

TEACHERS' PERCEPTION AND IMPLEMENTATION OF FUNCTIONAL PEDAGOGY FOR EFFECTIVE TEACHING OF HEALTH SCIENCE-RELATED SUBJECTS IN SENIOR SECONDARY SCHOOLS IN ABIA STATE, NIGERIA

ASSOC. PROF. IFEYINWA, F.OKORO

*Department of Curriculum and Educational Technology
Alvan Ikoku Federal University of Education, Owerri, Imo State
Phone Number-08160761542. Email: ifeyinwafelicity4@gmail.com
Ifeyinwa.okoro@alvanikoku.edu.ng*

Abstract:

This study examined teachers' perceptions and implementation of functional pedagogy for the effective teaching of health science-related subjects in senior secondary schools in Abia State, Nigeria. Grounded in constructivist learning theory, the research explored how teachers of Biology, Physical and Health Education, Agricultural Science, Home Economics, and Civic Education employ learner-centered, activity-based, and problem-solving instructional strategies to enhance students' practical understanding and skill development. A descriptive survey design was adopted, involving a stratified random sample of 300 teachers drawn from public and private schools across the three senatorial zones of Abia State. Data were collected using a validated instrument titled Functional Pedagogy and Teaching Effectiveness Questionnaire (FPTEQ) with a Cronbach Alpha reliability coefficient of 0.83. Descriptive and inferential statistics (mean, standard deviation, t-test, and ANOVA) were used for analysis. Findings revealed that while teachers hold positive perceptions of functional pedagogy, its classroom implementation remains moderate due to challenges such as inadequate instructional materials, large class sizes, and limited professional training. The study recommends continuous professional development programs, provision of adequate teaching resources, and curriculum reforms that promote experiential learning. The findings underscore the transformative role of functional pedagogy in enhancing health science education and advancing Nigeria's pursuit of skill-based, practical, and sustainable learning outcomes.

Keywords: *Teachers' Perception, Functional Pedagogy, Health Science-Related*

Introduction

Education remains one of the most powerful tools for national development, as it equips individuals with the knowledge, skills, and attitudes necessary to function productively in society. In contemporary times, there has been a growing recognition that education must transcend theoretical knowledge to include practical competencies that can solve real-life problems. This has given rise to the concept of functional pedagogy, which emphasizes teaching approaches that engage learners actively, stimulate critical thinking, and connect classroom learning to real-world contexts. Functional pedagogy aligns with the constructivist theory of learning, which posits that learners construct meaning through interaction, experience, and reflection. In the Nigerian context, where unemployment and skill deficits persist despite high literacy levels, the call for functional pedagogy has become more urgent than ever. The emphasis now is on producing graduates—not merely certificate holders—who can apply what they learn to address societal and professional challenges. Within the Nigerian Senior Secondary School Curriculum, health science-related subjects such as Biology, Physical and Health Education, Agricultural Science, Home Economics, and Civic Education play a pivotal role in promoting health literacy, hygiene, nutrition, and overall wellness. These subjects form the foundation for sustainable public health awareness, responsible citizenship, and healthy lifestyles among adolescents. However, their effectiveness largely depends on the pedagogical methods adopted by teachers. Functional pedagogy in health science-related subjects demands that teachers adopt activity-based, problem-solving, and participatory instructional strategies that enhance students' understanding of health issues and promote practical application. Unfortunately, in many Nigerian classrooms, the dominance of rote learning and teacher-centered instruction continues to undermine students' acquisition of practical and transferable skills. This reality raises questions about teachers' awareness, perception, and willingness to adopt functional pedagogical strategies that foster skill-based learning. Despite the government's efforts to promote functional education through initiatives such as the National Policy on Education (2013) and curriculum reforms spearheaded by the Nigerian Educational Research and Development Council (NERDC), the gap between policy and practice remains wide. Many teachers have not fully embraced the learner-centered orientation required by modern pedagogy. Factors such as limited access to instructional materials, inadequate training in active learning methodologies, overcrowded classrooms, and a rigid examination-oriented system continue to hinder pedagogical innovation. Consequently, while curriculum documents emphasize learning outcomes that include creativity, collaboration, and problem-solving, the actual classroom environment often encourages memorization and theoretical knowledge acquisition. This disconnect threatens the functionality of health science education and its potential to contribute to national health objectives. In Abia State, the situation reflects the broader challenges faced across the Nigerian education system. As an educationally vibrant state in the South-East geopolitical zone, Abia boasts a growing number of senior secondary schools, both public and private, with qualified teachers across disciplines. However, anecdotal evidence suggests that many teachers still rely heavily on traditional instructional methods, with limited integration of functional or experiential teaching approaches. Investigating teachers' perceptions and implementation of functional pedagogy is therefore essential to understanding how health science-related subjects are

