JASAB Journal of Applied Science, Arts and Business

Published by Christian Service University, Kumasi (Ghana)

Volume 1 (1) 71-82, May 2025 | ISSN: 3093-4540 (Online); 3093-4559 (Print)
The article is published with Open Access at: https://jasab.csuc.edu.gh/index.php/jasab/index.
DOI: https://doi.org/10.63882/7p57hw74

REVOLUTIONIZING EDUCATIONAL PEDAGOGY IN AFRICA FOR SUSTAINABLE DEVELOPMENT

Samuel K. Afrane[1] (PhD) & Isaac Boaheng[2] (PhD)

[1] Vice Chancelor, Christian Service University, Ghana

[2] Department of Theology, Christian Service University Ghana; Research Fellow, University of the Free State, South Africa

ABSTRACT

Revolutionizing educational pedagogy in Africa is crucial for sustainable development, as the current system seems to have failed to produce graduates equipped with critical thinking and problem-solving skills. Despite a rise in primary school completion rates from 46% in 1970 to 68% in 2010, Africa continues to struggle with underdevelopment. This situation underscores not only the limitations of traditional pedagogical models but also a pressing need to investigate and implement pedagogical reforms that enhance critical thinking and problem-solving skills to bridge the gap between education and sustainable development in Africa. This study responds to ~~this~~ the problem by critiquing the prevailing teaching and assessment methods. Using a literature review methodology, the research examines statistical and qualitative data to highlight the need for educational reforms that foster analytical skills, creativity, and adaptability. It argues that by transforming pedagogical practices and reshaping mind-sets, Africa can produce graduates capable of addressing real-world challenges and driving socio-economic progress. Through ~~analyses~~ analysis of relevant data on the subject matter and recommendations made the authors envisage a pedagogical revolution—a fundamental transformation in the way education is delivered and assessed in Africa. This revolution aims to move away from traditional, rote-based teaching methods and instead promote critical-thinking, creativity, problem-solving, and adaptability. The study advocates policies that integrate critical-thinking into curricula, ensuring that education becomes a catalyst for sustainable development rather than a mere credentialing system.

Keywords: *Pedagogy, Critical Thinking, Educational Reform, Sustainable Development*

Publication History
Date received: 28-02-2025
Date accepted: 06-04-2025
Date published: 13-05-2025

Correspondence
Isaac Boaheng
revisaacboaheng@gmail.com

1.0 INTRODUCTION

Over the past fifty years, education in Sub-Saharan Africa has experienced significant growth, marked by noteworthy increases in enrolment and completion rates across various educational levels. According to Evans and Acosta (2020), between 1970 and 2010, the primary school completion rate increased notably, rising from 46% to 68% of children across the region. This increase represents millions of children gaining access to basic education, a critical step towards literacy and lifelong learning. Similarly, the percentage of students finishing lower secondary school nearly doubled during this period, climbing from 22% to 40% (Acosta, 2020, :2). Such advancements indicate not only improved access to education but also greater efforts to retain students in school longer; thus, enhancing their educational attainment. These improvements reflect substantial progress in educational access and participation throughout the region.

However, despite these advancements in access to education, teaching methods and research practices in the region have failed to foster cognitive skills required to produce innovative, original thinking and effective problem-solvers. This disconnect highlights a fundamental issue within the region's educational systems: the lack of practices that promote critical and independent thinking. Empirical evidence underscores the seriousness of this problem. For instance, findings from the Progress in International Reading Literacy Studies (PIRLS) show that South African students' cognitive development is at an elementary stage, with Grade 4 learners ranking the lowest among 50 international education systems (Howie et al., 2017). Similarly, the Trends in International Mathematics and Science Study (TIMSS) reports that South African students were the lowest performers in science and ranked second to last in Mathematics among 39 participating countries (Reddy et al., 2016). This outcome is particularly striking for a country often regarded as one of Africa's leaders in education and noted globally for certain academic achievements (North et al., 2020). These findings not only underscore the challenges facing the broader Sub-Saharan region but also suggests that other countries, already known for weaker educational systems, are likely to face even more significant hurdles in fostering critical thinking and practical problem-solving skills.

Research has established a positive correlation between the efficiency of education systems and academic research on one hand, and socio-economic development on the other. This relationship underscores the critical role that robust educational practices and high-quality research play in fostering economic growth, reducing poverty, and enhancing overall societal well-being. As Africa seeks to experience sustainable development, there is an urgent need for the continent to prioritize improvements in educational quality and research methodologies. This includes adopting innovative teaching practices that foster critical thinking and creativity, refining examination modes to assess deeper understanding rather than rote memorization, and promoting research that addresses local challenges and informs policy decisions.

