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BRAIN-BASED STUDY SKILLS COUNSELLING FOR IMPROVING ACADEMIC PERFORMANCE AMONG SENIOR SECONDARY SCHOOL STUDENTS IN NIGERIA

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ABSTRACT

The study assessed the peroformances of secondary school students in Nigeria. It also investigated the strategies adopted in impoving the performance of secondary school students. Some of these strategies include other traditional methods, such as remedial and extra lessons, general guidance and counselling, and teachers' professional development. The adopts the narrative enquiry qualitative research design, which is vital for exploring deep and relational engagement between the researcher and the fact being explored for the purpose of understanding experiences and how experiences are shaped and understood. The study found the adoption of traditional methods, such as remedial and extra lessons, general guidance and counselling, and teachers' professional development to only promote rote learning among students, with little or no imporvement on their academic performances. Thus, the adoption of brain-based counselling study skills, which promote retrieval practice, spaced revision, metacognition, executive-function supports and sleep therapy to be vital in improving students' performance. The study then recommended step-by-step approaches through which the brain-based study skill counselling can be established in Secondary schools. The study concluded that the adoption of brain-based counselling skills will promote students' learning with relatively low resources.

Keywords: brain-based learning, study skills counselling, senior secondary school, nigeria

INTRODUCTION

Over the past years, raising and improving the academic performances of students in secondary schools has remain a central educational priority and concerns for many stakeholders in the Nigerian educational sector (Ojetunde & Ayodabo, 2024). Policymakers, teachers, parents and most especially school counsellors have all come to acknowledge and recognized that a poor educational foundation and structure at the secondary school level will lead to poor preparation of students for tertiary education, vocational training or even direct entry into the labour market. In many cities in Nigeria, such as Ilorin, the capital of Kwara State, these concerns are more pressing due to the consistent and recurrent low performances and low rates of students in national examinations, such as the West African Senior School Certificate Examination (WASSCE) and the National Examination Council (NECO) assessments (Omoladun et al., 2019). For instance, the research of Suleiman and Hammed (2019) confirmed mass failure in Mathematics among secondary school students in Iloring metropolis. Omoladun et al. (2019) also confirmed the same among secondary school students in the same area. Since these national assessments and examinations serve as critical gateways for higher education and also determine the next stage of education for all Nigerian secondary school students, as well as professional opportunities and careers in the future, students who underperform can be said to be at risk of educational and economic disadvantage, both at the short and long-term. Therefore, improving students' outcome in Ilorin, as well as many other cities in Nigeria, therefore becomes both educational and social equity concerns, with direct effects and implications for human capital development in Nigeria as a whole.

A range of interventions and educational initiatives have been adopted over the years to address the challenges of low performances and poor academic performance among secondary school students in these national examinations, which is critical to their academic progress and by extension the progress of the nation. Some of these initiatives include remedial lessons, extended tuition outside the regular and usual classroom and school hours, establishment of well-equipped libraries in schools and even in communities, development of professional programmes for teachers, integration of guidance and counselling services within the school system among others (Olaifa et al., 2025; Bahago et al., 2022; Obidoa et al., 2013). Each and the combination of these strategies have yielded some level of successes, with some reporting improvements in the performances of students, while others have highlighted gaps to be filled and addressed. For example, the attendance of extended tuition has been reported to be popular among many middle-class families in Ilorin as well as many other cities in Nigeria, however, such initiatives have been criticized for only encouraging rote memorizations rather than deep learning and understanding, while students have only be involved in them for the purpose of passing their exams, rather than learning for long-term use of for practical application of what they are there to learn (Ayoade, 2020). In the same vein, even though the establishment of diverse professional development initiatives for teachers and educators have led to the improvement of their knowledge, content mastery, pedagogical practices and lesson delivery, there remains a huge gap in their translation into real and measurable improvements in the learning and academic performances of students (Obineme, 2020). Also, guidance and counselling services, though appear to be promising conceptually, they remain largely underfunded by government and schools, leading

to being largely underutilized, thereby leading to counselling services having limited impacts in the Nigerian education sector (Adiela & Ubani, 2022).

Thus, the present inconsistencies in these interventions underscores the presence of great challenges, as many of the present strategies have failed to address the ways through which students actually learn. Also, it is important to note that educational outcomes and students' performances do not solely depend on instruction or even exposure of students to contents, but the understanding of the ways through which students process, encode, store and retrieve information. Research in educational psychology and neuroscience has confirmed that factors such as attention span, memory consolidation, metacognition an executive function play important roles in determining the academic achievement of students (Jensen, 2020; Tokuhama-Espinosa, 2019). However, in the Nigerian context and in many Nigerian educational institutions, these brain-base processes are hardly considered when designing and introducing interventions to improve students' learning and performances (Okwara, 2023). Instead, more of traditional methods of "more time, more practice", which have consistently failed to achieve sustainable improvements, especially for students from low and middle-income families who may face constraints due to limited resources, are still largely in use.

