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Effect of Digital Literacy and Reading/Writing Proficiency on Academic Performance of NCE Students in Kaduna State in (CBT) Examinations

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Abstract

This study investigates the impact of digital literacy and reading /writing proficiency on NCE students taking Computer-Based Testing (CBT) examinations. The study was guided by two objectives, two hypotheses, and employed a quasi-experimental pretest and posttest control group design. The population comprised 10,345 Nigerian Certificate in Education (NCE) students. Purposive sampling techniques were used to select 180 NCE two students. The sample was divided into an experimental group (90) students from the Federal University of Education, Zaria, and a controlled group of (90) students from the College of Education, Gidan Waya. Two instruments were utilized namely: Digital Literacy Scale (DLS) and ACTFL Test of English Proficiency (TEP) with a Cronbach's alpha reliability of 0.80, and CBT examinations of NCE 2 students adopted from traditional paper-based testing methods that utilize computer technology to deliver and administer the tests with a reliability coefficient of 0.76. The experimental group was exposed to digital literacy before the CBT examinations for the first semester for all courses in general education for four weeks, while the control group was given the CBT examination without any digital literacy. Also, they are taught general education courses emphasizing digital literacy and reading/writing in CBT examinations. After the intervention, a posttest was administered to both groups, and data were analyzed using Analysis of Variance (ANOVA). The results revealed a positive correlation between digital literacy and reading/writing proficiency, with p-values = 0.00 for both hypotheses being less than 0.05 alpha level of significance. Based on these findings, the two hypotheses were rejected. It is recommended that educational policies and practices on integrating digital literacy development into curricula provide engaging and interactive learning experiences, motivating learners. In addition, the development of targeted interventions to support students with lower digital literacy levels, and enhancing reading/writing proficiency in CBT examinations, prepares students for the digital world by fostering critical thinking, problem-solving and communication skills, developing the 21st century skills.

Keywords: Digital literacy, reading and writing proficiency, computer-based testing, examination and academic performance

Introduction

This study examines the dual problem of digital literacy gaps and reading/writing deficiencies among NCE students, exploring how these factors impede academic performance in CBT examinations. The integration of Computer-Based Testing (CBT) in Nigeria's tertiary education system has transformed assessment methodologies, offering advantages such as reduced examination malpractice, marking of large scripts for teachers taking general courses, faster result processing, and alignment with global educational practices. Nevertheless, the shift to digital examinations has exposed significant challenges, particularly concerning students' digital literacy and reading/writing proficiency. While CBT examination is designed to enhance efficiency, its effectiveness is undermined by an unrelenting digital divide, inadequate preparation, and systemic educational deficiencies. The relationship between digital literacy, reading/writing proficiency and academic performance in computer-based testing CBT is multifaceted, influenced by technical, cognitive and contextual factors.

Concept of Digital Literacy

The proliferation of digital literacy has significant implications for education, transforming the landscape of teaching English in Nigeria. In today's technology-driven world, digital literacy has become an essential skill set for individuals to navigate, participate, and thrive in various aspects of life. Literacy refers to the ability of people to read and write (UNESCO, 2017). Reading and writing, in turn, are about encoding and decoding information between written symbols and sounds (Resnick, 1983; Tyner, 1998). Dowell (2019) describes digital literacy as a broad set of skills for using digital tools and technologies for communication and information processing. Blesia (2020) states that these skills include the cognitive, physical, sociological, and emotional abilities necessary to use digital environments effectively. Digital literacy skills mean the skills associated with using technology to enable users to find, evaluate, organize, create, and communicate information, and developing digital citizenship and the responsible use of technology (Museum & Library Services Act of 2010, Pub. 111-340, 22 Dec. 2010). Digital literacy is much more than proficiency with discrete computer skills. Certainly, these foundational skills are critical; however, the crux of what is meant by digital literacy is the recognition of these skills' relevance in specific contexts and one's ability to apply them creatively (International Society for Technology in Education, 2016; Jacobs & Castek, 2018; Vanek, 2017). Also, important to note, digital literacy is often referred to as one monolithic construct, but it is really one that encompasses several groups of competencies. Lankshear & Knobel 2018) suggested that successful functioning in digital spaces and with digital media requires a plurality of proficiencies, starting with text literacy and technical skills and extending to include the cognitive and sociocultural strengths. Drawing on both foundational and more current research literature addressing digital literacy (Eshet-Alkalai, 2014; Harris, 2015; Pegrum, 2010; Siemans, 2004) highlights a multitude of proficiencies that can be illustrated as below.