This research was, therefore, conducted to critique the current teaching methods, examination modes, and research practices in Sub-Saharan Africa. The authors contend that Africa can more effectively tackle its existential challenges and create a strong learning framework, tailored to societal needs through critical analysis and enhancement of educational and research practices. Therefore, the paper also aims to propose improvements that can effectively address the continent's pressing existential challenges.

The paper employed a literature research approach, wherein data were collected from secondary sources such as academic journals, books, government reports, and relevant publications that discuss educational practices, teaching methods, examination systems, and research methodologies in Sub-Saharan Africa. This comprehensive review of existing literature provides a solid foundation for analyzing the current state of education in the region and for formulating recommendations for improvement.

2.0 PEDAGOGICAL TRADITIONS

Teaching is a fundamental aspect of human culture and experience, deeply rooted in the transmission of knowledge, values, and skills from one generation to the next (Folashade 2023). This process is essential for preserving cultural heritage, promoting innovation, and ensuring the continuity of societal development. Throughout history, teaching has taken various forms, from informal storytelling and apprenticeship in ancient societies to structured classroom instruction in modern education systems. Among others, education aims at developing cognitive skills and raising problem-solvers to address the needs of the society. Two key aspects of education—namely, teaching and learning—are involved.

Some instructional approaches can enhance intelligent learning by fostering engagement and critical analysis, while others may impede these processes. To illustrate this point, Nakate et al. (2023) conducted a comprehensive study that investigated the impact of different teaching methods on the development of critical thinking skills among nursing trainees in Uganda. Their research aimed to identify which instructional techniques were most effective in promoting critical thinking and how these methods influenced the students' overall learning experiences. After evaluating their initial critical thinking abilities, students were randomly assigned to one of two clinical teaching methods for a 16-week period: post-conference and nurse-led clinical teaching. The results indicated a significant improvement in critical thinking skills across both teaching modalities, with scores reaching up to 62% for the post-conference method and 80% for the nurse-led clinical teaching rounds. Both strategies encouraged dialogue, which contributed to the enhancement of critical thinking skills. However, nurse-led teaching rounds are particularly significant for clinical placements, as they foster increased student participation and discussions regarding patient care, likely leading to the more substantial improvement in critical thinking abilities observed among students in this approach (Nakate et al., 2023).

While teaching strategies can indeed foster significant improvements in students' cognitive development and critical thinking skills, this aspect of education has often been neglected in sub-Saharan Africa. In many educational institutions throughout the region, the traditional, teacher-centered approach remains the prevalent model. This method positions the teacher as the primary source of knowledge and authority, relegating students to passive recipients of information (Folashade, 2023). Such an approach focuses heavily on rote learning and the memorization of facts, which limits the development of higher-order thinking skills. Consequently, students often lack the ability to analyze, question, and solve problems—skills that are essential for navigating complex real-world situations. This deficiency highlights a critical gap in the region’s educational framework and underscores the importance of adopting more interactive and student-centered instructional strategies that encourage engagement, dialogue, and critical analysis.

Some studies about the situation can be noted and outlined. In the Western Cape region of South Africa, a study conducted by Green and Collett (2021) examined 32 principals, deputies, and department heads from elementary, high, and special schools across diverse socioeconomic backgrounds. Among the teaching methods identified as effective for promoting intelligent learning, group work was highlighted by 53% of participants. While group work has the potential to foster critical thinking if structured properly with dialogic inquiry, the study found that many teachers were unaware of how to design such group activities for meaningful discussions.

Additionally, Soforon et al. (2024) emphasized that teaching and learning in sub-Saharan Africa are predominantly characterized by teacher-centered approaches rather than student-centered pedagogies. This echoes the observations of Stephan (2014, p. 338), who noted, “...teachers are seen to be the authors of knowledge, skills, and wisdom regarding the teaching and learning aspects, where they are engaged directly in lecturing, solving every task for the students, and using step-by-step methods (procedures). This corresponds to the notion that teachers in this situation are the commanders-in-chief of learning where they control every aspect of the teaching and learning.” Supporting this perspective, as part of a comprehensive study, the scholars investigated six

Mathematics teachers in two schools in South Sudan to explore how their practices aligned with the promotion of critical thinking. The findings revealed that all six teachers initiated lessons by standing in front of the class and instructing on topics like algebraic expressions straight from the textbook. In each session, students replicated what their teachers wrote and solved on the board, following a strict, teacher-dominated approach. The classrooms were set up with students seated in rows, backs to each other, which further limited opportunities for dialogue and cognitive engagement. This highlights that the physical and positional orientation of teachers and students significantly influences the learning environment, often at the expense of fostering critical thinking and active learning.