Many studies in Nigeria have highlighted the multifactorial drivers of students' academic performance and achievement. For instance, the research of Muhammad et al. (2022), Alabi (2023), Ohanyere et al. (2024) an Ozonuwe et al. (2025) reported the influence of the attitudes of teachers, students' family background, peer influences and students' study habits on their academic outcome and performances. It was reported that students from low education and limited resources tend to exhibit defective study habits, such as poor time management, last minute reading and cramming, low engagement in reflective and metacognitive practices. Other challenges such as lack of and/or inconsistent parental/family support, large and overcrowded classrooms as well as limited teaching aids and resources have been identified by other researchers (Ofodile et al., 2025; Barde et al., 2021). Even though, these factors appear to be diverse in nature, they all point to the fact that the study behaviours and metacognitive engagement strategies of students play important and central roles in their academic performance and outcomes. Therefore, targeted behaviour as well as skill-based interventions which improve how students' study, remember and apply what they learn can be considered vital.

Based on the above arguments, brain-based study skills counselling offers a new as well as unexplored pathway. Brain-based learning and skills counselling draws approaches from research in cognitive psychology, neuroscience, and educational theory in order to design and develop interventions which align with the brain's natural processes (Caine, 2009; Sousa, 2023). Thus, the core strategies and processes of this approach include retrieval practice, which deals with active recall of learned information rather than passive review, distributed practice, which addresses spacing out learning sessions over time in order to improve the retention for a long time. Then metacognition monitoring, which deals with the development of the awareness of individual's learning processes and adjusting strategies as needed, attention control, which focuses on distractions' management and cognitive resources focusing. Sleep hygiene, which deals with ensuring enough rest in order to consolidate memory, and also executive-function scaffolding, which focuses on supportive planning, organization and problem-solving skills. Even though,

the use of brain-based skills and its processes and approaches have strong base and evidence globally, they however remain absent in instructional practices and counselling in Nigerian secondary schools (Immordino-Yang, 2015).

Thus, this research posits that systemic and evidence-based counselling, which teaches and focuses on brain-informed study skills and also embeds the same into school counselling programmes, teacher practice and instructional methods will lead to the improvement of the performances of secondary school students in Ilorin and even in Nigeria at large. This is because brain-based counselling and teaching approach equips students with both cognitive and metacognitive tools needed to become improved, efficient and self-regulated learners, unlike the traditional approaches which focuses on "more of the same" learning approaches. This distinction is considered vital due to the fact that effective study skills foster lifelong learning competencies as much as they translate into immediate academic success. Whereas the aspect of learning translating to lifelong learning competencies is considered essential in the dynamic socio-economic landscape of Nigeria.

More specifically, the brain-based study skills counselling becomes particularly relevant in many cities in Nigeria, including Ilorin, due to the specific challenges these cities face, as many schools operate with limited resources, high student-to-teacher ratios and lack of sufficient instructional materials (Barde et al., 2021). Interventions which empower students to take change of their own learning processes become essential in these contexts. Through the exposure of students to strategies such as retrieval practice and distributed learning, counsellors can equip students in making better use of scarce resources for learning optimization even outside the classroom environment. More importantly, the brain-based strategies do not necessarily require huge financial investment (Hodges, 2013). They however demand adequate training, awareness as well as the integration of the processes into the school counselling structure which may already be in existence.

Also, considering the fact that the broader educational context in Nigeria continues to clamour for reforms and innovations, with the Federal Ministry of Education's emphasis on the importance of 21st century skills such as creativity, critical thinking, and self-regulation (Federal Ministry of Education, 2020), brain-based study skills counselling aligns directly with these clamour as they equip students with the tools needed in managing their learning processes and adopting the same to complex and real-life challenges. Whereas evidence abound that countries who have integrated neuroscience-informed practices into education to have experienced significant gains in student outcomes (Tokuhama-Espinosa, 2019; Jensen, 2020). Therefore, for Nigeria to remain competitive in the knowledge economy, there is need for educational sector to embrace and adopt the same innovations.

Thus, this article summarizes the current in approaching and improving academic performances of students in Nigeria, including their strengths and weaknesses, while also highlighting the dearth in the use of effective and modern methods such as the brain-based method. Also, this research will propose a brain-based study skills counselling model which can be adapted and applied to education in Ilorin and other cities in Nigeria, as well as concrete and important implementation steps in secondary schools. It will also discuss monitoring, evaluation and policy implications in order to ensure sustainability and scalability.

This article will advance a fresh perspective on ways through which secondary schools in Nigeria can improve learning outcomes by reframing students' performance as cognitive and behavioural challenges, instead of seeing the same as merely instructional issues. Brain-based study skills counselling represents not only a scientifically grounded approach but also a practical, cost-effective, and sustainable pathway to improving academic performance among senior secondary students in Nigerian secondary schools, including Ilorin.