Digital literacy has emerged as a key concept to help educators, researchers, and educational bureaucrats in competing demands in schools and students in a digital society. Gilster (1997) sees digital literacy as the ability to understand and use information in multiple formats from a wide range of sources when it is represented via a computer. Jones-Kavalier & Flannigan (2006) support the above assertion as the ability to understand and use digital technology to access, evaluate and create information. This is in consonance with Martin & Grudziecki,(2006) who posit that digital literacy is the awareness, attitude, and

ability of individuals to appropriately use digital tools and facilities to identity, access, manage, integrate, evaluate and create information but Hague & Payton (2010) see digital literacy as the skills, knowledge, and understanding required to participate in the digital world. This definition is in line with Ng (2012), who states that digital literacy is the ability to harness the potential of digital technologies to support learning, work and personal life. Belshaw (2012) also sees it as a set of cultural practices that are underpinned by a range of technical, cognitive and social skills, while Spante et al (2018) define digital literacy as the ability to critically evaluate, create and communicate using digital technologies in various contexts. These definitions expose the complexity and multifaceted nature of digital literacy.

Aspects of Digital Literacy
The aspects of digital literacy include: Technical skills involve proficiency in using digital tools and software, keyboarding. Information literacy entails the ability to evaluate and use online information effectively. Critical thinking is the ability to analyze and evaluate digital information online, including understanding how to protect personal data and security.

The Digital Literacy Challenge in CBT Examinations
Digital literacy implies the ability to efficiently use technology for training and assessment. It is a critical determinant of success in CBT examinations. However, many tertiary students, particularly NCE students, lack basic computer skills, such as navigating interfaces, using a keyboard, or troubleshooting technical issues. The problem further indicates that technological literacy issues, errors in test-taking, and even outright failures occur as students struggle with the mechanics of the exam rather than the academic content. The problem is exacerbated by insufficient infrastructure, including unreliable electricity, poor internet connectivity, and a shortage of functional CBT centres and maintenance. Even when students gain access to digital devices, many lack prior exposure simulated CBT environment, leading to poor performance in high-stakes examinations, where many over 75% students consistently score below 30 out of 60. Without targeted interventions, the transition to CBT risks further marginalizing students who are already disadvantaged by Nigeria's uneven educational landscape.

Academic Performance
Academic performance is the measure of a student's achievement in various areas of study, typically assessed through grades, test scores, and teacher evaluations. It reflects how well a student meets educational standards and learning objectives in school.

Reading Proficiency
Reading is a very important skill relevant for the acquisition of all human knowledge, central to the academic and intellectual development of students at all levels. Reading is a complex skill that needs to be taught early, deliberately, systematically, contextually and incrementally. Reading proficiency is a foundational skill that influences academic success, career opportunities, and lifelong learning. It encompasses the ability to decode text, comprehend meaning, analyze content, and engage critically with written material. Reading instruction involves the development of skills related to various stages of the curriculum. At the intermediate and advanced stages, reading, which is progressively developed, enables the students to interpret the meaning of sentences in connected discourse. Reading is fundamental to literacy and personal ability to attain self-education with diverse human experiences. Reading may take the form of silent or loud reading. Reading aloud is done purposely for listening and speaking (phonics and phonemic awareness, word recognition and production. Reading silently, on the other hand, is done primarily for comprehension of

subject matter, vocabulary development and pleasure. Reading whether silent or loud is an act that humans use to understand, express and influence others (Al–Asaf, 2016). It is a cognitive process that involves decoding symbols to reach the stages of understanding and comprehension. It serves as a means of receiving information but requires an understanding of symbols and meanings as well as the ability to interpret emotions through creative or innovative reading (Khawja, 2015).