Another group of studies (e.g., Wekwete & Higgs, 2024), indicates that teaching methods focused on following a rigid syllabus with laborious content present a challenge to intelligent learning. This is commonly referred to as cognitive load: too much is expected to be done at once, making it difficult for students to process everything critically. In their qualitative study of obstacles to critical thinking among secondary school learners in Masvingo, Zimbabwe, Wekwete and Higgs (2024) discovered that teaching and learning aligned with the syllabus and national curriculum hindered students' ability to develop critical thinking skills. For example, participants largely agreed that the International General Certificate of Secondary Education (IGCSE) and Zimbabwe School Examinations Council (ZIMSEC) history curricula negatively impacted students' acquisition of critical thinking skills in connection with Form 3 history instruction. One teacher participant noted: "The syllabus actually affects the way we teach. Sometimes they [learners] may not fully understand certain topics that are listed because the teachers intend to cover a lot of topics that are required to be finished by the syllabus." This approach does not consider how much information students can internalize at any given time. This was echoed by another teacher who said: "Perhaps too many instructions at a time. Not a step-by-step approach." Recognizing how much young learners in the foundational phase can process at any given moment is important. Similar results were obtained from a study of the Research Ethics Education Program at Mbarara University of Science and Technology in southwestern Uganda (Kiwanuka et al., 2024). The majority of survey participants believed that the curriculum was too demanding and that teachers' classroom activities and teaching strategies did not support the development of critical thinking due to the need to complete the syllabus on time.

3.1 LIMITATIONS OF TRADITIONAL EDUCATION MODELS

While traditional teaching approaches have helped establish basic literacy and foundational education for many children across the continent, they present significant limitations that can impact students' learning experiences, creativity, innovation, and overall development.

A primary issue with traditional teaching methods is that knowledge is not self-discovered but delivered in a deductive manner. This method involves the teacher presenting information, leaving students with little opportunity to explore, question or find answers independently. This approach can be limiting, as it emphasizes providing conclusions rather than encouraging students to reach their own conclusions through observation and experimentation.

Another significant drawback is that this teaching style tends to be uni-directional in terms of knowledge sharing. The flow of information is mostly one-way, with teachers lecturing and students passively listening. The learning environment often stifles curiosity and discourages students from challenging the material or seeking clarification when needed. Thus, it becomes very difficult for learners to be active participants in their own learning. This limitation is noticed by Dewey (cited in Wills and Lakec, 2020; 67) who states that, “there is no defect in traditional education greater than its failure to secure the active co-operation of the pupil in construction of the purposes involved in his studying.” Consequently, this approach makes the learning environment more of receiving information than processing or discussing it. Thus, the conventional approach limits the chances for students to develop their questioning skills and explore deeper into the subjects they are studying.

Moreover, the lack of emphasis on critical thinking is a major limitation of traditional teaching model. This pedagogical approach, with its emphasis on memorization through repetition fails to equip learners with practical, creative, and productive skills necessary for addressing real-world problems in the society. As a result, many students graduate from African higher education institutions and struggle with applying knowledge in new or complex situations.

Furthermore, the traditional educational model can inadvertently contribute to a decline in further reading and independent research. When students are presented with all the essential information during lectures or through prescribed textbooks, they may begin to perceive learning as a passive activity—something that happens only within the confines of the classroom. As a result, they may lack the curiosity or initiative to explore topics beyond what is explicitly required. This not only discourages intellectual exploration but also undermines the development of critical lifelong learning habits, such as self-directed inquiry, problem-solving, and reflective thinking. Without the motivation to dig deeper, students miss out on the opportunity to form personal connections with the material, which can hinder both retention and deeper understanding over time.

In addition, traditional assessment methods—particularly those focused on standardized testing and rote memorization—tend to suppress innovation in teaching. Teachers often feel pressured to "teach to the test," narrowing their instructional approach to what is most likely to appear on assessments. This constraint reduces the incentive to employ more dynamic, student-centered pedagogies such as project-based learning, open-ended discussions, experiential activities, or the integration of technology in meaningful ways. Consequently, the curriculum becomes overly standardized and rigid, offering limited opportunities for creativity or adaptation to different learning styles. This environment can stifle both teacher enthusiasm and student engagement, reinforcing a cycle where learners are trained to absorb and reproduce information rather than question, interpret, or apply it in novel contexts. Over time, this leads to a diminished capacity for critical thinking and innovation—skills that are increasingly essential in a rapidly changing world.