METHODOLOGY

The research adopted the narrative enquiry qualitative research design. Narrative inquiry research design is critical for exploring the experiences of people through the adoption of storytelling for the purpose of uncovering the meanings these experiences construct, instead of focusing on the truth as they appear on the surface (Adhikari, 2021). This research methodology involves deep and relational engagement between the researcher and the fact being explored for the purpose of understanding experiences and how experiences are shaped and understood (Parks, 2023). Adopting this for this study will help understand the current problems beyond the surface and also help provide solutions within the context of the people involved and the challenges. Ilorin Metropolis was adopted for this study based on the reports of low academic performance among students in this area. Also, it is believed that the introduction of this approach can start from a particular location, based on the accessibilities of the researchers, while the approach can then be introduced to other schools based on the outcomes.

RESULTS

The results were presented based on the analysis and synthesis of available literature on the current landscape of approaches adopted in improving students' performance, while also presenting modern approahces through which students' academic performances could be enhanced, using the brain-based counselling study skills.

Current approaches used for improving school performance in Nigeria

Efforts to improve students' performances in Nigerian cities, including Ilorin have included diverse interventions over the past two decades. These approaches reflects the trends in the educational policy and practice in Nigeria, while at the same time responding to the cultural and socio-economic realities of Nigeria. Though, some of these strategies have achieved some successes and measurable outcomes in students' performance as well as psychosocial outcomes, they have become inconsistent at the long-term due to their lack of evidence and backgrounds in contemporary cognitive science (Okpara & Ezeador, 2024). This section presents the reviews of major approaches which have been adopted in raising students' performance, their effectiveness and gaps, thereby leaving the opportunity to integrate brain-based study skills counselling.

Guidance and counselling programmes

Guidance and counselling became institutionalized in the Nigerian secondary schools in the 1970's after inclusion in the National Policy on Education (Federal Republic of Nigeria, 2013). In Ilorin, among other cities in Nigeria, most secondary schools operate counselling units, with the presence of trained

counsellors or teachers with guidance training. The main focus and goal of this programme is to help students in navigating academic, career, psychological and social challenges.

Research has shown the effectiveness of counselling in influencing the academic performance of students in Nigeria, most especially in reducing maladaptive study behaviour and in enhancing positive self-concept (Ifejiofor, 2023). For instance, group counselling sessions which address procrastination and poor management of time have been shown to improve the readiness of students for examination and also improve their class participation (Ifejiofor, 2023). The effect sizes of such research however vary, based on factors such as counsellor expertise, counsellors-to-students ratio and nature of counselling, whether individualized or group counselling. A constant and recurring challenge is the limited time that are often allocated to counselling in the school timetables, or even the lack of time allocated to counselling, leading to reduction in the depth and frequency of counselling interventions (Ibrahim et al., 2024). While counselling programmes can be considered as a well-accepted approach, its limitation in many Nigerian secondary schools, include Ilorin, reflects national challenges as counsellors are often overloaded, with programmes being delivered in generic formats, while connections to evidence-based cognitive science remains weak.

Remedial lessons and extra tuition

Remedial lesson, which often comes in the form of after-school coaching or lesson classes are common and widespread practice among secondary schools in Ilorin and many other cities in Nigeria (Obidoa et al., 2013). Thus, many parents spend significant amounts in either hiring private teachers for the children or in enrolling them in coaching centres, especially in preparation for national and major exams, such as WASSCE and NECO. The popularity of these lessons is rooted in the fact that additional instructional hours and tutoring will translate into better academic performance.

Evidence over the years have however revealed mixed outcomes. Some studies found remedial classes to improve students' performances compared to students who did not (Udokang & Odeyemi, 2020). Such performances however depend on the quality of instruction. In another vein, other researchers have argued that the attendance of such remedial classes only leads to shallow learning as they emphasize content drilling over effective study habit development (Ajogbeje & Alonge, 2012). These variabilities therefore show the limitation of remedial classes. Even though, they provide additional exposure to the subject matter, they however fail in introducing students to the deeper cognitive and metacognitive processes which underpin sustainable learning.

Teacher Professional Development and Management Reforms

Programmes on the professional development of teachers can be considered as another major strategy for enhancing students' academic performance in Ilorin and many other cities in Nigeria (Bahago et al., 2022). Thus, ministry of education, schools, governmental and non-governmental institutions continue to organize workshops on pedagogy, classroom management, subject mastery among others (Bahago et al., 2022). This is because research has continued to confirm that attitudes of teachers, knowledge of subject and pedagogical skills to be vital in enhancing and predicting the performance of students (Bahago et al., 2022).