being taught and what barriers exist in aligning classroom instruction with 21st-century learning expectations. The perspectives of teachers are particularly important because they serve as the critical link between curriculum intentions and learners' experiences.

Against this background, this study seeks to examine teachers' perception and implementation of functional pedagogy for effective teaching of health science-related subjects in senior secondary schools in Abia State. Specifically, the study will explore teachers' understanding of functional teaching approaches, the extent to which they implement such strategies, the challenges they face, and the possible measures that can enhance functional instructional practices. The findings of this study are expected to contribute to the ongoing discourse on pedagogical innovation and curriculum functionality in Nigeria. More importantly, it will provide empirical insights for policymakers, curriculum planners, and teacher education programs on how to strengthen the practical relevance of secondary education in promoting health awareness, life skills, and sustainable learning outcomes.

Literature Review

Functional pedagogy has emerged as a critical framework for bridging the gap between theoretical learning and practical application in 21st-century education. Rooted in constructivist learning theory, functional pedagogy emphasizes the active engagement of learners through participatory, experiential, and problem-solving approaches that promote lifelong learning (Bruner, 2019; Vygotsky, 1978). In the context of health science-related subjects, this pedagogical model equips learners with essential skills to address real-life challenges in hygiene, nutrition, and community health. Studies by Akinsola and Alaba (2021) and Ogunleye (2020) highlight that when teachers apply functional methods such as inquiry-based learning, laboratory experiments, and collaborative projects, students' understanding and retention of scientific concepts improve significantly. However, in Nigeria, traditional didactic methods still dominate, limiting the development of students' critical and creative thinking abilities (Odu and Adebayo, 2022). The effectiveness of functional pedagogy thus depends largely on teachers' perceptions, training, and willingness to adapt innovative teaching methods. Empirical research indicates that teachers' perceptions and attitudes toward learner-centered instruction significantly influence classroom implementation (Chukwu, 2022; Okafor & Eze, 2023). Many educators acknowledge the benefits of functional pedagogy in enhancing learner participation and skill acquisition, yet several studies have reported inconsistent adoption across secondary schools (Ezeani and Oladipo, 2021). Challenges such as large class sizes, limited instructional materials, and inadequate professional development impede the full integration of functional pedagogical approaches.

Therefore, according to Ike Nwosu (2020), the lack of continuous teacher training and mentorship programs hinders pedagogical innovation, especially in resource-constrained environments. Similarly, UNESCO (2023) underscores the need for retooling teachers with digital and experiential teaching competencies to align instructional practices with Sustainable Development Goal 4 (quality education). Therefore, understanding teachers' perceptions becomes essential for determining how effectively functional pedagogy principles are being implemented to improve educational outcomes in health-related

subjects. In addition, curriculum functionality in Nigeria's senior secondary education system has been questioned by scholars due to the disconnect between curriculum intentions and classroom realities. The National Policy on Education (2013) advocates for a functional curriculum capable of producing self-reliant individuals equipped with employable skills, yet evidence suggests persistent gaps between policy formulation and pedagogical execution (NERDC, 2020; Adebisi, 2022). Health science-related subjects such as Biology, Physical and Health Education, and Home Economics are designed to promote practical competencies that support community health and personal well-being. However, without adequate implementation of functional pedagogy, these objectives remain unattained. Studies by Nwachukwu and Umeh (2022) and Ezeanya (2021) found that teachers who employ project-based, participatory, and inquiry-driven methods significantly enhance students' health literacy and problem-solving capacity. Therefore, promoting functional pedagogy in health science education is not merely an instructional reform but a strategic step toward achieving educational relevance and national development goals.