The problem is compounded by the mode of assessment prevalent in the teacher-centered approach to education. In educational policy discussions, it is widely acknowledged that "high stakes" public examinations significantly influence teaching practices through a powerful "backwash" effect. Teachers often prioritize preparing students for these exams, seen as the pinnacle of their current educational stage. Success in such examinations is essential, as it serves as the gateway through the competitive selection processes for further education (Wekwete & Higgs, 2024). According to Sazant (2014), many teachers struggle with limited time as they attempt to cover every component of the required curriculum content.

The core issue, however, is not simply completing the syllabus but ensuring that students are familiar with every aspect of it and can tackle any question presented in the examinations. This approach results in teaching methods that do not prioritize the development of critical thinking skills. In the traditional system of teaching and learning, assessments are often designed to measure a student's ability to memorize information and recall it during examinations (Safo-Kantanka, 2021~~,~~: 449). This focus on rote memorization means that students spend more time preparing for tests by cramming facts rather than engaging with the material in a meaningful way (Safo-Kantanka, 2021~~,~~: 449). Teachers rely on simplified assessment techniques such as drills and reviewing past examination questions (Kadir & Satriawati, 2017). Omidvar and Ravindranath (2017) highlight that, aware of this system, students often memorize information specifically for tests, only to forget it shortly after. Consequently, the assessments do not accurately reflect a student's understanding or ability to apply knowledge in real-world situations. The situation has led to a phenomenon in Ghana and other parts of Africa often described as “chew, pour, pass, and forget.” This expression reflects an education system focused more on short-term memorization than on meaningful, lasting learning.

The Zimbabwean curriculum review (2015) highlighted a significant deficiency in learners' critical thinking abilities, evidenced by the low Ordinary Level pass rate of 26.35% in 2017, which

further declined to 17.91% in 2019 (Zimbabwe Ministry of Primary and Secondary Education, 2015). This situation has led Wekwete and Higgs (2024) to assert that the Zimbabwean education system is struggling to cultivate critical thinkers. Their study on the barriers to critical thinking in Zimbabwean secondary schools supported this claim, revealing that the pressure of public examinations negatively impacts students' ability to develop these skills. One teacher expressed this concern, stating: "There is no way you can run away from emphasizing the importance of examinations, because, at the end of the course, it is the barometer that measures their performance, so we teach for [the] examinations. Students fear to fail [the] examination and sometimes they do some cramming." Given this understanding of education, educators often feel pressured to teach to the test, which restricts their ability to explore more dynamic and interactive forms of instruction. This focus on standardized testing creates an environment where the curriculum becomes narrowly defined, leaving little room for creativity and innovation. As a result, both teachers and students miss out on opportunities for deeper engagement with the material. This further entrenches the status quo, perpetuating a cycle where students are not encouraged to question, analyze, or creatively engage with the material.

Wekwete and Higgs (2024) carried out a comprehensive study analyzing the types of questions typically found in school examinations, and their findings raised some important concerns. Their research showed that most of the questions used in these assessments were low-level in nature, focusing largely on simple recall of facts rather than encouraging students to think critically, analyze complex ideas, or synthesize information from various sources. As a result, students' responses to these questions tended to be brief and surface-level—just enough to provide the right answer, but lacking in depth, reflection, or original thought. What this reveals is a troubling pattern: the way exam questions are designed, along with the kind of questioning strategies teachers use in class, play a major role in shaping how students think—or do not think (Wekwete & Higgs, 2024). When the system continually emphasizes rote learning and memorization, it naturally steers both teachers and students away from deeper cognitive engagement. The opportunity to develop essential skills like critical thinking, reasoning, or the ability to construct well-supported arguments gets pushed aside in favor of quick recall.

Unquestionably, this approach to assessment promotes a very narrow and, arguably, outdated view of academic success. Under this model, students are rewarded not for their ability to think independently or solve real-world problems, but for how well they can regurgitate information they have been taught. This kind of reward system encourages short-term academic goals—such as cramming for exams—over long-term learning and intellectual growth. In many cases, students may excel on paper, graduating with top honors, yet still struggle when faced with practical challenges in the workplace or society at large. They may lack the analytical thinking, adaptability, and problem-solving skills that are essential in today's complex and ever-evolving world. Ultimately, the overreliance on low-level assessment not only limits students' potential but also does a disservice to the societies they are expected to contribute to after their education.

Large enrollment has significantly impacted the quality of education. With increasing class sizes, teachers face the challenge of providing individualized attention, which hampers their ability to engage students in deeper discussions or interactive learning experiences during examinations. Consequently, most educators rely on Multiple Choice Questions (MCQs), as they are more efficient for evaluating large groups and require less time for grading. However, this reliance comes at a cost; MCQs emphasize rote memorization and recall rather than encouraging critical thinking and practical skills. As a result, students often find themselves simply memorizing facts to pass exams without truly engaging with the material to gain in depth-understanding.