Constant programmes on teachers' professional development could be said to have positively contributed to the academic performances of students, however, the sustainability of such performances could be said to be questionable as lessons from these programmes are based on teachers' readiness and ability to apply what were learnt in the classrooms (Obineme, 2020). Also, the ideal challenges of many teachers in the Nigerian classroom, such as large class sizes, limited teaching resources and low morale may undermine the effectiveness of such programmes (Barde et al., 2021).

Supports from family and home environment

The family background of students and their home learning environments have major influence on students' performances. Studies have found the involvement of parents to positively influence the performance of students (Ofodile et al., 2025). Engagement practices, such as supervision of homework, creating spaces and supports for study, and encouraging students' academic aspirations can improve students' academic performance.

The effectiveness of family-based interventions can be said to be largely influenced by the socio-economic status of the family. In households with lower incomes, limited financial resources, parental lack of education and overcrowded living conditions, supportive learning environments may be largely impossible or rather become ineffective (Ofodile et al., 2025; Barde et al., 2021), thereby creating barriers to the effectiveness of parental and home environments in supporting students' performance.

Thus, even though, these current approaches have yielded some significant results in improving the academic performance of students, there remains significant challenges, which most of these approaches are yet to or unable to address. These can be said to be evident in diverse areas, which include an absence of cognitive-science grounding as these interventions lack direct and explicit alignment with learning mechanisms such as distributed learning, retrieval practice and metacognitive monitoring. Another challenge is the presence of variability in the fidelity and scale of these approaches as the delivery of programmes remain inconsistent across schools, while implementation have been largely constrained by limited resources. This leaves a clear gap for interventions which integrate brain-based learning strategies into counselling and teaching procedures in classes. The presence of this gaps supports the rationale for introducing brain-based study skills counselling as an intervention which can help in addressing the cognitive and behavioural dimensions of students' performance in secondary schools in Ilorin and many other cities in Nigeria.

The Brain-Based Counselling Study Skills

Theoretical and Empirical Reasons for Brain-Based Study Skills

The brain-based study skills counselling framework is based on and draws evidences from cognitive psychology and educational neuroscience (Nassar, 2019). The focus of this approach is the re-engineering of the way students learn through the alignment of study behaviours with the mechanisms which governs attention, memory and self-regulation (Nassar, 2019), unlike traditional learning methods which focuses on exposure students to additional contents. This framework is based on the premise that students' difficulties and academic challenges are not always based on lack of efforts or intelligence, but in ineffective learning strategies they usually employ (Lusiana & Andari, 2020). Through the teaching of strategies on how the brain encodes, stores, and retrieves information, students can be best empowered by counsellors in

maximizing their study time. This section therefore discusses important principles which highlight brain-based study skills' empirical basis and their implications for school counselling in Nigeria.

Retrieval practice (testing effect)

Testing effect, also known as retrieval practice, can be regarded as one of the robust findings in cognitive psychology (ElAdl & Saad, 2019). research found that recalling information actively strengthens the memory instead of passive review of notes or re-reading textbooks (Roediger & Butler, 2011). Thus, an attempt by students to retrieve knowledge from memory, through self-testing, practice quizzes, or peer questioning reinforce the target information, but more importantly improve of transferring knowledge to new contexts.

This principle is highly relevant from counselling viewpoint. Many secondary school students in Nigeria, like their peers worldwide, devote a lot of time to re-reading textbooks and highlighting passages, practices which may yield poor long-term retention, even if it feels fluent at the short-term (Karpicke, Butler, & Roediger, 2009). Counsellors can therefore intervene through teaching students' methods of incorporating low-stakes retrieval into their routines, either by using flashcards, design of short-answer questions or through group "teach-back" activities where students explain concepts to their peers. Such brief trainings in retrieval strategies can boost students' performance in tests and examinations, therefore making retrieval practice an important school-based counselling intervention strategy.

Distributed Practice (Spacing Effect)

The principle of distributed practice, also known as spacing effect, is closely linked to retrieval practice. Research as far back as Ebbinghaus in the late 19th century and in the modern neuroscience confirms that information studies across multiple sessions is retained longer than the one studied in a single massed session, or the one crammed the night to exam (Cepeda et al., 2006). The neural basis of spacing involves repeated reactivation of memory traces over time, thereby strengthening synaptic connections and reducing forgetting.

Evidence suggests that cramming remains a dominant strategy, especially in days leading to examination period among Nigerian students (Aboluwodi, 2017). Counsellor can then play a critical role in shifting students toward spaced revision. To achieve that, practical counselling interventions include assisting students in designing weekly revision calendars, scheduling regular study sessions, as well as adopting digital or paper-based repetition tools. In contexts where resources are limited, strategies such as rotating topics across evenings, or revisiting material after 24 hours can lead to significant benefits. Thus, distributed practice exemplifies how brain-based counselling translates complex cognitive science into simple, actionable routines for students.

