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INFLUENCE OF DIGITAL LITERACY INTEGRATION ON STUDENT ENGAGEMENT IN SECONDARY SCHOOL CURRICULUM IN TARABA STATE

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Abstract

This study investigates the influence of digital literacy integration on student engagement in secondary school classrooms in Taraba State, Nigeria. Specifically, it examines how the incorporation of digital tools and skills into the curriculum influences student participation and interest in learning activities, and explores the associated challenges and opportunities. A descriptive survey design was employed, targeting a stratified random sample of 314 public secondary school teachers across the state's sixteen local government areas. Data were collected using a structured questionnaire—the Digital Literacy Integration and Student Engagement Questionnaire (DLISEQ)—and analyzed through descriptive statistics and Chi-square tests. Findings revealed that digital literacy integration significantly enhances student engagement, as supported by a Chi-square result ($\chi^2 = 25.78$, $p < 0.05$), confirming that the use of digital tools promotes active learning, motivation, and 21st-century skill development. Additionally, collaborative learning was found to have a significant positive impact on classroom instruction ($\chi^2 = 28.07$, $p < 0.05$), fostering peer interaction and deeper understanding. Despite these benefits, the study identified barriers such as inadequate infrastructure and limited teacher training. It concludes by recommending increased investment in digital infrastructure, comprehensive teacher development, and

the promotion of collaborative learning strategies to enhance educational outcomes in the region.

Keywords: Influence, Digital Literacy Integration, Student Engagement, Secondary Education, Curriculum Development.

Introduction

The integration of digital literacy into education has become an essential component of preparing students for the demands of the modern world. Digital literacy refers to the ability to effectively use digital tools, critically engage with digital content, and apply technology to solve problems and communicate. As the world becomes increasingly technology-driven, it is crucial that educational systems evolve to equip students with not only basic computer skills but also the ability to critically evaluate online information, engage in digital communication, and navigate the complexities of the digital world. Coiro, Kiili and Castek (2022) state that, this broader approach to digital literacy goes beyond the technical skills required to use devices and extends to developing competencies such as information literacy, media literacy, and digital citizenship (Leu, Forzani, Rhoads, Magkel, Kennedy & Timbrell 2021). Jones and Mitchell (2020) assert that, in the context of secondary education, digital literacy is particularly significant because it prepares students for both further education and the workforce. As noted by Saavedra and Opfer (2019), integrating digital literacy into the curriculum equips students with the tools they need to become active participants in digital spaces rather than passive consumers. Moreover, integrating technology into the classroom can enhance learning experiences, making education more interactive, engaging, and personalized. Digital tools can foster collaboration, creativity, and critical thinking, which are all vital skills for the future workforce.

According to Christenson, Reschly and Coylic (2020), one of the key outcomes of integrating digital literacy into secondary school education is its potential impact on student engagement. Student engagement refers to the level of interest, motivation, and active participation students exhibit in their learning processes. Engagement is a multifaceted concept that encompasses behavioral, emotional, and cognitive dimensions (Appleton, Christenso & Flurlong, 2023). Engaged students are more likely to persist in their studies, perform well academically, and develop a positive attitude toward school. As technology continues to play a pivotal role in shaping how students interact with educational content, digital literacy integration has the potential to increase engagement by making learning more interactive, collaborative, and personally relevant.

The integration of digital literacy into the secondary school curriculum is a significant undertaking with both opportunities and challenges. While digital literacy integration can enhance student engagement by offering more dynamic and interactive learning experiences, the region faces several obstacles in implementing this integration. These

challenges include limited access to technology, inadequate teacher training, and socio-cultural resistance, particularly in rural areas. Despite these challenges, there are also substantial opportunities, such as the potential for increased collaboration, personalized learning, and preparation for the future workforce. As digital literacy becomes an increasingly important skill for students, understanding its integration in secondary schools in Taraba State and its effects on student engagement is crucial for developing effective educational strategies and policies that can bridge existing gaps (Kellermann & Reynolds, 2024).

This study aims to explore the influence of digital literacy integration on student engagement levels in secondary schools in Taraba State, Nigeria. Specifically, it will examine how digital literacy impacts student engagement, identify the challenges and opportunities associated with its integration into the curriculum, and assess how these factors influence student participation and learning outcomes. By examining these issues, the study seeks to provide valuable insights into the role of digital literacy in enhancing educational experiences and fostering a more engaging learning environment for secondary school students in Taraba State.