The survey of literature reveals several types of multiple-choice questions (MCQs) used in assessments. First, recall or factual MCQs test students' ability to remember basic facts without requiring deeper understanding, such as recalling the capital of a country. Second, comprehensive or interpretive MCQs assess students' grasp of concepts and their ability to interpret information, like

identifying the main theme of a play. Third, application MCQs evaluate students' ability to apply knowledge in practical scenarios, such as recommending dietary changes for a health condition. Fourth, analysis MCQs challenge students to break down information and examine relationships between concepts, for example, identifying factors contributing to climate change. Fifth, synthesis MCQs require students to combine information and generate new ideas or solutions, such as devising strategies for sustainable development. Sixth, evaluation MCQs test students' ability to assess the value or reliability of information, like determining the credibility of a research study. Seventh, comparative MCQs ask students to compare and contrast different items or concepts, such as analyzing economic policies of different countries. Eighth, problem-solving MCQs present a challenge and require students to apply their knowledge to find a solution, such as developing strategies to improve declining sales. Ninth, scenario or case-based MCQs provide real-world situations where students must apply their knowledge to make informed decisions, like determining the best course of action for a patient. Despite the range of MCQ types, the dominant assessment method in many African schools primarily focuses on recall and factual MCQs, reflecting traditional teaching practices.

4.0 DEFINING CHARACTERISTICS OF MOST CONTEMPORARY AFRICAN GRADUATES

4.1. Lack of Creativity and Innovation

One of the most significant impacts of the traditional teaching method (TTM) on African students is the stifling of creativity and innovation (Folashade, 2023; Boaheng, 2023; Acosta, 2020). The heavy reliance on rote learning, memorization, and repetition restricts students' ability to think beyond the confines of the material presented. This environment limits opportunities for students to experiment with new ideas, discouraging the generation of creative solutions. Without a platform to develop their creative potential, students are left with skills that are adequate for routine tasks but fall short when it comes to innovation.

4.2 Deficit in Original and Independent Thinking

Another major drawback of the TTM is its failure to cultivate both original and independent thinking among learners (Acosta, 2020; Boaheng, 2023). The emphasis on rote learning and information transfer from teacher to student, discourages inquiry-based learning and creative exploration. As a result, students often reproduce information accurately but struggle to form unique ideas or challenge existing perspectives.

This system also limits students' ability to think for themselves (Howie et al., 2017; Boaheng, 2023). The passive learning environment, where teachers are the sole authorities, prevents learners from engaging deeply with content, analyzing issues critically, or synthesizing information independently. Over time, this leads to overdependence on instructors and weakens students' confidence to solve problems on their own. For sustainable development to take root in Africa, education must empower students to think originally and act independently.

4.3 Lack of Boldness and Initiative

TTM often produces students who are not proactive and lack the boldness to engage actively in learning (Howie et al., 2017; Boaheng, 2023). The structure of traditional education encourages passive reception of knowledge, where students wait for directions rather than taking the initiative to explore topics or problem-solve independently (Acosta, 2020; Boaheng, 2023). This results in learners who are hesitant to confront issues or take responsibility for their learning. The constant reliance on teacher instructions limits the development of leadership and initiative, skills that are essential for navigating complex challenges.

4.4 Low Confidence Levels

The lack of student-centered learning in TTM also impacts the confidence levels of African students (Folashade, 2023; Boaheng, 2023). The focus on teacher-led instruction, means, there are fewer opportunities for students to express their ideas, lead discussions, or participate in debates. This leads to a lack of confidence in their abilities, particularly when it comes to presenting or defending their viewpoints. In a system where questioning is often discouraged, students may feel insecure about sharing their thoughts, reinforcing a fear of making mistakes.

4.5 Weak Leadership Skills

TTM's impact extends to the development of leadership skills (Folashade, 2023; Boaheng, 2023). Leadership requires the ability to think independently, make decisions, and inspire others (Boaheng 2023; Howie et al., 2017). However, the traditional model, with its emphasis on passive learning and strict adherence to teacher-led instruction, does not nurture these qualities. Students often lack opportunities to practice leading group activities, collaborating effectively, or making decisions independently. This hinders their growth into strong leaders capable of influencing change in their communities and professional fields.