Metacognition and Self-Regulated Learning

Metacognition has emerged as one of the main predictors of students' academic performance (Zimmerman, 2002). Through self-regulation, students are able to set goals, monitor their progress and adjust their strategies when they face difficulties. Research has conformed metacognitive strategies to enhance students' outcomes across disciplines (Dignath & Büttner, 2018).

Counselling has unique positioning in fostering the development of metacognition. While classroom teaching often focuses on curriculum content, counselling sessions can focus on learning about learning.

To achieve this, counsellors can introduce reflective tools such as learning diaries, where students can document and track the strategies which worked or failed after their study sessions. Explicit monitoring techniques, which include checking comprehension by summarizing a text without looking at notes can be taught. In Nigeria, including schools in Ilorin, where students often cultivate poor reading habits, including metacognitive scaffolding into guidance programme could lead to students' taking ownership of their learning in ways that are sustainable.

Executive Functions and Attention Control

Executive functions, such as working memories, inhibitory control and cognitive flexibility, represent higher order cognitive skills which support goal-directed behaviour (Best et al., 2011). These functions underpin students' abilities to manage distractions, sustain attention, and juggle multiple tasks, factors which are vital to effective studying. Research has shown that students which possess stronger executive function skills to achieve better academic performance, even after controlling for factors such as IQ (Best et al., 2011).

Thus, executive function skills can be incorporated into study skills programmes. For example, sessions may include selective attention exercises, removing distractions, breaking tasks into smaller units to reduce cognitive load, and the practice of switching between different problem types. In many Nigerian cities and schools where students study in crowded environments and spaces with limited private space, attention-management strategies become vital. Counsellors can therefore recommend practical supports, such as the design of study corner, noise-counselling techniques, and the leverage of brief focus intervals (Pomodoro technique). By scaffolding executive function, counselling aligns academic habits with the attentional architecture of the brain.

Sleep, Consolidation, and Timing of Study

Sleep is a major mechanism in memory consolidation, not just a restorative process. Research in neuroscience has confirmed that new information is reactivated and integrated into long-term memory during slow-wave and REM sleep (Diekelmann & Born, 2010). While sleep deprivation leads to the impairment of attention, working memory and students' performance. Whereas evidence and experience confirm that late-night cramming remains one of the study strategies of Nigerian students, especially in weeks preceding examination.

Counsellors can address this by teaching students on sleep hygiene, such as the maintenance of regular sleep schedules and timing study sessions to coincide with natural circadian rhythms. Practical sessions and approaches may include the encouragement of morning reviews and discouraging all night study sessions which may reduce performance the following day. By linking sleep to academic outcomes, counsellors can reframe rest not as wasted time but as an integral part of learning.

Socio-Emotional and Motivational Factors

Emotional and motivational context is closely linked with cognitive strategies and processes. Negative emotions such as stress, anxiety, negative self-perceptions may reduce working memory and impair learning, while positive emotions such as high self-efficacy, may enhance resilience and persistence (Dweck, 2006). Thus, socio-emotional learning programmes which builds skills such as emotional

regulation and empathy have been found to improve students' performance and behaviour in the classroom (Taylor et al., 2017).

Integrating socio-emotional supports with study skills instruction in counselling practice is conceptually coherent and practically necessary. To achieve this, counsellors can teach students relaxation techniques, such as mindfulness and deep breathing, and also help them in reframing failure as opportunities for growth, while helping them set goals which are realistic but also challenging. In Nigeria, where students often face pressure related to examination and socio-economic issues, addressing emotional barriers to learning may be just as important as the teaching of cognitive strategies. A brain-based counselling model therefore positions motivation, stress management and mindset as complementary to retrieval, spacing and metacognition.

A Practical Model of Brain-Based Study Skills Counselling

This presents a detailed programme designed for Senior Secondary Schools in Ilorin as well as other cities in Nigeria, which integrates cognitive science with counselling approaches. The primary goal is to increase measurable academic performance in school and national examinations through improvement in study skills, which produce durable learning. The secondary goal is to increase study self-efficacy, reduce examination anxiety and improve students' attendance and engagement. The core components may include:

a. *Assessment and baseline mapping (Week 0).* This include the administration of standardized measures and instruments such as study habit inventory, short working memory/attention screening, self-efficacy scale, recent term scores among others. Also conducting interview for teachers about classroom practices through the adoption and use of validated, brief instruments from literature.
b. *Psychoeducation: how the brain learns (1 session).* It comprises a brief session for teachers, based on teaching and explaining the workings of memory, retrieval, spacing, attention, and sleep though the adoption of short videos/visuals, and adapted to local language and examples. This will help in addressing motivation and dispelling myths.
c. *Strategy workshops (4 sessions of small groups of 8–12): May comprise the following:*
    i. Session 1: Retrieval practice and self-testing. Contents should be based on how to create and use practice tests, flashcards, and peer-quizzing.
    ii. Session 2: Spaced scheduling and time management. Emphasis on building weekly revision schedules, planners, and habit cues.
    iii. Session 3: Metacognitive monitoring. Focus on how to judge learning, use error analysis, correct study plans.
    iv. Session 4: Attention and executive control tools. Training on focused study blocks (Pomodoro-style), distraction reduction, environmental set-up.
d. *Sleep and wellbeing coaching.* Empasis should be based on sleep hygiene, study timing relative to sleep, exercises on stress reduction.
e. *Teacher training and classroom alignment.* Training of teachers on how to embed retrieval practice (quick quizzes), design spaced syllabus sequences, and coach metacognition during lessons. This helps in creating instructional alignment.

