergent parallel mixed-methods design is an approach to inquiry that combines both qualitative and quantitative methods concurrently, prioritising both methods almost equally (Creswell, 2014). In this case, the quantitative and qualitative methods complement each other, and provide for the triangulation of findings, hence greater validity of the emerging inferences.

The cross-sectional survey method was used to collect data in this study. The data was collected from students in the University from Std. 8 to Std. 11. The reason for choosing students from Standard 8-11 as the target population was that they are mature and acquainted with the learning process of the university at this stage, and from their educational experience they were adequately prepared to participate in the research project. There are a total of 73 students in this section, from which 63 are male and 10 are female, and a total of 32 teachers, from which 29 are male and 3 are female. The study selected 50 participants from the students and 15 participants from the teachers using the simple random sampling technique. The method of lottery was used to select the participants. Each member of the target population was numbered systematically and in a consequent manner by writing each number on a separate piece of paper. These pieces of paper were mixed and put into a bowl and then numbers were drawn from the bowl in a random manner. This way 50 participants were selected from the students and 15 participants from the teachers.

This study used questionnaires as research instruments, which consisted of both open and close-ended questions. The close-ended questions collected quantitative data and were based on a five-point Likert scale which allowed the individual to express how much they agreed or disagreed with a particular statement.The open-ended questions were used to collect qualitative data where the respondents provided answers in their own words. These were used to collect in-depth answers from the respondents where they could freely express their thoughts and opinions about a particular question. Different sets of questionnaires were given to both the students and teachers. The questions were slightly modified in each questionnaire according to the respondent. The researcher sought the assistance of his peers and supervisor to assess the validity of the questionnaires. Pilot testing of the instrument was done with eight students and four teachers to ensure that the instrument was reliable.

The questionnaires were distributed to the teachers through Google Forms. The data from both the questionnaires was collected and recorded in Microsoft Excel.The researcher used the IBM SPSS software to record and process the data. The quantitative data obtained from close-ended questions was cleaned, coded and entered in a computer to generate frequencies and percentages that summarized data. These were presented in bar graphs and pie charts. The qualitative data received from open-ended questions was further evaluated by the researcher and integrated and presented together with the findings from close-ended questions.

IV. FINDINGS AND DISCUSSIONS

A brain-based learning environment engages all of the students' senses and incorporates movement when learning, as discussed earlier. The researcher sought from the survey students and teachers' opinions and ideas about the effect of brain-based learning environment on the academic performance of students in Al Jamea Tus Saifiyah. The results from the students were as follows:

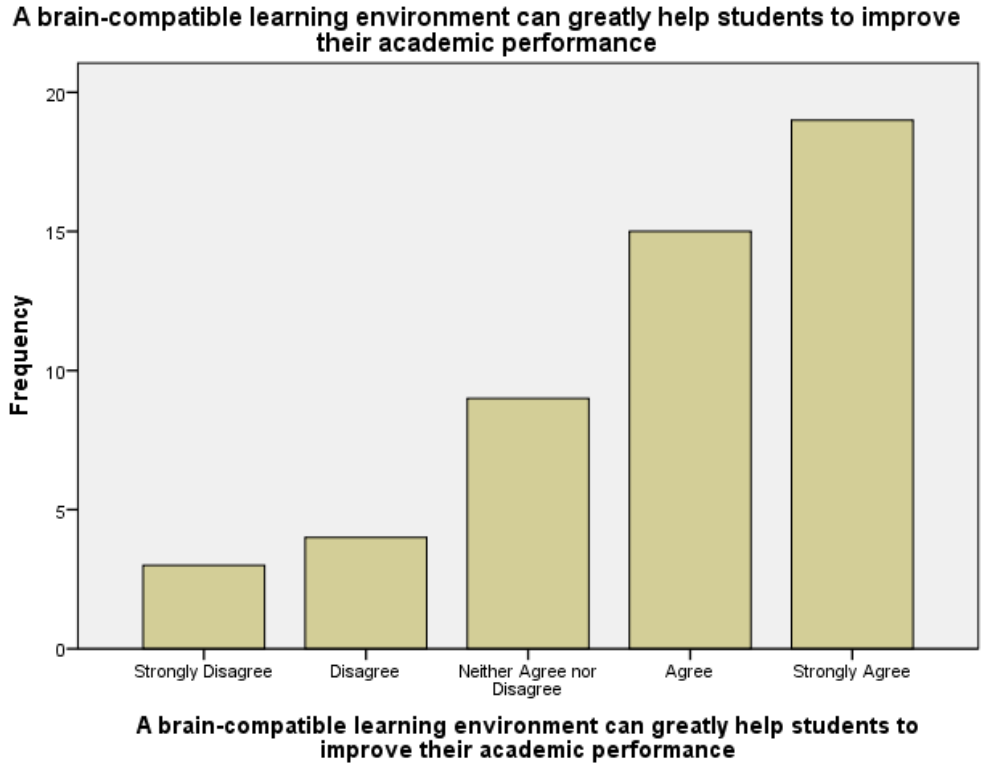

Figure 1: Students' response on a brain-compatible learning environment can greatly help students to improve their academic performance

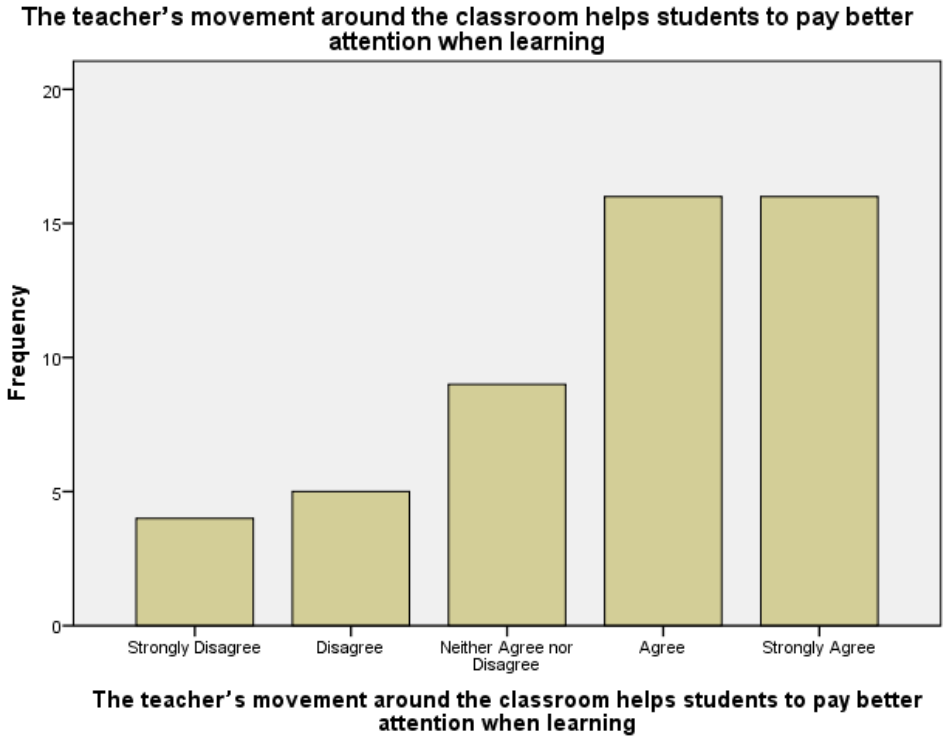

Figure 2: Students' response on the teacher's movement around the classroom helps students to pay better attention when learning

The participants from the teachers responded as follows:

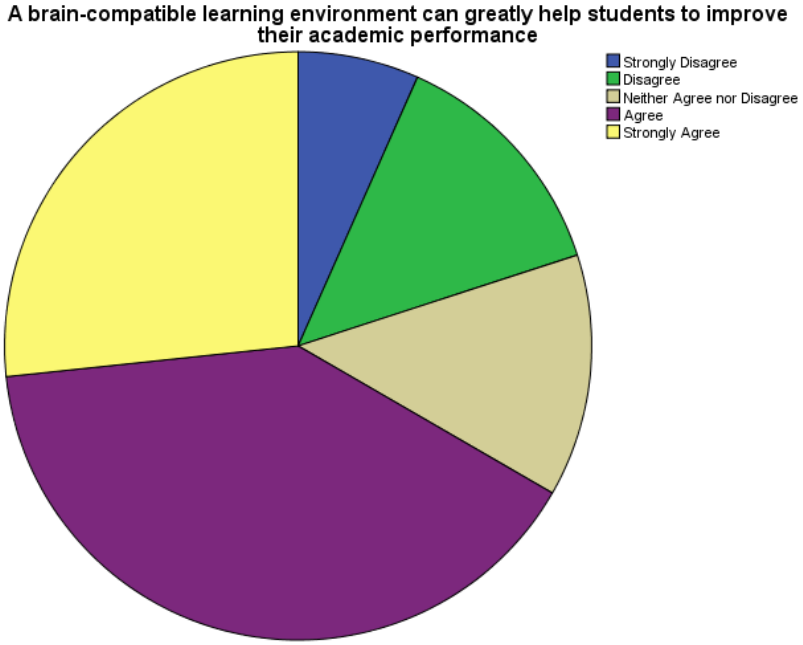

Figure 3: Teachers' response on a brain-compatible learning environment can greatly help students to improve their academic performance

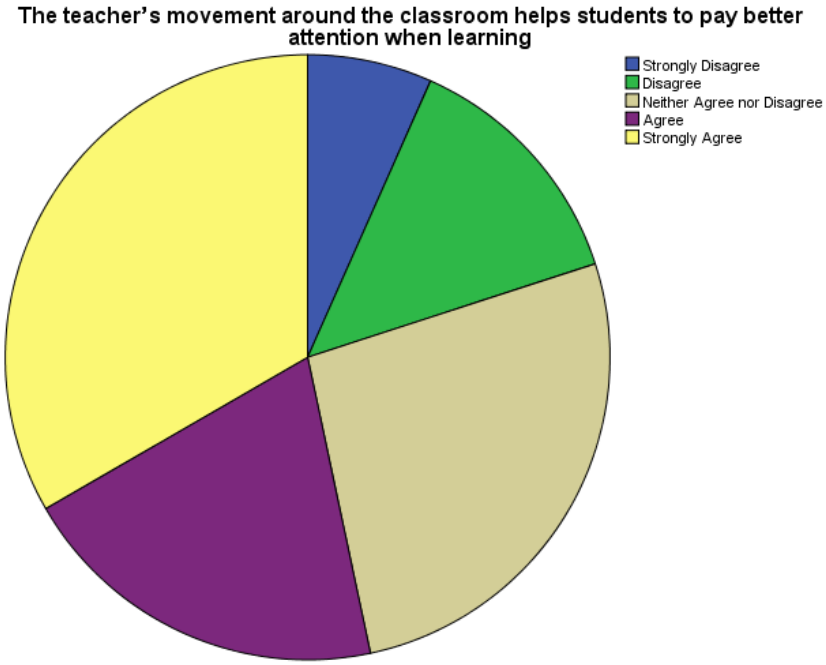

Figure4: Teachers' response on the teacher's movement around the classroom helps students to pay better attention when learning

We can conclude from the above results that most of the students and teachers agreed that a brain-based learning environment and the movement of a teacher around the classroom when teaching can greatly help students improve their academic performance and pay better attention in the classroom. Color-coded handouts and notes and visual and auditory aids are frequently used in a classroom in a brain-based learning environment because they greatly involve the senses of sight and hearing and affect the mood, attention and memory of students. The students responded in the survey as follows:

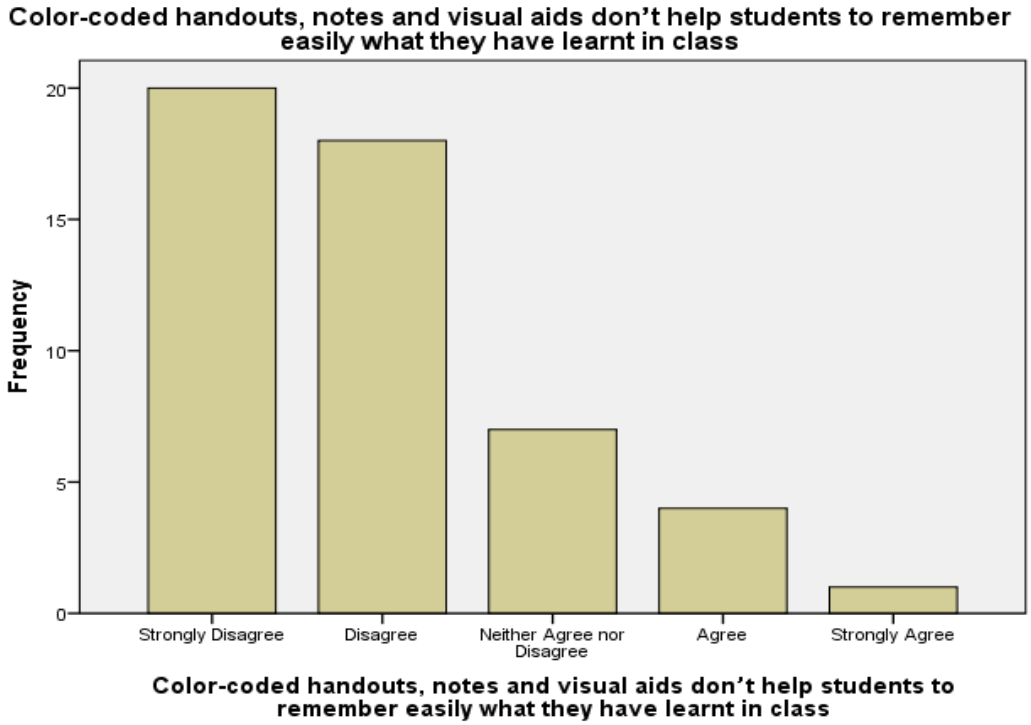

Figure 5: Students' response on color-coded handouts, notes and visual aids don't help students to remember easily what they have learnt in class