4.6 Aversion to Unconventional Solutions

Students educated under TTM are often reluctant to explore unconventional solutions due to the rigid nature of the teaching process (Boaheng, 2023; Folashade, 2023). The expectation is that students adhere to a specific set of solutions or approaches to problems, which discourages experimentation and risk-taking. This lack of flexibility stunts the ability to think outside the box, making students less inclined to propose creative alternatives or challenge traditional methods. The result is a workforce that tends to follow established procedures without seeking new and improved ways of doing things.

4.7 Resistance to Challenging Established Systems

A key limitation of TTM is that it fosters an environment where students are less likely to challenge established systems or structures (Boaheng, 2023). This results in graduates who may excel at following existing rules but lack the courage to push for transformative changes or introduce ground-breaking ideas. The emphasis on adherence to authority and repetition can create a mindset that prioritizes compliance over critical evaluation, leaving little room for the questioning and innovation needed for societal advancement.

4.8 Dependence on Foreign Ideas

Students who are products of TTM often rely heavily on foreign concepts rather than creating original solutions, tailored to their unique contexts (Boaheng, 2023; cf. Bonney, 2023). The lack of encouragement for independent thought and exploration means that students are more comfortable with mimicking successful models from other countries than developing their approaches. This dependence on external ideas stifles local innovation and reduces the potential for unique contributions that reflect the needs and aspirations of African societies.

5.0 A PROPOSAL FOR CHANGE

Going forward, there is the need to make pragmatic changes to promote the quality of Africa's education system. The following suggestion may be considered in this light.

5.1 Adopting problem-solving approach to teaching and learning

The adoption of Problem-Based Learning (PBL) is proposed as a transformative solution to addressing the educational and research challenges identified in Africa (Bonney, 2023). PBL is a student-centered pedagogical approach in which students learn through solving real-world problems. This approach

encourages students to take an active role in their learning, moving beyond passive reception of knowledge to actively applying their learning to solve practical problems. This motivation stems from the challenge of finding solutions, not merely from following instructions. This method allows students to think independently and creatively, thus cultivating skills that will be useful both within and outside the classroom (Boaheng, 2023; cf. Ameade & Amalba, 2015; Bonney, 2023). As human beings are inherently creative, their learning process should actively draw out this creativity, enabling them to innovate and generate novel solutions to societal problems. This shift from rote learning to a more dynamic, solution-oriented approach is critical for encouraging the development of critical thinking skills in students—skills such as problem-solving, research, questioning, reasoning, creativity, and innovation. Knowledge becomes more than theoretical; it transforms into practical tools for real-life applications. Boaheng (2023; cf. Ameade & Amalba, 2015) observes that education's ultimate goal is to develop critical thinking, arguing that a person without critical sense is uneducated. This aligns with the view that skill development is integral to education and must not be viewed in isolation.

The implementation of the PBL model in African schools may be met with some initial challenges, particularly since it requires a shift in teaching methodology. Teachers, often accustomed to traditional rote learning methods, must embrace creativity and innovation in asking probing questions that stimulate deeper thinking. This model encourages students to think beyond mere sensory knowledge, pushing them toward higher levels of intellectual reasoning (Boaheng, 2023; Ameade & Amalba, 2015). Teachers must ask questions that challenge students to analyze societal challenges and contemplate potential solutions, thus fostering deeper understanding and critical analysis. By engaging students in this kind of thinking, they are better prepared to contribute to the development of their country.

Moreover, the benefits of this approach extend beyond individual student development. As students acquire critical thinking skills, they become more equipped to contribute meaningfully to national development. The development of problem-solving abilities in students, is essential for reducing unemployment rates and fostering economic growth. Graduates trained under the PBL model would not only be capable of securing employment but also of creating jobs for others, thus addressing the growing unemployment crisis. This can help reduce the phenomenon of "brain drain," where highly educated individuals leave the continent in search of better opportunities.

One notable example of the successful implementation of PBL in Ghana is the School of Medical and Health Sciences at the University for Development Studies (UDS) in Tamale, Ghana. In 2006, after nearly a decade of planning, UDS adopted the PBL approach in training medical doctors and other health professionals. This approach emphasizes equipping students with the necessary medical skills to meet the health needs of society. Beyond traditional classroom learning, UDS students are required to undertake annual community service, where they interact with various communities to identify local health needs. Their findings inform the curriculum, ensuring that the education provided is directly relevant to the challenges faced by local populations. This holistic approach has led to graduates who are not only academically competent but also more confident, skilled, and capable of addressing the specific health challenges of their communities. As noted by Ameade and Amalba (2015), these graduates tend to be more effective than their counterparts from universities that rely on traditional, lecture-based methods.