f. *Parent engagement and home study plan***.** Focus should be based on teaching parents simple ways for support spaced study, providing quiet time, and reinforcing routine.
g. *Ongoing small-group follow-up & booster sessions.* Counsellors run monthly booster groups to review progress and identify barriers, followed by schedules' review and practice of retrieval.
h. *Monitoring & feedback loops.* Weekly logs for students (short), counsellor fidelity checklists, pre/post tests, and term score tracking. Use modest incentives for attendance (certificates, study materials etc.).

Cultural and contextual adaptations for Ilorin and other Nigerian schools

a. Adoption of local language, such as Yoruba, Igbo and Hausa, with English as needed. Embedding local school calendar and national exam schedules (WAEC/NECO) into spacing advice.
b. Sessions could be shortened in line with the school timetable. Partnership with Parent-Teacher Associations for engagement.
c. Adoption and use of low-cost materials, such as paper flashcards, printed planners, and use of mobile SMS reminders for spaced review, especially in low-economic and resource-constrained communities.

Step-by-Step Implementation Plan (Practical)

The following steps are recommended for the implementation of brain-based study skills counselling in secondary schools in Ilorin and Nigeria as a whole.

Phase 1 – Planning (Month 0–1):

a. Meeting with stakeholders (i.e., ministry of education, school heads and management, school counsellors, teachers and PTA).
b. Selection of schools for pilot testing (i.e., mix of public/private; rural/urban schools).
c. Adaptation of materials and translation where necessary.

Phase 2 – Baseline and Training (Month 2):

a. Measurement of study habits, attention proxy, self-efficacy and recent exam scores at the baseline.
b. Training of registered counsellors who will be assigned to train school counsellors and teacher leads.

Phase 3 – Rollout (Months 3–4):

a. Workshop on student psychoeducation and strategy.
b. Concurrent workshop on classroom embedding.
c. Creation of forum for parent and distribution of home-study packs.

Phase 4 – Follow-up (Months 5–10):

a. Supervision by counsellors, monitoring, and monthly booster groups.
b. Midline measurement at 3 months after implementation.

*Phase 5 – Evaluation and Scale (Months 11–14***):**

a. Measurement of endline performance after one term (i.e., 6–8 months). To achieve this, a comparison can be made between the treatment and waitlist control schools using pre/post with covariate controls or cluster-randomized trial.

b. Present findings to ministry of education. Scale-up planning on the basis of effect sizes and cost-effectiveness.

Discussion of Findings

The study found the adoption of remedial classes, after school tutorials, teacher development programmes and traditional guidance and counselling. The study however found that these approaches continue to encourage rote learning and encourage students to study more instead of researching into the roots of the problems leading to poor performances of students. Also, guidance and counselling programmes are currently poorly funded in many schools in Nigeria, while there are no enough counsellors to cater for the need of the students in many Nigerian secondary schools. Thus, the adoption of these strategies have achieved little to no results in improving the academic performances of students in Secondary schools in Ilorin as well as other parts of the country. Hence the need for more appropriate approaches.

In addition, the brain based counselling study skills was proposed as potential approach through which the issue with students' academic performances could be addressed. This counselling approach include the retrieval practice (testing effect), distributed practice (spacing effect), metacognition and self-regulated learning, executive functions and attention control, sleep, consolidation, and timing of study and socio-emotional and motivational factors, factors which deal with cognitive and metacognitive learning of students, factors (cognitive and metacognitive) which are important in learning.

Policy and Practice Recommendations

The following are recommended for the implementation of brain-based study skills counselling in Nigerian schools.

a. Education ministries and schools should adopt a pilot programme of the brain-based study skills counselling in order to see its effectiveness as well as lapses in the Nigerian contexts. Based on this, implementation should be tailored to reflect the peculiar challenges and realities of schools in the study areas.
b. Elaborated and enough trainings should be conducted for counsellors, school teachers and school management. These trainings should focus on retrieval practice and spaced scheduling. Each training session should be accompanied by practical classroom activities.
c. The new approach and trainings should be aligned with current school activities and calendar in order to drive supports from schools stakeholders, including teachers and other staff members.
d. Parents and guardians should be integrated into the counselling initiatives. Parents should be trained on how to guide their children in following the processes of brain-based study skills counselling and integrate the same into their study habits.