Reading proficiency differs from a combination of factors, one of which is phonological awareness, which refers to the ability to manipulate the sound of the language, and it is crucial for early reading development (Giazitzidou et al, 2024). Two, decoding skills, which are the ability to convert written symbols to sounds, are essential for reading fluency (Fermades et al, 2024). Three, the ability to read text fluently, which can improve comprehension by allowing readers to focus on meaning rather than mechanics (National Reading Panel, 2000). Four, vocabulary knowledge, which plays a significant role in understanding written text (Dhakal, 2023; Zhan et al., 2024). Lastly, working memory is essential for comprehending complex texts (Oakhill & Cain, 2012). Some factors that affect reading proficiency in students include: motivation, which is a desire and willingness to engage with reading significantly affect reading achievement (Toste et al, 2024) similarly, Bandura, (2013) maintains that self-efficacy, a belief in ability to succeed in reading tasks, also plays a crucial role. Additionally, students' interest in reading materials can influence their engagement and motivation (Zygouris-Coe, 2024). Lastly, metacognitive awareness, the ability to monitor and regulate one's learning, also contributes to reading proficiency differences among students, allowing them to identify comprehension difficulties and adjust their reading strategies accordingly (Liao & Lee, 2024). However, the following strategies can be used in addressing reading proficiency differences. One is differential instruction (Allington, 2002; Tomlinson, 2017). This approach recognizes that students have distinct learning profiles and learn at different paces. Teachers can implement this strategy by offering a variety of reading materials at diverse levels to respond to the needs of the students (Dhakai, 2024). Allington (2000) and a recent study by Anggapati (2024) have found that exposure to a variety of high-quality reading materials plays a crucial role in reading development. Also, Georgiou & Zhan (2024) discovered that a supportive home literacy environment fosters positive attitudes towards reading, providing rich home literacy exposure to books and encouraging students to read. Some of these approaches will be used in teaching General Studies Education (English) to the students for five weeks.

Writing Proficiency
Writing is a core language skill that enables students to express their ideas coherently, enhance critical thinking, foster academic development and communicate effectively. Writing is considered an important ability for the production and dissemination of knowledge within any disciplinary discourse. Assessment of students' academic achievement in academic contexts relies largely on their ability to convey their knowledge and ideas. According to Graham & Perin (2007), writing helps students to do key assignments, enhance their critical thinking capacities and develop their cognitive performance and functioning. Writing skills are becoming increasingly important in the global community, particularly in education, either as a second language or as a foreign language learning. Writing is more than simply putting spoken language into written form. It involves a higher level of cognitive engagement, as it requires the organization and communication of complex ideas in a structured manner. It is a deliberate act of constructing meaning. Writing proficiency is not just about correctness but also effective communication, adaptability and critical thinking.

According to the Study Smarter Editorial Team (2024), writing proficiency is the ability to effectively communicate ideas and information in written form. This encompasses skills such as one: grammar and syntax, which entails using rules of language structure to form clear and precise sentences. Two, vocabulary, which involves employing an extensive and appropriate range of words to express ideas. Three, coherence and cohesion, ensuring logical flow and connectivity between ideas and paragraphs. Four, organization, structuring text in a way that supports the readers' understanding. Five, style and tone, adjusting language to suit the purpose, audience and context. Writing proficiency is essential for academic success development, and can be developed through consistent practice, regular writing and use of effective techniques. Functional Writing Proficiency (ACTFL Framework), the ACTFL Writing Proficiency Test (WPT) defines proficiency as the ability to write effectively and appropriately for real-life purposes without reliance on revisions and editing tools. It evaluates task performance, content relevance and accuracy and fluency. However, despite its significance, many students struggle to develop proficiency in writing, largely due to factors such as traditional teaching methods, inadequate practice, etc.