The success of the UDS model highlights the importance of practical, problem-based pedagogy and serves as an example for other institutions across Africa (Ameade & Amalba 2015). By incorporating community-based problem-solving into the curriculum, universities and schools across the continent can better align their educational programs with the real-world needs of African societies.

5.2 Cumulative and Practical-Oriented Assessment

As highlighted earlier, the prevalent method of teaching and learning in African schools is based on rote memorization, where students are primarily assessed on how well they can recall and reproduce

the information they have been taught. The shortcomings were also outlined. To address the shortcomings, there is a pressing need to change the current approach to student assessment. Nana Aba Appiah Amfo, the first female Vice-Chancellor of the University of Ghana, asserts that "We should be less focused on assessing students based on memory, and more on application" (cited in Bonney, 2023). Focusing more on application means challenging students to become "critical thinkers, technologically adept, humane, culturally sensitive and ready to provide leadership for the nation and continent" (Bonney, 2023). The same view was expressed by Adutwum (cited by Nartey, 2022) in his assertion that

> we have tamed the children, we just want them to write down what we tell them. On the day of exams, they should put down what we have told them and at the end of the day, we say you are the best student the country has ever known. That kind of education system will not transform Ghana.

To overcome these challenges, students must be able to think critically, innovate, and apply their knowledge to solve real-world problems, rather than simply memorizing information for exams.

The proposed solution lies in a more comprehensive and practical approach to assessment. This should include the practical application of knowledge gained, ensuring that each student's assessment reveals their full potential. Since real-life challenges demand practical skills for effective resolution, it is crucial that practical experience constitutes a significant portion of the grading system. As part of this transformation, students should be required to undertake compulsory industrial attachments during their secondary and tertiary education. These attachments would give students hands-on experience and make up a significant percentage of their overall grade.

Moreover, the traditional model of assessing students solely through end-of-year examinations is insufficient. It is unfair to base years of education on the outcome of a single examination, which could disadvantage students who are unable to attend classes due to unforeseen circumstances such as illness. Strengthening cumulative assessment methods, where continuous assessment throughout the academic year plays a larger role in the final grade, would alleviate this problem. This method ensures that students are evaluated based on their overall progress and understanding, rather than on a single test. The final examination should constitute a smaller percentage of the overall grade, allowing for a more holistic evaluation of a student's capabilities.

Beyond the immediate educational changes, universities have a pivotal role in spearheading the industrial revolution necessary for economic development in Ghana and Africa. To achieve this, universities should focus on providing skills training that equips graduates with practical knowledge to contribute meaningfully to the economy. The government must also offer greater support to those pursuing technical and vocational education at the tertiary level, which has historically been underfunded and undervalued. Additionally, special attention should be given to encouraging the participation of females in traditionally male-dominated technical and vocational fields, helping to bridge gender gaps and empowering women to contribute to the nation's growth.

6.0 CONCLUSION

In conclusion, revolutionizing educational pedagogy in Africa is imperative for promoting sustainable development. The current education system, while increasing access to learning, has largely failed to equip students with critical thinking and problem-solving skills necessary for real-world challenges. The reliance on traditional teaching methods and assessment approaches, particularly factual recall-based multiple-choice questions, limits students' ability to analyze, synthesize, and apply knowledge effectively. To bridge this gap, there is a need for pedagogical reforms that prioritize innovative, student-centered learning. Incorporating diverse types of assessments—such as application, analysis, and scenario-based MCQs—can enhance students' cognitive abilities and prepare them for practical problem-solving in various socio-economic contexts. Additionally, educators must adopt teaching strategies that encourage active engagement, creativity, and independent thinking rather than rote

memorization. Policy interventions should support curriculum development that integrates critical thinking across all levels of education, ensuring that students graduate with the skills needed to contribute meaningfully to national and continental development. By shifting educational priorities and embracing a holistic approach to learning, Africa can cultivate a generation of original thinkers, innovators, and leaders capable of driving sustainable progress. Without such reforms, the continent risks perpetuating an education system that falls short of addressing its developmental needs.

REFERENCES

Ameade, EPK and Amalba, A. 2015. "Attitude of medical students toward a mandatory pre-medical year in the University for Development Studies, Ghana." *Journal of Contemporary Medical Education*, 3(3): 114-119.

Boaheng, I. 2023. A Contextual Political Theology for the Ghanaian Society and its Implications for Human Flourishing. PhD Dissertation, University of Pretoria.

Evans, David K. and Amina Mendez Acosta, Education in Africa: What Are We Learning? Working Paper 542 August 2020. Center for Global Development, 2020.

Folashade, AJ. 2023. Exploring the Challenges and Possibilities of Using Learner-Centered Approach to Teach in Nigeria Public Secondary Schools. *African Perspectives of Research in Teaching & Learning (APORTAL)* Vol 7 (2), 213-232.