CONCLUSION

From this study, it can be concluded that a structured brain-based study skills counselling, which is based on principles of retrieval practice, spaced revision, metacognition, executive-function supports and sleep therapy can be adopted in delivery teaching, at relatively low cost, through school counsellors and

trained teachers. When structured in line with teachers' supports and family involvement, this approach becomes more realistic and likely to produce measurable outcomes and success in students' learning.

REFERENCES

Aboluwodi, A. (2017). Rethinking education in Nigeria: The challenges of 21st century learning society. *International Journal of Development Strategies in Humanities, Management and Social Sciences, 7*(2), 70–80.

Adhikari, S. P. (2021). Revealing the story of an individual through narrative inquiry: A methodological review. *Interdisciplinary Research in Education, 6*(1), 71-80.

Adiela, O. N. P., & Ubani, S. N. (2022). Challenges of guidance and counselling services during and after COVID-19 pandemic in Nigeria. *Journal of Education and Society, 12*(2), 2493–2500.

Ajogbeje, O. J., & Alonge, M. F. (2012). Effect of feedback and remediation on students' achievement in junior secondary school mathematics. *International Education Studies, 5*(5), 153–162.

Alabi, J. A. (2023). Influence of family background on academic performance of senior secondary school history students in Ilorin metropolis, Kwara State. *Unilorin Journal of Lifelong Education, 2*, 92–101.

Ayoade, A. H. (2020). The concept of rote learning and its applications in the teaching and learning of Qurʾān and Sunnah. *Al-Burhān: Journal of Qurʾān and Sunnah Studies, 4*(2), 53–62. https://doi.org/10.31436/alburhn.v4i2.192

Bahago, S. B., Gotip, N. W., & Lawrence, L. B. (2022). In Nigeria, professional development for teachers and counsellors is a must for quality education. *Journal of Educational Studies, Trends and Practice, 23*(8), 239–248.

Barde, L. Y., Ahmed, A. A., Mohammed, S., Bizi, M. G., Ibrahim, N., & Uzoma, G. I. (2021). Analysis of large class-size and its effects on teaching and learning process among secondary school students in Potiskum local government area. *GSC Advanced Research and Reviews, 8*(1), 45–52.

Best, J. R., Miller, P. H., & Naglieri, J. A. (2011). Relations between executive function and academic achievement from ages 5 to 17 in a large, representative national sample. *Learning and Individual Differences, 21*(4), 327–336. https://doi.org/10.1016/j.lindif.2011.01.007

Caine, R. N. (2009). *12 brain/mind learning principles in action: Developing executive functions of the human brain.* Corwin Press.

Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354–380. https://doi.org/10.1037/0033-2909.132.3.354

Diekelmann, S., & Born, J. (2010). The memory function of sleep. *Nature Reviews Neuroscience, 11*(2), 114–126. https://doi.org/10.1038/nrn2762

Dignath, C., & Büttner, G. (2018). Teachers' direct and indirect promotion of self-regulated learning in primary and secondary school mathematics classes—Insights from video-based classroom observations and teacher interviews. *Metacognition and Learning, 13*(2), 127–157. https://doi.org/10.1007/s11409-018-9181-x

Dweck, C. S. (2006). *Mindset: The new psychology of success.* Random House.

ElAdl, A. M., & Saad, M. A. E. (2019). Effect of a brain-based learning program on working memory and academic motivation among tenth grade Omanis students. *Online Submission, 8*(1), 42–50.

Federal Ministry of Education. (2020). *National policy on education* (6th ed.). NERDC Press.

Federal Republic of Nigeria. (2013). *National policy on education* (6th ed.). NERDC Press.

Hodges, J. A. (2013). The impact of brain-based strategies: One school's perspective (Doctoral dissertation, Walden University).

Ibrahim, Z. L., Fasasi, L., & Tolefe, D. P. (2024). The imperative of guidance and counselling in Nigerian secondary schools: The challenges and implications. *Rima International Journal of Education, 3*(1), 181–192.

Ifejiofor, A. P. (2023). Effect of counseling services on career choice of secondary school students in Anambra State, Nigeria. *International Journal of Education, Training and Learning, 7*(1), 1–6. https://doi.org/10.33094/ijetl.v7i1.1152

Immordino-Yang, M. H. (2015). *Emotions, learning, and the brain: Exploring the educational implications of affective neuroscience.* W. W. Norton & Company.

Jensen, E. (2020). *Brain-based learning: Teaching with the brain in mind* (3rd ed.). Corwin Press.

Karpicke, J. D., Butler, A. C., & Roediger, H. L. (2009). Metacognitive strategies in student learning: Do students practice retrieval when they study on their own? *Memory, 17*(4), 471–479. https://doi.org/10.1080/09658210802647009

Lusiana, R., & Andari, T. (2020). Brain-based learning to improve students' higher order thinking skills. *Journal of Physics: Conference Series, 1613*(1), 012004. IOP Publishing.