Reading and Writing Proficiency as a Barrier to CBT Success

While digital literacy is a pressing concern, reading and writing proficiency remain a fundamental challenge. CBT examinations often require not only technical skills but also strong comprehension, critical analysis, and written expression competencies that many NCE students lack due to the systemic weakness in primary and secondary school education. Research shows that poor reading and writing habits, limited exposure to academic texts, and reliance on rote memorization hinder students' ability to engage with CBT questions effectively. In disciplines requiring essay-style responses or complex problem-solving, students with weak writing skills struggle to articulate their thoughts clearly within digital formats, leading to lower scores. Additionally, the shift from paper-based to computer-based assessments alters the cognitive demands of test-taking, requiring students to adapt their reading strategies, like for on-screen comprehension, a skill that is rarely taught in Nigerian classrooms.

Computer-Based Testing Examinations

A language test is a sample of language behaviour. A test is a sample of behaviour. In a typical language test, students are presented with a set (sample) of items to answer or tasks to perform. It is impossible to present the students with all the items or tasks we can think of. The problem now arises: what can we say about how well the students have performed, and what can we infer from the estimate about the students' real ability to use the language or computer? In discussing language test examinations, we need to look at two concepts: competence and performance in the language. Performance is elicited and observed while competence can only be inferred as an underlying ability. Competence has to do with whether specific language ability is present, while performance has to do with the strength of that ability.

Computer-Based Testing (CBT) has revolutionized the assessment system in Nigeria, offering a more efficient, secure and scalable alternative to traditional paper-based examinations. Nigerian tertiary educational and professional institutions have increasingly adopted CBT for entrance examinations, certification tests, standardised assessments like General courses in Universities, colleges of education and polytechnics. The shift towards CBT in Nigerian tertiary education examinations began in earnest with the introduction of Computer-Based Testing (CBT) for major examinations such as the Unified Tertiary Matriculation Examination (UTME) in 2015 to curb examination malpractice and improve

efficiency. Professional Certification Examination bodies like the Institute of Chartered Accountants (ICAN), Chartered Institute of Bankers (CIBN), Teachers Registration Council of Nigeria (TRCN), Recruitment Tests and many government agencies and private firms now conduct employment screening examinations via CBT. The adoption of CBT in Nigeria has brought several advantages, such as:

1) Reduced examination malpractice: features like randomization of questions, biometric verification, and timed sessions minimize cheating in examinations.

2) Faster Results Processing; automated grading ensures quicker release of results compared to manual marking.

3) Cost efficiency, long-term savings on logistics, and human costs.

4) Enhanced Accessibility; CBT centres are spread across Nigeria, allowing candidates in remote areas to participate in examinations with limited stress.

5) Improved Test Security; encrypted databases and secure logins prevent question leaks.

Despite the benefits, CBT examinations face significant challenges in Nigeria, which include:

1) Inadequate Infrastructure – Many exam centres experience poor power supply, unreliable internet connectivity, and inadequate hardware disruption. Many students in Nigerian tertiary institutions ' semester examinations report network failures and malfunctioning computers during tests.

2) Technical and Operational Issues – errors in question formatting, for instance, unclear mathematics problems during general mathematics courses and system crashes have led to students' frustration.

3) Examination malpractice - it is true that CBT reduces traditional examination malpractice, but new vulnerabilities have emerged, such as hacking, proxy test takers (Ghost syndicates), and login credential theft.

4) Low Digital Literacy – many students lack familiarity with digital interfaces, leading to time mismanagement or accidental errors.

5) Logistics Barriers – large-scale CBT requires substantial investment in training, software, and maintenance, which some institutions struggle to afford

The Intersection of Digital and Literacy Gaps
The combined effect of low digital literacy and poor reading/writing proficiency creates a compounded disadvantage for Nigerian students, especially at the advanced level, through the following:

1) Technical difficulties distract from content mastery: many students unfamiliar with CBT interfaces may misread questions, fail to navigate between sections efficiently, or lose time due to preventable errors.