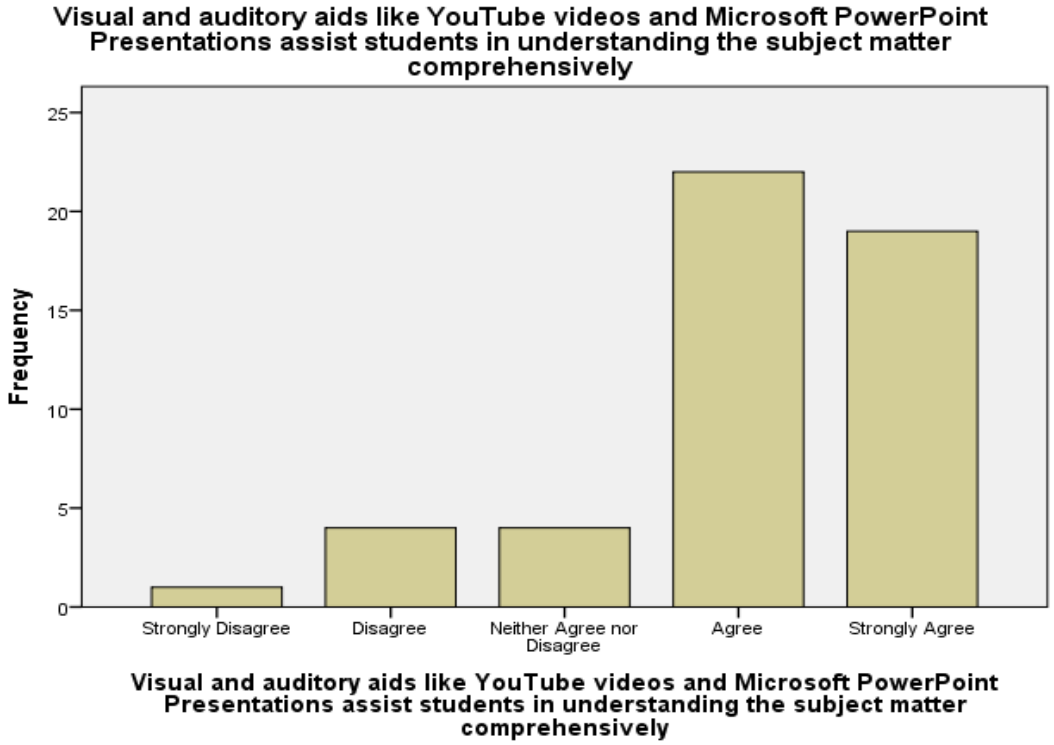

Figure 6: Students' responses on visual and auditory aids assist students in understanding the subject matter comprehensively

The teachers' response in the survey was as follows:

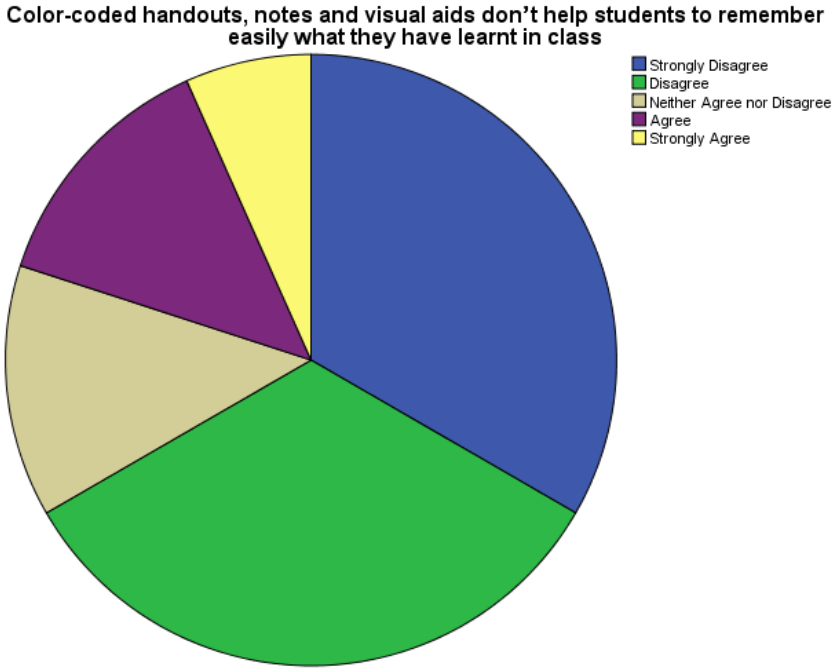

Figure 7: Teachers' response on color-coded handouts, notes and visual aids don't help students to remember easily what they have learnt in class