Research Objectives

1. To assess teachers' perception of functional pedagogy in the teaching of health science-related subjects in senior secondary schools in Abia State.
2. To examine the extent of teachers' implementation of functional pedagogical strategies during classroom instruction in health science-related subjects.
3. To identify the major challenges teachers face in applying functional pedagogy in the teaching of health science-related subjects.
4. To determine possible strategies for enhancing teachers' effective use of functional pedagogy for skill-based learning in health science-related subjects.

Research Questions

1. What are the perceptions of senior secondary school teachers regarding functional pedagogy in the teaching of health science-related subjects in Abia State?
2. How do teachers implement functional pedagogical strategies during classroom instruction in health science-related subjects?
3. What challenges do teachers encounter in the application of functional pedagogy for effective teaching of health science-related subjects?
4. What strategies can be adopted to promote teachers' effective use of functional pedagogy for skill-based learning in health science-related subjects?

Null Hypotheses (H₀)

H₀₁: There is no significant difference in teachers' perception of functional pedagogy in the teaching of health science-related subjects based on school type (public or private).

H₀₂: There is no significant difference in teachers' perception and implementation of functional pedagogy in health science-related subjects based on their academic qualifications.

H₀₃: There is no significant difference in the implementation of functional pedagogical strategies among teachers of health science-related subjects based on their years of teaching experience.

Methodology

This study adopted the descriptive survey research design, which was deemed appropriate for obtaining factual information on teachers' perception and implementation of functional pedagogy in the teaching of health science-related subjects. The design enabled the researcher to collect data from a representative sample of respondents without manipulating any variables. The population of the study comprised all senior secondary school teachers in Abia State, Nigeria. A stratified random sampling technique was employed to ensure fair representation of teachers from public and private schools across the three senatorial zones of the state—Abia North, Abia Central, and Abia South. From this population, a sample of 300 teachers was selected to participate in the study. The stratification was based on factors such as school type, teachers' years of experience, and academic qualifications, as these variables were relevant to the research hypotheses. The main instrument for data collection was a structured questionnaire titled Functional Pedagogy and Teaching Effectiveness Questionnaire (FPTEQ), which consisted of 16 items distributed across four sections based on the study's research questions. The questionnaire items were structured on a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). The instrument was validated by three experts—two in Curriculum Studies and one in Educational Measurement and Evaluation—to ensure content and face validity. A pilot test conducted on a group of teachers outside the main sample yielded a Cronbach Alpha reliability coefficient of 0.83, indicating a high level of internal consistency. Data collected were analysed using descriptive statistics (mean and standard deviation) to answer the research questions, while inferential statistics such as the t-test and Analysis of Variance (ANOVA) were employed to test the null hypotheses at a 0.05 level of significance.

Result Analysis

Research Question 1: What are the perceptions of senior secondary school teachers regarding functional pedagogy in the teaching of health science-related subjects in Abia State?

Table 1. *The perceptions of senior secondary school teachers regarding functional pedagogy in the teaching of health science-related subjects in Abia State*

N300				
S/N	Statements	Mean	Std. Dev.	Decision
1	Functional pedagogy improves students' understanding of real-life health concepts.	2.53	1.050	Agreed
2	Learner-centered methods make health science teaching more effective.	2.55	1.046	Agreed
3	Functional pedagogy helps students develop practical health-related skills.	2.60	1.072	Agreed
4	I believe functional teaching approaches are more productive than lecture methods in health science classes.	2.53	1.055	Agreed
Sectional Mean		2.553	1.0542	

Source: Survey field work 2025

Table 1 reveals that senior secondary school teachers in Abia State generally hold positive perceptions of functional pedagogy in teaching health science–related subjects, as indicated by a sectional mean of 2.55. The result implies that teachers agree functional, learner-centered methods enhance students' comprehension and practical skill development in health science. This underscores growing recognition of experiential learning as a catalyst for improved classroom outcomes.

Research Question 2: How do teachers implement functional pedagogical strategies during classroom instruction in health science-related subjects?

Table 2 : The teachers implement functional pedagogical strategies during classroom instruction in health science-related subjects.