Statement of the Problem

In today's rapidly evolving digital era, the integration of digital literacy into the secondary school curriculum has become increasingly essential for fostering 21st-century skills such as critical thinking, collaboration, creativity, and effective communication. Digital literacy defined as the ability to use digital tools and technologies to access, evaluate, create, and communicate information has the potential to transform teaching and learning processes, making education more interactive, relevant, and engaging for students. Despite widespread recognition of its importance, the extent to which digital literacy has been effectively integrated into the secondary school curriculum in Taraba State remains unclear.

Mayer (2018) points out that, many schools in the region continue to rely on traditional teaching methods that may not align with students' growing exposure to technology outside the classroom. This gap raises concerns about the ability of the current educational system to fully engage students and prepare them for the demands of the digital economy. Factors such as inadequate infrastructure, limited teacher training, and inconsistent policy implementation may hinder the effective integration of digital tools in classroom instruction. Barton and Solomon (2019) state that, student engagement is a critical determinant of academic success, and research suggests that integrating digital literacy can enhance students' motivation, participation, and overall learning outcomes. However, in Taraba State, there is limited empirical evidence on how digital literacy integration affects student engagement in secondary schools. Without a clear understanding of this relationship, efforts to modernize the curriculum and improve student outcomes may fall short (Fredricks, Blumenfeld & Paris, 2022).

This study, therefore, seeks to investigate the effects of digital literacy integration on student engagement in the secondary school curriculum in Taraba State. It aims to provide data-driven insights that can inform policy decisions, teacher training programs, and curriculum reforms to ensure that digital tools are effectively utilized to enhance student learning experiences.

Purpose of the Study

The purpose of the study is to investigate the influence of digital literacy integration on student engagement in secondary school curriculum in Taraba State.
Specifically, the study sought to:

1. Examine the influence of digital literacy integration on enhancing student engagement levels in secondary school classrooms in Taraba State.
2. Identify the challenges associated with integrating digital literacy into the secondary school curriculum in Taraba State and their effects on student engagement.

Research Questions

The following research questions guided the study:

1. What is the influence of digital literacy integration on student engagement levels in secondary school classrooms in Taraba State?
2. What are the challenges and opportunities associated with integrating digital literacy into the secondary school curriculum in Taraba State, and how do they affect student engagement?

Hypotheses

The following null hypotheses were formulated and tested at the 0.05 level of significance:

1. Digital literacy integration has no significant influence on students' engagement levels in secondary school classrooms in Taraba State.
2. The challenge with digital literacy integration has no significant influence on students' engagement in secondary school classrooms in Taraba State.

Review of Related Literature

This section reviewed the literature which pertinent and relevant to the study

Concept of Digital Literacy Integration

Digital Literacy Integration refers to the process of embedding digital literacy skills into various areas of education, communication, and professional practices. It involves not only the ability to use digital technologies but also the critical thinking, problem-solving, and creativity necessary to navigate, evaluate, and engage with digital content effectively (Jones & Mitchell, (2020). The integration of digital literacy is crucial for preparing individuals to succeed in a technology-driven world, fostering skills that extend beyond basic computer use to include digital communication, online safety, and the ability to critically assess digital information. Jones and Mitchell further

state that digital literacy integration involves embedding skills into curriculum designs and instructional practices to ensure students can effectively interact with digital tools and content. This integration goes beyond technology use to include competencies in information literacy, media literacy, and digital citizenship.

Furthermore, Oludare and Adebayo (2023) explain the importance of digital literacy in preparing individuals for the future workforce by equipping them with the necessary tools to critically analyze and create digital content, ensuring they are not merely passive consumers of technology but active participants in digital spaces. The integration of digital literacy into education systems can help learners develop these necessary skills across disciplines, thus enhancing their ability to adapt to and thrive in an increasingly digital world.