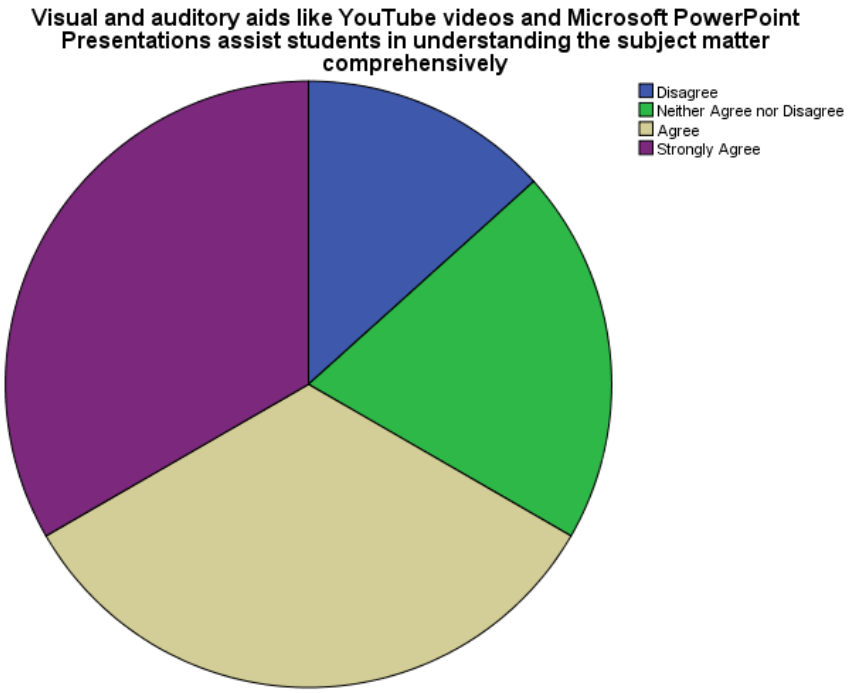

Figure 8: Teachers' response on visual and auditory aids assist students in understanding the subject matter comprehensively

Most of the students and teachers strongly disagreed that color-coded handouts, notes and visual aids don't help students to remember easily what they have learnt in class. Similarly, most of them agreed that visual and auditory aids like YouTube videos and Microsoft PowerPoint Presentations assist students in understanding the subject matter comprehensively. Therefore, we can conclude that the use of color and visual and auditory aids in the classroom can greatly help students in understanding and retaining the subject matter and this will eventually improve their academic performance.

Brain-based learning is not only about providing an optimal environment for all the basic senses in the classroom; it is also about helping children to reduce distress in order to promote brain health and improved learning. The students' response in the survey was as follows:

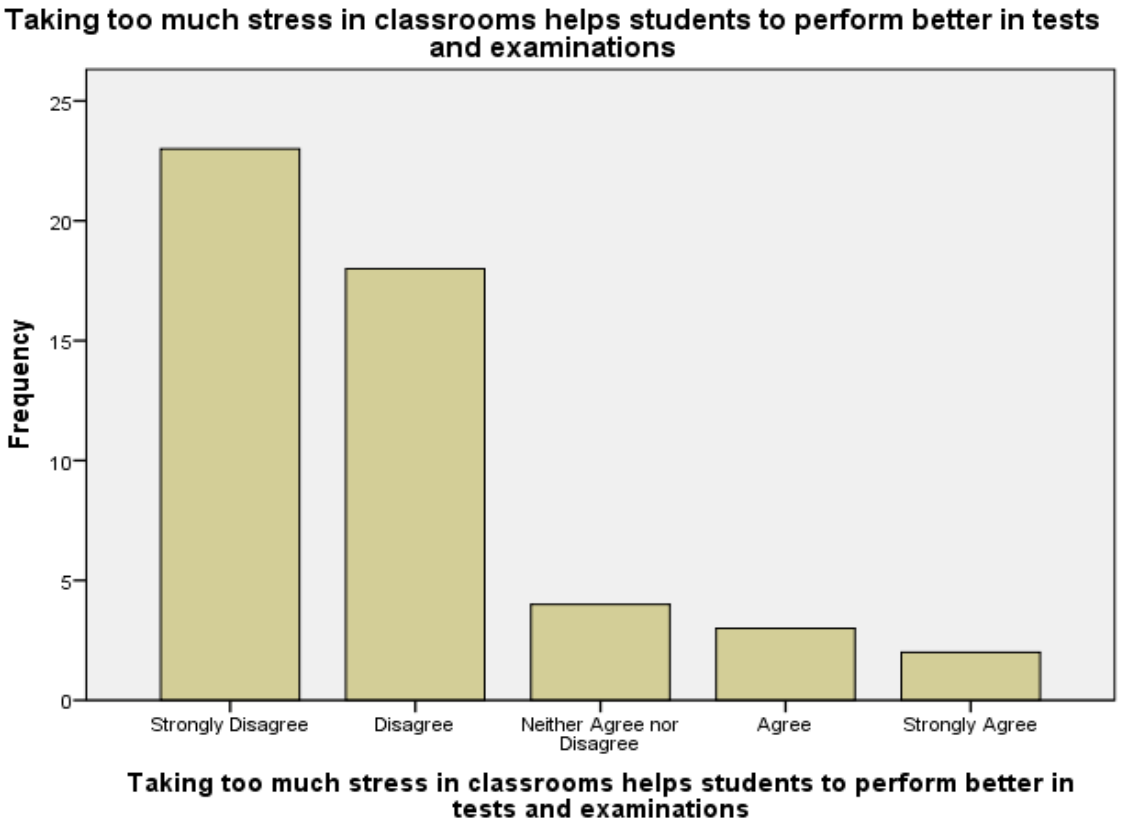

Figure 9: Students' response on taking too much stress in the classroom helps students to perform better in tests and examinations

The teachers' response was as follows:

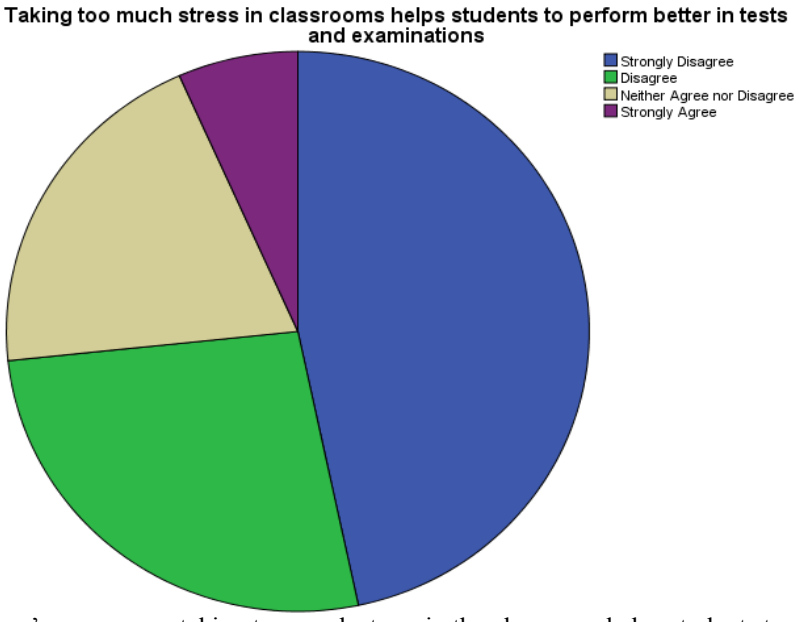

Figure 10: Teachers' response on taking too much stress in the classroom helps students to perform better in tests and examinations

Most of the students and teachers strongly disagreed that taking too much stress in classrooms helps students to perform better in tests and examinations. When the brain is in distress it is unable to correctly interpret subtle clues from the environment, to store and to retrieve information correctly, to recognize patterns and relationships, and to hold information in long-term memory. The brain in distress "is less able to use higher-order thinking skills" (Jensen, 2008, p. 44). This means a reduction in the ability to learn and to succeed in school. Hence, taking too much stress in the classroom negatively affects the academic performance of students.