N300				
S/N	Statements	Mean	Std. Dev.	Decision
5	I frequently use group discussions and practical demonstrations in my lessons.	2.56	1.056	Agreed
6	I integrate real -life health examples and projects into my teaching	2.44	1.047	Disagreed
7	Students are often engaged in hands -on or activity-based learning.	2.55	1.061	Agreed
8	I regularly assess students through performance - based tasks rather than only written tests.	2.57	1.054	Agreed
Sectional Mean		2.53	1.0522	

Source: Survey field work 2025

Table 2 shows that teachers exhibit a generally positive but moderate level of implementation of functional pedagogical strategies in teaching health science-related subjects, with a sectional mean of 2.53. While most respondents agree that they employ group discussions, demonstrations, and performance-based assessments, fewer integrate real-life examples or project-based learning. This suggests that functional pedagogy is recognized in principle but not yet fully embedded in everyday classroom practice.

Research Question 3: What challenges do teachers encounter in the application of functional pedagogy for effective teaching of health science-related subjects?

Table 3: The challenges do teachers encounter in the application of functional pedagogy for effective teaching of health science-related subjects

N300				
S/N	Statements	Mean	Std. Dev.	Decision
9	Lack of instructional materials hinders the use of functional pedagogy.	2.56	1.051	Agreed
10	Large class sizes make activity -based lessons difficult to manage.	2.57	1.045	Agreed
11	Insufficient time in the school timetable limits practical teaching.	2.62	1.061	Agreed
12	I have not received adequate training in functional teaching strategies.	2.52	1.051	Agreed
Sectional Mean		3.318	1.0512	

Source: Survey field work 2025

Table 3 reveals that teachers face significant barriers in applying functional pedagogy for health science instruction, with an overall mean of approximately 2.57. The most prevalent challenges include inadequate instructional materials, large class sizes, limited instructional time, and insufficient professional training. These constraints suggest that while teachers recognize the value of functional pedagogy, systemic and resource-related limitations hinder its effective classroom implementation.

Research Question 4: What strategies can be adopted to promote teachers' effective use of functional pedagogy for skill-based learning in health science-related subjects?

Table 4 : The strategies can be adopted to promote teachers' effective use of functional pedagogy for skill-based learning in health science-related subjects.

N300				
S/N	Statements	Mean	Std. Dev.	Decision
13	Regular workshops and seminars should be organized for teachers on functional pedagogy.	2.56	1.056	Agreed
14	Schools should provide adequate teaching aids and facilities for practical lessons.	2.52	1.047	Disagreed
15	Curriculum planners should include more activity -based learning content.	2.54	1.061	Agreed
16	Government and school administrators should support teachers through incentives and supervision to apply functional pedagogy effectively.	2.51	1.054	Agreed
Sectional Mean		2.534	1.0522	

Source: Survey field work 2025

Table 4 shows that respondents generally support strategic interventions to strengthen teachers' use of functional pedagogy, with a sectional mean of 2.53. The data suggest that professional development, curriculum reform, and administrative support are crucial for enhancing skill-based instruction. However, the disagreement on the provision of adequate facilities highlights a persistent infrastructural gap that must be addressed for effective implementation.

H₀₁: There is no significant difference in teachers' perception of functional pedagogy in the teaching of health science-related subjects based on school type (public or private).

Table 5: *t-test on the difference in teachers' perception of functional pedagogy in the teaching of health science-related subjects based on school type (public or private).*

School Type	Number	Mean	S. D	t-value	Df	Sig(2-tailed)	Decision
Private	155	2.60	.812	-.672	298	.502	Not Significant
Public	145	2.65	.848				

Source: Survey field work 2025

Table 5 reveals no significant difference in teachers' perception of functional pedagogy based on school type, as indicated by the calculated *t*-value of -0.672 and a *p*-value of 0.502, which exceeds the 0.05 significance level. This implies that both public and private school teachers share similar views regarding the importance and application of functional pedagogy in teaching health science-related subjects.

H₀₂: There is no significant difference in teachers' perception and implementation of functional pedagogy in health science-related subjects based on their academic qualifications.

Table 6: *One-way ANOVA on the difference in teachers' perception and implementation of functional pedagogy in health science -related subjects based on their academic qualifications.*

Academic Qualifications	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	1.699	3	.566	.801	.491	Not Significant
Within Groups	279.019	297	.702			
Total	278.717	298				

Source: Survey field work 2025

Table 6 shows that there is no significant difference in teachers' perception and implementation of functional pedagogy based on academic qualifications, as the computed F -value of 0.801 at a p -value of 0.491 exceeds the 0.05 level of significance. This suggests that teachers, regardless of their educational attainment, exhibit similar levels of awareness and practice of functional pedagogy in health science-related subjects.