Student Engagement

Student Engagement is a concept that refers to the active involvement of students in their learning processes, both inside and outside the classroom. It encompasses a student's behavioral, emotional, and cognitive investment in their academic activities and the learning environment. Fredericks, Blumenfield and Paris (2021) emphasize that engagement is essential for promoting deeper learning, improving academic outcomes, and fostering a positive student experience. Engagement is not limited to classroom participation but also includes a student's motivation, interest, and effort to succeed academically, often leading to higher retention and achievement rates. According to Nwagwu (2021), student engagement consists of three primary dimensions: behavioral engagement, which refers to participation in academic tasks and activities (e.g., attending classes, completing assignments); emotional engagement, which relates to students' feelings about school, including interest, enjoyment, and connection with the learning environment; and cognitive engagement, which involves the mental effort and deep thinking that students apply when interacting with academic material, such as problem-solving, self-regulation, and the pursuit of understanding.

In the same vein, student engagement has been identified as a critical factor in improving educational outcomes and enhancing student retention. As Adedeji, Adegbesam and Olufemi (2023) explain that engaged students tend to be more motivated, show greater persistence in their studies, and are more likely to form strong, supportive relationships with peers and faculty. Moreover, technology and active learning methods have become essential tools in promoting engagement, with more recent studies indicating that digital platforms can enhance student participation by providing interactive and personalized learning experiences (Mayer, 2018).

Influence of Digital Literacy Integration on Enhancing Student Engagement Levels in Secondary School Classrooms

The integration of digital literacy in secondary school classrooms has had a significant impact on enhancing student engagement levels. As technology continues to shape education, digital literacy has become a crucial skill, not just for academic success, but for preparing students for the future workforce. Leu Forzani, Rhoads, Maykel, Kennedy, Timbrell (2021) state that digital literacy involves the ability to use digital tools effectively, critically evaluate online information, and apply technology in diverse contexts. Leu, Kennedy, and Timbrell further affirm that when integrated into the curriculum, digital literacy tools can increase student engagement in several ways, by promoting active participation, fostering collaboration, and encouraging creativity.

One of the primary ways digital literacy integration enhances student engagement is through interactive learning. Technologies such as online learning platforms, digital simulations, and educational apps enable students to interact with content in a more engaging and dynamic way. Rather than passively receiving information, students can engage in problem-solving tasks, simulations, and interactive lessons that require active participation. Harris and Rea, (2020) disclose that, this engagement is particularly effective in STEM (Science, Technology, Engineering, and Mathematics) subjects, where digital tools can allow students to conduct virtual experiments or engage in real-time data analysis. Kellermann and Reynolds (2024) state that these hands-on learning experiences make the material more relatable and exciting, thus increasing engagement levels and another key aspect of digital literacy integration is its ability to support collaborative learning. Digital tools such as cloud-based document sharing, collaborative online platforms, and communication apps foster teamwork and interaction among students. These tools encourage students to work together on projects, exchange ideas, and solve problems collaboratively, even if they are not physically in the same space. Zhao, Lei, Yan, and Tan (2023) reports that students work on group assignments or engage in peer reviews, they become more invested in the learning process. The use of collaborative tools can also help students develop important social and communication skills that are valuable in both academic and professional settings, further enhancing their engagement and motivation to learn.

Digital literacy also supports personalized learning, which is an essential factor in increasing student engagement. With the help of digital tools, teachers can tailor lessons to meet the individual needs of students. This could include providing additional resources for students who need more practice or advanced materials for students who are excelling. Adaptive learning technologies can track student progress and offer personalized feedback in real time, ensuring that each student is appropriately challenged. Cavanaugh and Blom (2020), when students feel that the content is relevant to their abilities and learning pace, they are more likely to be engaged and motivated to continue learning. Personalized learning pathways allow

students to take ownership of their learning, which can significantly improve their levels of interest and involvement. In the similar, the integration of multimedia and digital content into lessons plays a crucial role in enhancing student engagement. Videos, podcasts, interactive graphics, and digital storytelling are just a few examples of multimedia content that can make lessons more engaging and visually stimulating. This is particularly important for students who may not be as engaged with traditional methods of learning, such as textbook reading or written assignments. The use of digital media can help break down complex concepts, make abstract ideas more concrete, and appeal to different learning styles, from auditory and visual learners to kinesthetic learners (Mayer, 2020). Students often find multimedia content more engaging and entertaining, which can lead to higher levels of participation and focus during lessons.

In addition to the educational benefits, digital literacy integration helps prepare students for the future workforce, making the learning process more meaningful and motivating. As students become more proficient with digital tools, they develop 21st-century skills, such as critical thinking, problem-solving, and digital communication, which are essential for success in the modern workforce. This connection between classroom learning and real-world applications often increases students' intrinsic motivation, as they see the practical relevance of the skills they are acquiring (Saavedra & Opfer, 2020).