2) Limited practice with digital texts: unlike traditional paper-based exams, CBT requires quick adaptation to scrolling, highlighting, and on-screen note-taking skills that are seldom practised in Colleges of Education with limited ICT integration.

3) Anxiety and reduced confidence: The stress of managing both technological and academic demands can lead to underperformance, even among otherwise capable students.

Need for Evidence-Based Solution

The persistent underperformance in CBT examinations, evidenced by mass failure in semester examinations and similar tests, calls for urgent reforms. Key areas requiring attention include:

1) Digital literacy: mandatory pre-examination CBT simulations and school-based ICT integration to familiarize students with digital assessment.

2) Enhanced reading/writing instruction: Curriculum reforms emphasizing critical thinking, comprehension, and structured writing practice to bridge proficiency gaps should be introduced.

3) Infrastructure development: Public-private partnerships to expand access to affordable devices, stable electricity, and internet connectivity in rural areas have been established.

4) Teacher capacity building: professional development programmes to equip educators with the skills to teach digital literacy and adaptive reading strategies organized.

Statement of the Problem

The incorporation of Computer Based Testing (CBT) in assessment of NCE semester examinations has highlighted concerns about students digital literacy skills and their impact on academic performance, despite the potential benefits of digital literacy, many NCE students struggle to effectively utilize digital tools to enhance their reading/writing proficiency which are critical skills for success in CBT examinations. The problem is further compounded by the fact that many NCE students may not have adequate exposure to digital technology, which can hinder their ability to navigate CBT platforms and perform optimally. Additionally, the shift towards CBT examination has questions about the extent to which digital literacy affects students' reading /writing proficiency and, subsequently, their academic performance.

Objectives of the Study

    i) To determine the effect of digital literacy on CBT examinations among N.C.E. students in Kaduna State.

    ii) To assess the effect of reading/writing proficiency on CBT examinations among N.C.E. students in Kaduna State.

Hypothesis

H01 There is no significant effect of digital literacy on CBT examinations among N.C.E. two students in Kaduna State.

H02 There is no significant effect of reading/writing proficiency on CBT examinations among N.C.E. two Students in Kaduna State

Methodology

This study employed a quasi-experimental research design, specifically the pre-test-posttest control group design. The population consisted of 10,345 Nigerian Certificate in Education (N.C.E.) students from the College of Education, Gidan Waya, and the Federal University of Education, Zaria, Kaduna State. The target population was N.C.E. II students, purposively selected due to their stability compared to N.C.E. I students, who are newly admitted and still adjusting, and N.C.E. III students, who are unavailable due to teaching practice commitments.

A sample size of 180 students was selected using stratified random sampling from the two institutions offering N.C.E. programs in Kaduna State. The sample was divided into two groups: the experimental group (90 students) from the Federal University of Education, Zaria, and the control group (90 students) from the College of Education, Gidan Waya. Three research instruments were used: Digital Literacy Assessment Toolkit (DLAT), Writing Portfolios, Reading Fluency Assessment Tool (RFAT) a standardized reading fluency test with established reliability (Cronbach's alpha = 0.80) and CBT Assessment Tools (adopted from the Watson-Glaser Critical thinking skill Appraisal (Wang, 2015) with Cronbach's alpha = 0.76.

The DLS and ACTFL Test of English Proficiency (TEP) were administered as pre-tests to both the experimental and control groups. During the intervention, the experimental group used digital literacy tools integrated into their general course lessons for five weeks, while the control group received traditional instruction over the same period. The same was conducted on the students ' reading/writing proficiency. After the intervention, both groups were administered post-tests using the same instruments to measure changes in digital literacy and reading/writing proficiency. Data were analyzed using Analysis of Variance (ANOVA) to assess the effects of digital literacy and reading/writing proficiency on CBT examinations while controlling for pretest scores. This approach ensured that any observed differences between the experimental and control groups could be attributed to the intervention.