H₀₃: There is no significant difference in the implementation of functional pedagogical strategies among teachers of health science-related subjects based on their years of teaching experience.

Table 7: One -way ANOVA on the difference in the implementation of functional pedagogical strategies among teachers of health science -related subjects based on their years of teaching experience.

Teaching Experience	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	1.698	3	.566	.802	.491	Not Significant
Within Groups	278.018	296	.702			
Total	279.715	299				

Source: Survey field work 2025

Table 7 indicates no significant difference in the implementation of functional pedagogical strategies among teachers based on years of teaching experience, as shown by the F -value of 0.802 and p -value of 0.491, which is greater than 0.05. This finding implies that both novice and experienced teachers apply functional pedagogy in comparable ways, suggesting that teaching experience alone does not substantially influence its classroom implementation.

Discussion of Findings

The findings of this study revealed that senior secondary school teachers in Abia State hold positive perceptions of functional pedagogy as a viable approach for improving the teaching of health science-related subjects. With a mean score of 2.55, teachers agreed that learner-centered and experiential methods enhance students' understanding and practical engagement with health-related concepts. This aligns with the views of Akinsola and Alaba (2021) and Ogunleye (2020), who affirmed that functional pedagogical approaches such as inquiry-based learning and collaborative projects foster deeper comprehension and long-term retention of scientific knowledge. The result also corroborates Chukwu (2022), who emphasized that teachers' beliefs and attitudes toward functional teaching largely determine the extent of classroom innovation. The study therefore reinforces the constructivist argument of Bruner (2019) and Vygotsky (1978) that learners construct meaning more effectively through active participation and contextual problem-solving. In the Nigerian context, where rote learning persists, these findings signify a gradual paradigm shift among teachers toward more interactive and application-driven instruction in health science education.

The study also found that teachers moderately implement functional pedagogical strategies such as group discussions, practical demonstrations, and performance-based assessments, but less frequently integrate real-life projects and community-based learning. With a sectional mean of 2.53, the implementation pattern suggests partial adoption of functional pedagogy, constrained by infrastructural and institutional limitations. This observation resonates with Ezeani and Oladipo (2021), who noted that while teachers are aware of the pedagogical benefits of experiential learning, classroom realities often hinder consistent application. The limited use of real-life projects observed in this study mirrors the concerns raised by Odu and Adebayo (2022) that traditional lecture methods still dominate Nigerian classrooms, particularly in science-related subjects. Nonetheless, the positive orientation toward functional pedagogy observed in this study provides a strong foundation for scaling up professional development initiatives and curriculum reform aimed at embedding experiential learning across health science curricula.

A critical finding of this research concerns the systemic challenges confronting teachers in applying functional pedagogy. The results showed that lack of instructional materials, large class sizes, inadequate time allocation, and insufficient teacher training significantly hinder effective implementation. These findings echo those of Ike and Nwosu (2020) and UNESCO (2023), who identified limited training opportunities and resource deficits as key barriers to pedagogical innovation in African schools. Similarly, NERDC (2020) and Adebisi (2022) have documented the persistent gap between curriculum design and its classroom execution, emphasizing that the National Policy on Education's goal of functional learning remains aspirational without adequate institutional support. The results therefore highlight the urgent need for government investment in teacher capacity building, school infrastructure, and the provision of instructional materials. Without these enablers, teachers' positive perceptions alone cannot translate into meaningful pedagogical transformation or improved student outcomes.

Finally, the study identified several strategies for promoting teachers' effective use of functional pedagogy. Teachers strongly recommended regular workshops and seminars, curriculum review to include more activity-based content, and administrative incentives to encourage innovative teaching. These strategies align with Ezeanya (2021) and Nwachukwu and Umeh (2022), who argued that sustainable educational reform requires both pedagogical reorientation and systemic support mechanisms. The findings also align with UNESCO's (2023) advocacy for continuous professional development to enhance teachers' digital and experiential teaching competencies in line with Sustainable Development Goal 4 (quality education). The inferential analyses (t-test and ANOVA) further revealed no significant differences in teachers' perceptions and implementation of functional pedagogy across school type, academic qualification, or teaching experience, suggesting a shared awareness of its relevance across professional categories. This implies that improving functional pedagogy in health science-related subjects will require system-wide strategies rather than isolated interventions. Overall, the study underscores the transformative potential of

functional pedagogy as a catalyst for skill-based, problem-solving education that bridges the gap between classroom learning and real-life health challenges in Nigeria.