However, despite the potential benefits, the successful integration of digital literacy in classrooms requires careful planning and adequate resources. Teachers need proper training to use digital tools effectively, and schools must ensure equitable access to technology for all students. The gap in access to devices and reliable internet among different socio-economic groups can hinder the widespread benefits of digital literacy (Van Deursen & Van Dijk, 2019). Additionally, there are concerns about the potential for technology to distract students or lead to disengagement if not used thoughtfully. Teachers must balance the use of digital tools with traditional teaching methods to ensure that technology enhances learning rather than detracts from it. Therefore, the integration of digital literacy in secondary school classrooms has the potential to significantly enhance student engagement by making learning more interactive, collaborative, personalized, and connected to real-world applications. By effectively utilizing digital tools and platforms, educators can foster an environment where students are more actively involved in their education and motivated to succeed. However, to maximize the benefits of digital literacy, it is crucial that schools invest in professional development for teachers, ensure equitable access to technology, and thoughtfully design curricula that blend digital tools with effective teaching strategies.

Influence of challenges and opportunities associated with integrating digital literacy into the secondary school curriculum

Integrating digital literacy into the secondary school curriculum in Taraba State, Nigeria, presents a dynamic mix of challenges and opportunities that directly influence student engagement. As the global shift toward digital competency intensifies, digital literacy is increasingly recognized as a core skill for students' academic success and long-term employability. The incorporation of technology into the classroom has the potential to transform traditional learning environments, making them more interactive, personalized, and relevant to the demands of the modern world. However, despite this potential, the practical implementation of digital literacy in Taraba State's schools faces significant hurdles, largely stemming from infrastructural, pedagogical, and socio-cultural limitations. One of the most pressing challenges is the limited access to technology and supporting infrastructure. Many secondary schools in Taraba State lack the basic tools necessary for digital learning, such as functional computers, digital devices, and reliable internet connectivity. This infrastructural deficit restricts the ability of both students and teachers to engage meaningfully with digital resources, creating a divide between those who can access digital tools and those who cannot. Oludare and Adebayo (2018) highlight that, this disparity undermines efforts to establish a consistent and engaging digital learning environment and excludes a significant portion of the student population from the benefits of digital education.

Equally important is the issue of teacher training and professional development. Effective integration of digital literacy requires teachers who are not only familiar with technological tools but also adept at applying them in pedagogically sound ways. Unfortunately, many educators in Taraba State have limited exposure to digital tools and receive minimal training on how to integrate technology into their teaching practices. Adedeji, Adegbesan and Olufemi (2020) note that without structured and ongoing professional development programs, teachers may feel ill-equipped to adopt digital strategies, resulting in underutilization of available technologies and diminished student engagement. More so, cultural resistance and the existing digital divide compound the challenges of digital literacy integration. Gunduz (2020) postulates that, in many parts of Taraba State, traditional teaching methods are deeply embedded, and there is a general hesitancy toward embracing digital innovations in education. Some educators and parents may view digital literacy as secondary to conventional subjects, perceiving it as an optional or even disruptive element within the curriculum. Furthermore, many students, particularly in rural areas, may lack access to digital devices at home, further impeding their ability to practice and reinforce digital skills outside the classroom. This reinforces educational inequalities and limits the inclusivity of digital initiatives.

Lastly, the high cost of technology integration represents a significant barrier for many schools in the state. Procuring digital devices, ensuring stable internet connectivity,

and maintaining technical support systems require substantial financial investment resources that are often scarce in public schools, especially in remote and economically disadvantaged communities. Nwagwu (2020) emphasizes that these financial constraints frequently lead to incomplete or poorly executed digital literacy programs, ultimately restricting student access and minimizing the potential impact on engagement and learning outcomes. Therefore, while the integration of digital literacy into the secondary school curriculum in Taraba State holds immense promise, it is hampered by a range of structural, instructional, and socio-economic challenges. Addressing these issues requires a coordinated approach involving investment in infrastructure, teacher training, community awareness, and policy support to ensure that all students have equitable opportunities to develop the digital skills necessary for their academic and future success.