Result

Table 1: ANOVA test on the effect of digital literacy and reading/writing proficiency on the academic performance of NCE students in CBT examinations in Kaduna State.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12787.924[a]	2	6393.962	203.525	.000
Intercept	21359.581	1	21359.581	679.893	.000
Group	12149.723	1	12149.723	386.736	.000
DLS _pretest	782.097	1	782.097	24.895	.000
Error	5717.730	182	31.416		
Total	277875.000	185			
Corrected Total	18505.654	184			

a. R Squared = .691 (Adjusted R Squared = .688)

Table 1 showed that the p = .000, which is less than the alpha level of 0.005, indicating a significant effect of digital literacy on CBT examinations among N.C.E Students in Kaduna State. Hypothesis one was therefore rejected. The finding revealed that the experimental group, who were exposed to digital literacy skills, demonstrated significantly higher reading fluency compared to the control group, who were instructed with a traditional approach.

Table 2: ANOVA test on the effect of digital literacy and reading/writing proficiency on the academic performance of NCE students in CBT examinations in Kaduna State

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15424.526a	2	7712.263	237.545	.000
Intercept	9871.510	1	9871.510	304.052	.000
Group	14869.571	1	14869.571	457.997	.000
ACTFL_pretest	544.702	1	544.702	16.777	.000
Error	5908.911	182	32.467		
Total	289767.000	185			
Corrected Total	21333.438	184			

a. R Squared = .723 (Adjusted R Squared = .720)

Table 2 also showed that the p = .000, which is less than the alpha level of 0.00,5, indicating a significant effect of reading/writing proficiency on CBT examinations among N.C.E Students in Kaduna State. Hypothesis two was also rejected, implying that the experimental group exhibited superior reading/writing proficiency compared to the control group.

Discussion

The aim of the study was to investigate the effect of digital literacy and reading/writing proficiency on the academic performance of N.C.E 2 Students in CBT examinations in Kaduna State. Two objectives and 2 hypotheses guided the study. All the hypotheses were rejected; the results indicated significant positive effects of digital literacy and reading/writing proficiency on the academic performance of NCE students in CBT examinations.

Hypothesis one was rejected because the p-value of .000 is less than the 0.05 alpha level of significance. The rejection of the hypothesis suggested that students exposed to digital literacy demonstrated significantly higher academic performance in CBT examinations compared to those taught using conventional methods. This result may be attributed to the interactive and engaging features of digital literacy, which likely enhanced students' ability to decode, comprehend, and articulate text. This finding is in line with the study of Hammer (2018), who claimed the viability of digital literacy extends to all sectors of humanity. He further argued that students who persistently develop skills of digital literacy proffer solutions to lectures and class activities have the tendency to perform better in tests and

examinations, respectively. Similarly, Aremu & Udofia (2025), who worked on the impact of digital literacy skills on undergraduate performance in Nigeria, discovered that digital literacy plays a significant and positive role in the outcome of undergraduate performance. The study concludes that technology is less expensive, has less manpower demand, has lower anxiety levels, is stress-free in marking and scoring, and develops undergraduates' psychomotor and cognitive skills.

Hypothesis two was also rejected because it showed a p-value of .000, which was less than the alpha level of significance. The rejection of the second hypothesis indicated that students in the experimental group exhibited proficiency in reading/writing skills compared to the control group. This outcome could be linked to the fact that students with reading/ writing proficiency perform better in sections of CBT examinations. These students comprehend complex questions and instructions easily. They express their thoughts and ideas clearly, making it easier for examiners to understand their responses, thereby navigating CBT systems more confidently. The findings aligned with the study by Koda & Zehler (2008), who explored Learning to Read across languages: Cross-Linguistic Relationships in First- and Second-language Literacy Development, reported that students exposed to reading proficiency is a vital component of academic learning that helps the reader become a learned one in the broader community. They went further to say that if a child is deficient in reading, he encounters difficulty in all subject areas. Failure to achieve sufficient proficiency in reading hinders his access to the needed tools for further learning. Similarly, National Assessments of Educational Progress (NAEP) consistently revealed that students with higher writing proficiency scores tend to perform better across a range of Standardized tests (National Center for Education Statistics, 2012). This trend is attributed to the cognitive processes involved in writing, which mirror critical thinking and problem-solving skills essential for academic success. This is in line with the study of Applebee & Langer (2011) which emphasize that when students engage in frequent, meaningful writing tasks across subjects, their comprehension, retention, and analytical abilities improve. These practices encourage students to articulate and organize their ideas, enhancing both subject-specific knowledge and general academic performance.