Muhammad, R. B., Hassan, M., Sulaiman, H., & Rilwanu, A. (2022). Influence of teachers' attitude and motivation on students' academic achievement in social studies in college of education in North-East, Nigeria. *Journal of Science Technology and Education, 10*(4), 280–287.

Nassar, E. G. A. (2019). The effects of brain-based learning approach on study habits and test anxiety among first-year preparatory school students with learning disabilities. *Psycho-Educational Research Reviews, 8*(1), 70–75.

Obidoa, M. A., Eskay, M., & Onwubolu, C. O. (2013). Remedial help in inclusive classrooms: Gender differences in the enhancement of mathematics achievement of students through PAL (Peer-Assisted Learning). *US-China Education Review A, 3*(3), 172–180.

Obineme, P. O. (2020). Impact of teacher professional development on teaching and learning in junior secondary schools in Anambra State. *Unizik Journal of Educational Management and Policy, 4*(1), 51–61.

Ofodile, M. C., Akintayo, S. O., Akinyele, O. A., Ojo, A. O. (2025). Family environment and inconsistent parenting styles on adolescents' self-esteem among model school students of Federal Tertiary Institutions in Ogun State, Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS), 9*(08), 622-638. https://doi.org/https://dx.doi.org/10.47772/IJRISS.2025.908000049

Ohanyere, C. C., Rakiya, M. A., & Ohanyere, L. O. (2024). The influence of study habits on academic achievement: Insights from Federal Government Girls' College Calabar, Nigeria. *Journal of Environmental and Tourism Education, 7*(3), 214–234.

Ojetunde, S. A., & Ayodabo, O. (2024). Causes of and remedies to poor academic performance and character decline in public secondary schools in Nigeria. *International Journal of Educational Learning and ICT, 3*(1), 68–77.

Okpara, G. C., & Ezeador, C. N. (2024). Philosophy of teaching: Exploring various teaching methods for improved education in Nigeria. *Nnadiebube Journal of Philosophy, 7*(3), 15–24.

Okwara, E. C. (2023). A review of the implications of brain drain on Nigeria's health and educational systems. *Mediterranean Journal of Social Sciences, 14*(5), 8–15.

Olaifa, A. S., Ciroma, U. A., Olaifa, E. O., Onikoyi, O. A., & Shittu, A. A. (2025). Teachers' professional development and students' academic achievement in public senior secondary school in Niger State, Nigeria. *International Journal of Universal Education, 3*(1), 1–10. https://doi.org/10.33084/ijue.v3i1.9576

Omoladun, O. A., Tosho, A., Suleiman, Y., & Olanrewaju, M. K. (2019). Comparative analysis of students' achievement in senior school certificate further mathematics examinations in Kwara State, Nigeria (2007–2016): Implication for stakeholders in education. *Journal of Education and Learning (EduLearn), 13*(3), 341–348.

Omoladun, O. A., Tosho, A., Suleiman, Y., Olanrewaju, M. K. (2019). Comparative analysis of students' achievement in senior school certificate further mathematics examinations in Kwara State, Nigeria (2007-2016): Implication for stakeholders in education. *Journal of Education and Learning (EduLearn), 13*(3), 341-348. https://doi.org/10.11591/edulearn.v13i3.12874

Ozonuwe, O. S., Ohwofasa, F., & Ogungbade, A. A. (2025). Influence of peer pressure and school environment on academic performance of secondary school students in Ijebu East Local Government Area, Ogun State, Nigeria. *Asian Journal of Education and Social Studies, 51*(6), 1128–1140. https://doi.org/10.9734/ajess/2025/v51i62063

Parks, P. (2023). Story circles: A new method of narrative research. *American Journal of Qualitative Research, 7*(1), 58-72 https://doi.org/10.29333/ajqr/12844

Roediger, H. L., & Butler, A. C. (2011). The critical role of retrieval practice in long-term retention. *Trends in Cognitive Sciences, 15*(1), 20–27. https://doi.org/10.1016/j.tics.2010.09.003

Sousa, D. A. (2023). *Engaging the rewired brain.* Corwin Press.

Suleiman, Y., & Hammed, A. (2019). Perceived causes of students' failure in mathematics in Kwara State junior secondary schools: Implication for educational managers. *International Journal of Educational Studies in Mathematics, 6*(1), 19-33

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development, 88*(4), 1156–1171. https://doi.org/10.1111/cdev.12864

Tokuhama-Espinosa, T. (2019). *Five pillars of the mind: Redesigning education to suit the brain.* W. W. Norton & Company.

Udokang, A. E., & Odeyemi, J. B. (2020). Empirical study of the effect of type of family and extra lesson on students' academic performance: A case study of some selected schools in Kwara State, Nigeria. *New Trends and Issues Proceedings on Humanities and Social Sciences, 7*(3), 94–103.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2