Therefore, from the response of all the participants, it is evident that a brain-based learning environment can significantly enhance the academic performance of students in Al Jamea Tus Saifiyah. The use of movement in class, visual and auditory aids and the reduction of stress can all provide a conducive environment for students in the classroom where optimum learning can take place. "Since, brain-based learning environments teach the whole student, by immersing the student's senses in an array of experiences, brain-based learning environments provide significant cognitive advantages for students of every learning modality (Barry, 2011).

The students and teachers were also asked open-ended questions. The first question was,"What can be done to improve the learning environment in Al Jamea Tus Saifiyah so as to boost the academic performance of students?"

Respondent X from the students answered that, "There is generally a lot of noise in the other classrooms in between lessons or when the teacher is not present during class time. This noise should be minimized and, if possible, eliminated, because it is a huge distraction for me and other students in my class as we cannot concentrate and pay attention to what the teacher is teaching."

Respondent Y from the students answered that, "Students should be allowed to take risks and explore new thoughts when learning, as this will enhance creativity and ingenuity among them."

Respondent X from the teachers answered that, "Students should not be given punishments or scolded in a way that humiliates them in front of their classmates, as this will negatively affect them both mentally and emotionally, and it might provoke them to further misbehave in class."

Respondent Y from the teachers answered that, "There is a current trend in Al Jamea Tus Saifiyah that students frequently give chorus answers to questions asked by the teachers. This should be immediately stopped as it leads to commotion and uproar in the classroom."

The second question they were asked was, "How can students engage all their senses when learning so as to thoroughly understand the subject matter?"

Respondent X from the students answered that, "The use of Microsoft PowerPoint presentations and YouTube videos helps me to vividly remember the information I have been taught in class. In my personal opinion, if teachers use them often in class, students will be able to engage all their senses when learning and comprehensively understand the subject matter."

Respondent Y from the students answered that, "The students should focus on one thing at a time and avoid multi-tasking in the classroom. When they are being taught, the students should listen attentively and avoid doing other activities like fidgeting with their hands or daydreaming about other things, as these little distractions obstruct them from thoroughly grasping the lesson content."

Respondent X from the teachers answered that, "The teachers should include psychomotor objectives in their lesson plans and not focus solely on cognitive and affective domains. This will allow the students to engage all their senses when learning."

Respondent Y from the teachers answered that, "Real-life applications and problem-solving examples should be given in class so that the students can relate theoretical concepts to practical situations and this will help them to extensively understand the subject matter."

V. SUMMARY

The study's purpose was to investigate the role of a brain-based learning environment on the academic performance of students from level 8-11 in Al Jamea Tus Saifiyah, Nairobi. It was underpinned on the brain-based learning theory postulated by Caine and Caine and guided by the following research question: How can brain-based learning environment enhance the academic performance of students in Al JameatusSaifiyah?

The findings from the study showed us that a brain-based learning environment can significantly enhance that academic performance of students from level 8-11 in Al Jamea Tus Saifiyah. Brain-based learning environments provide significant cognitive advantages for students of every learning modality by immersing the students' senses in an array of experiences. The use of movement in class, visual and auditory aids and the reduction of stress can all provide a conducive environment for students in the classroom where optimum learning can take place.

VI. CONCLUSION

In finding out the role of a brain-based learning environment, it was strongly agreed by both students and teachers. that it can significantly enhance the academic performance of students from level 8-11 in Al Jamea Tus Saifiyah, Nairobi. The use of movement in class, visual and auditory aids and the reduction of stress can all provide a conducive environment for students in the classroom where optimum learning can take place. This will lead to better retention of the subject matter and consequently improve the academic performance of students.

VII. RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made for policy makers, implementers, teachers and other stakeholders. The study recommends that the structure for a brain-based learning environment should be organized in Al Jamea Tus Saifyah so that effective teaching and learning can take place, and this will eventually result in the better academic performance of students.

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