Conclusion
Digital literacy and reading/writing proficiency are interdependent drivers of academic success in CBT examinations. While technical skills enhance adaptability to digital interfaces, foundational language competencies remain critical. Self-efficacy and infrastructure further modulate these relationships, highlighting the need for holistic educational strategies. The effect of CBT examinations in the present technological development era has enhanced both the teaching and learning process and makes it easy for teachers to actualize set objectives. Examination is no longer paper and pencil but CBT, even though with some challenges. Sustainable improvements require policy integration, institutional investments in CBT-ready infrastructure, and pedagogical reforms that blend writing with digital task execution. In essence, improving CBT performance in NCE students demands recognizing that technology alone is not sufficient; synergistic development of cognitive, technical, and infrastructural foundations is nonnegotiable for equitable academic advancement.

Recommendations for Practice
CBT examinations represent a significant leap forward for Nigerian assessment systems. However, its potential hinges on overcoming the challenges it possesses. With targeted investments, stakeholders' collaboration, and continuous improvement, CBT can reform the

educational system in Nigeria, aligning the country with global best practices. Educational institutions should integrate digital literacy training with reading/writing (language) instructions, emphasizing CBT-specific skills: for instance, time management on digital platforms. Policymakers should address infrastructure gaps to ensure equitable CBT access. The transition to CBT examination in Nigeria's tertiary education system is inevitable, but its success also depends on addressing the intertwined challenges of digital literacy and reading/writing proficiency. The current trends of mass failures and educational inequity will persist, further disadvantaging students in an increasingly digital academic and professional world without systemic intervention. It is essential to ensure that CBT examinations assess students' knowledge rather than their technological or literacy limitations.

References

Allington, R.L.(2002). What I've Learned about Effective Instruction: from a decade of studying exemplary elementary classroom teachers. *Phi Delta Kappen*, 83(10), 740-747. http://doi org/10.1177/00372170208301007.

Anggapati, G. (2024). Exploring the Impact of Media Exposure on Early Age Literacy and Reading Skills Development in Children. *Journal Basic Science and Technology*, 13(1), 01-08

Aremu & Udofia (2025). Impact of Digital Literacy Skills on Undergraduate Performance in Nigeria.

Azor & Ogwu (2025). Computer-Based Testing (CBT): Prospects and Constraints in Nigerian Universities.

Bandura A. (2013). The Role of Self-Efficacy in Goal-Based Motivation. In Locke E.A., Lathan G.P.(Eds), New Developments in Goal Setting and Task Performance (pp. 147-157

Dhakal, B.R. (2021). Differentiated Reading Instruction: Teacher Beliefs and Strategies. *Journal of NELTA*, 26(1-2), 56-69.10. 32126/nelta.v26i1-2.45195

Dhakal, B.R.(2023). Unlocking the Magic of Vocabulary for Building Reading Comprehension. *NELTA Bagmati Journal*, 4(1). 101-107

Daramola, F.O.(2017). Impact of Computer Based Test in Nigeria Tertiary Institutions: A Theoretical View

Eshet-Alkalai, Y..(2004). A Conceptual Framework for Survival Skills in the Digital Era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93-106. Retrieved from http://www.learntechlib.org/p/4793/

GenuisBrain (2025). Digital Literacy in Nigerian Schools: 5 Strategies that Work.