Conclusion

This study concludes that functional pedagogy holds great promise for transforming the teaching and learning of health science-related subjects in Nigerian secondary schools. Teachers in Abia State demonstrated positive perceptions toward learner-centered and experiential instructional strategies, recognizing their potential to enhance student understanding and practical competence. However, the implementation of functional pedagogy remains constrained by inadequate instructional materials, limited training, and systemic inefficiencies. Addressing these challenges requires collective action from educational stakeholders policy makers, curriculum planners, school administrators, and teachers—to institutionalize innovative teaching approaches that align with national development and global education standards.

Recommendations

- i. Educational authorities should conduct regular sensitization and orientation programs to deepen teachers' understanding of functional pedagogy and its relevance to health science education.
- ii. Schools should institutionalize learner-centered methods—such as group projects, demonstrations, and problem-solving tasks—to strengthen the practical application of functional pedagogy.
- iii. Government and school administrators must ensure consistent supply of teaching aids, laboratory equipment, and ICT tools to support interactive, skill-based learning.
- iv. Regular workshops, retraining sessions, and mentoring programs should be organized to equip teachers with contemporary pedagogical competencies for effective classroom delivery.
- v. Class size reduction, timetable restructuring, and improved funding mechanisms should be implemented to remove barriers that limit functional teaching practices.
- vi. Curriculum planners should embed experiential and activity-based learning objectives in health science curricula to enhance student engagement and skill acquisition.
- vii. Teachers who consistently apply innovative functional strategies should be rewarded through recognition, promotion, or financial incentives to sustain pedagogical excellence.

Ministries of Education and inspectorate units should enforce policy measures and periodic evaluations to ensure the continuous and effective use of functional pedagogy

References

- Adebisi, M. O. (2022). Curriculum implementation challenges in Nigerian secondary schools: The way forward. *African Journal of Education Studies*, 10(2), 115–127.
- Akinsola, J. A., & Alaba, R. O. (2021). Enhancing functional learning through activity-based pedagogy in science classrooms. *Journal of Curriculum and Instructional Research*, 18(1), 55–68.
- Bruner, J. (2019). *The process of education* (Revised ed.). Harvard University Press.
- Chukwu, C. E. (2022). Teachers' attitudes toward learner-centered approaches in Nigerian secondary schools. *Nigerian Journal of Educational Research and Evaluation*, 25(2), 89–104.
- Ezeani, I., & Oladipo, K. (2021). Teachers' perception and challenges in implementing innovative teaching strategies. *Journal of Educational Practice in Africa*, 14(3), 72–85.
- Ezeanya, C. (2021). Promoting functional pedagogy for health education in secondary schools. *Contemporary Issues in Education Research*, 13(4), 201–212.
- Ike, A., & Nwosu, P. (2020). Teacher preparation and the implementation of learner-centered approaches in Nigeria. *International Journal of Pedagogical Development*, 11(1), 35–47.
- National Educational Research and Development Council (NERDC). (2020). *Senior secondary school curriculum implementation report 2020*. NERDC Press.
- Nwachukwu, J. E., & Umeh, F. C. (2022). Activity-based learning and students' achievement in health science education. *Journal of Science Education and Innovation*, 9(2), 141–158.
- Odu, E., & Adebayo, T. (2022). Traditional teaching and learning methods in Nigeria: Implications for 21st-century education. *African Journal of Pedagogical Studies*, 8(1), 23–39.
- Ogunleye, A. A. (2020). Pedagogical innovations in Nigerian science classrooms: Trends and prospects. *Educational Review West Africa*, 7(2), 45–60.
- Okafor, C., & Eze, P. (2023). Teacher perceptions of functional pedagogy and classroom practices in Nigeria. *Journal of Educational Innovation and Policy*, 16(1), 88–101.
- UNESCO. (2023). *Transforming education for sustainable futures: Africa regional report*. UNESCO.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.