Green, L., & Collett, K. 2021. Teaching thinking in South African schools: Selected school leaders' perceptions. *South African Journal of Education*, 41(2).

Howie, S. J., Combrinck, C., Roux, K., Tshele, M., Mokoena, G., & McLeod Palane, N. (2017). *PIRLS Literacy 2016: Progress in international reading literacy study (PIRLS) 2016: South African children's reading literacy achievement*. Centre for Evaluation and Assessment (CEA).

Kadir, L., & Satriawati, G. 2017. The implementation of open-inquiry approach to improve students' learning activities, responses, and mathematical creative thinking skills. *Journal on Mathematics Education*, 8(1), 103-114.

Kiwanuka, G. N., Bajunirwe, F., Alele, P. E., Oloro, J., Mindra, A., Marshall, P., & Loue, S. 2024. Public health and research ethics education: the experience of developing a new cadre of bioethicists at a Ugandan institution. *BMC Medical Education*, 24(1).

Matafwali, B., & Serpell, R. 2014. Design and validation of assessment tests for young children in Zambia. *New directions for child and adolescent development*, (146), 77-96.

Nakate, M. G., Namukwaya, C., Mwizerwa, J., Namuguzi, M., Kyakuwaire, H., & Wankiiri, M. (2023). Comparing the effectiveness of nurse-led clinical teaching rounds and standard post-conferences in enhancing critical thinking skills among nursing students in Uganda. *East African Medical Journal*, 100 (11).

North, M. A., Hastie, W. W., & Hoyer, L. 2020. Out of Africa: The underrepresentation of African authors in high-impact geoscience literature. *Earth-Science Reviews*, 208.

Omidvar, R., & Ravindranath, B. K. 2017. Position of English in India: Three-way Categorization. Language in India, 17(5), 279–288.

Reddy, V., Visser, M., Winnaar, L., Arends, F., Juan, A. L., Prinsloo, C., & Isdale, K. 2016. TIMSS 2015: Highlights of mathematics and science achievement of grade 9 South African learners.

Safo-Kantanka, O. 2020. *Who owns the Land & Who rules the Land*. PRISEBS B Enterprise.

Sazant, C. 2014. Promoting student engagement through a critical thinking framework in the elementary classroom. Masters Dissertation, University of Toronto.

Serpell, R., & Simatende, B. 2016. Contextual responsiveness: An enduring challenge for educational assessment in Africa. *Journal of Intelligence*, 4(1), 3.

Soforon, O. G., Sikko, S. A., & Tesfamicael, S. A. 2024. Engaging primary mathematics teachers in two private schools in South Sudan: A case study on student-centred teaching in problem-solving and mathematical discourse. *Pythagoras*, 45(1), 1-17.

Stephan, M. 2014. Student-centered teaching in mathematics education. College of Education, Middle Secondary Department, The University of North Carolina at Charlotte, Charlotte, NC.

Wekwete, P., & Higgs, L. 2024. Obstacles to critical thinking: A qualitative study on secondary school learners in Masvingo, Zimbabwe. *South African Journal of Education*, 44(1), 1-11.

Zimbabwe Ministry of Primary and Secondary Education. 2015. Curriculum framework for primary and secondary education 2015-2022. Available at http://mopse.co.zw/sites/default/files/public/download s/Zim_Curriculum_Framework.pdf. Accessed 31 December 2023.

Wills, J., & Lake, R. W. 2020. Introduction: The power of pragmatism. In *The power of pragmatism* (pp. 3-52). Manchester University Press.

About the Authors

Prof. Samuel K. Afrane (PhD) is the Vice Chancellor of Christian Service University, Ghana. He is an Associate Professor in Planning and a former Provost of the College of Art and Social Sciences of Kwame Nkrumah University of Science and Technology. Prof. Afrane holds a Bachelor's degree in Development Planning (KNUST), a Master's in Economics in Social Planning (University of Wales, UK), and a PhD in Community and Regional Planning (University of British Columbia, Canada). He has extensive research, teaching, and consultancy experience across Africa and beyond, and has worked with major international agencies such as the World Bank, UNDP, and USAID. He has over 60 publications to his credit and serves on various national and international boards.

Isaac Boaheng (PhD) is a Senior Lecturer in Theology and Christian Ethics at the Christian Service University, Ghana. He is also a Research Fellow at the Department of Biblical and Religion Studies, University of the Free State, South Africa. Boaheng is an Ordained Minister of the Methodist Church Ghana serving the Nsima Circuit of the Kumasi Diocese.