Giazitzidou, S., Mouzaki, A., & Padeliadu, S. (2024). Pathways from Morphological Awareness to Reading Fluency: The Mediating Role of Phonological Awareness and Ovulary, *Reading and Writing*, 37(5), 1109-1131, https://doi.org/ 10.1007/s11145-023-10426-2

Gilster, P. (1997), Digital Literacy, Wiley

Graham, S. & Perin, D. (2007). Effective Strategies to Improve Writing of Adolescent in Middle and High Schools. A Report to Carnegie Corporation of New York, New York: Alliance for Excellent Education.

Hague, C., & Payton, S. (2010). Digital Literacy Across the Curriculum. Futurelab

Harris, K. (2015). Integrating Digital Literacy into English language Instruction: Issues Brief. Retrieved from http://lincs.ed.gov/sites/default/files/ELL Digital Literacy 508.pdf

International Society for Technology in Education (2016), ISTE Standards for Students. Retrieved http://www.iste.org/standards/for-students

Jacobs, G., Castek, J. (2018). Gigital Problem Solving: The Literacies of Navigating Life in the Digital. *Journal of indolence and Adult Literacy*, 61(6),681 – 685.

Jones-Kavalier, B. R. & Flannigan, A. L. (2006). Connecting the Digital Dots: Literacy of the 21st Century. Educause Quarterly, 20(2), 8-10

Koda, K & Zehler, A. M. (Eds.). (2008). Learning to read across languages: Cross-Linguistic relationships in first- and second-language literacy development. London. Routledge.

Lankshear, C., & Knobel, M.(Eds.). (2008). Digital Literacies: Concepts, Origins and Practices. New Tork, NY: Peter Lang.

Liao, R.J.T. & Lee, K, (2024). The Interplay Between Metacognitive Knowledge, 12 Language Proficiency, and Question Formats in Predicting 12 Reading Test Scores. *Education Sciences*. 14(4). 2-16. https://doi.org/10.3390/educsci144040370

Martin, A. & Grudziecki, J. (2006). DigEuLit. Concepts and Definitions. *Journal of eLiteracy*, 3(1), 249-262

Museum and Library Services Act of 2010, Pub. L.111 – 340, 22 Dec, 2010

National Reading Panel (US) (2000). Teaching Children to Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and its Implications for Reading Instruction: Reports of the Subgroups. National Institute of Child Health and Human Development, National Institutes of Health.

Ng, W. (2012). Can We Teach Digital Natives Digital Literacy? *Computers & Education*, 59 (3). 1065-1078

Orkhill, J.V.& Cain, K (2012). The Precursors of Reading in Young Readers: Evidence from a Four Year Longitudinal Study, *Scientific Studies of Reading*, 26(2). 91 – 121. https://doi.org/ 10.1080/1088438.2010.529219

Pegrum, M. (2010, January). "Link, Therefore I am": Network, Literacy as a Core Digital Literacy. *E'Learning and Digital Media*, 7(4), 346-354. https://doi.org/10.2304/elea.2010.7/4/346

Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018) Digital Literacy: A Study of Swedish Adolescents'' Online Activities. *Computers in Human Behaviour*, 85, 286-295

Tomlinson, C. A. (2017). How to Differentiate Instruction in Academically Diverse Classroom (3rd ed.).ASCD.

Vanek, J. (2017), Using the PIAAC Framework for Problem Solving in Technology-Rich Environments to Guide Instruction: An Introduction for Adult Educators. Retrieved from http://static1squarespace.com/static/51bb74b8e4b0139570ddf020/t/589a3d3c1e 5b6cd7b42cddcb/1486503229769/PSTRE Guide Vanek 2017.pdf

Zhan, J. Sun, Q., & Zhang, L.J. (2024). Effects of Manipulating Writing Task Complexity on Learners' Performance in Completing Vocabulary and Syntactic Tasks. *Language Teaching Research*. 28(3). 1011-1032. https://doi.org/10.1177/13621688211024360

Zygouris-Coe, V. (2024). Strengthening Students Reading Motivation and Engagement with Care. *The reading Teacher*, 77(6), 1035-1038. https://doi.org/10.1002/trtr. 2325