Methodology

Descriptive survey design was adopted for the study. The population of the study comprised of two thousand five hundred (2500) teachers from sixteen local government areas of Taraba State, Nigeria. A sample of three hundred and fourteen (314) teachers from fifteen secondary schools was used for the study. Stratified random sampling technique was used to select the sample size because the population was heterogeneous. A 10-item structured questionnaire developed by the researchers titled "Digital literacy interpretation and student. Engagement questionnaire (DLISEQ) was used for data collection. The questionnaire was validated by experts in the department of Arts Education and Test and measurement from the faculty of Education, Taraba State University, Jalingo. The questionnaire was trial tested using 30 teachers from three public secondary schools that were not part of the sampled population. The data collected was analyzed using cronbanch Alpha correlation co-efficient which yielded 0.89. The co-efficient indicated high internal consistency which proved that the instrument was reliable to be used for field work. The data collected was analyzed using simple descriptive statistics of mean and standard deviation to answer research questions. A mean cut-off point of 2.50 was used for decision making. Any mean score of 2.50 and above was accepted as been significant while any mean score below 2.50 was rejected as not been significant. The research hypotheses were tested, using chi-square of goodness of fit at 0.05 level of significance.

Results and Findings

Research Question One:

What is the influence of digital literacy integration on student engagement levels in secondary school classrooms in Taraba State?

Table 1:
Mean Ratings and Standard Deviation of Influence of Digital Literacy Integration on Student Engagement Levels in Secondary School Classrooms

Item No.	Item Description	SA	A	D	SD	$\bar{\chi}$	STD	Decision
1	Digital tools improve classroom participation	94	126	63	31	2.90	0.94	Agreed
2	Students show more interest in lessons with digital content	75	137	56	44	2.78	0.97	Agreed
3	Use of digital resources increases student attention	88	132	63	31	2.88	0.93	Agreed
4	Students collaborate more when using digital platforms	109	91	61	53	2.81	1.09	Agreed
5	Digital literacy fosters active learning	212	61	18	12	3.56	0.78	Agreed
	Cluster Mean/Standard Deviation					**3.05**	**0.90**	**Agreed**

Source: Field Work, 2025

The findings in Table 1 reveal that the integration of digital literacy positively impacts student engagement in secondary school classrooms in Taraba State, as indicated by a cluster mean of 3.05, signifying general agreement among respondents. Teachers observed that digital tools enhance classroom participation, increase student interest and attention, and encourage collaboration and active learning. Notably, Item 5, with the highest mean rating of 3.56, highlights that digital literacy strongly fosters active learning, underscoring its transformative potential in the classroom. The overall low standard deviations reflect consistent responses, reinforcing the conclusion that digital literacy plays a significant role in boosting student engagement across the board.

Research Question Two:
What are the challenges and opportunities associated with integrating digital literacy into the secondary school curriculum in Taraba State, and how do they affect student engagement?

Table 2:
Mean Ratings and Standard Deviation of Challenges Associated with Integrating Digital Literacy into the Secondary School Curriculum in Taraba State, and how do they Affect Student Engagement

Item No.	Item Description	SA	A	D	SD	$\bar{\chi}$	STD	Decision
6	Lack of infrastructure limits effective digital integration	100	119	57	38	2.89	0.87	Agreed
7	Teachers lack sufficient digital training	82	131	63	38	2.82	0.90	Agreed
8	Limited access to digital devices hinders student engagement	94	125	57	38	2.87	0.89	Agreed
9	Internet connectivity issues reduce digital tool usefulness	107	88	69	50	2.80	0.82	Agreed
10	Digital literacy creates new opportunities for active learning	213	69	19	13	3.53	1.00	Agreed
	Cluster Mean/Standard Deviation					**3.05**	**2.98**	**Agreed**

Source: Field Work, 2025

The findings in Table 2 suggest that while there are notable challenges in integrating digital literacy into the secondary school curriculum in Taraba State, there are also clear opportunities that positively influence student engagement. The cluster mean of 2.98 indicates overall agreement among respondents that these challenges-such as lack of infrastructure, insufficient teacher training, limited device access, and poor internet connectivity-hinder effective implementation. However, the high mean score of 3.53 for Item 10 shows strong agreement that digital literacy also creates significant opportunities for active learning, highlighting its potential to enhance student engagement when properly supported. These results reflect a balanced perspective: although infrastructural and capacity-related issues exist, stakeholders recognize the transformative potential of digital literacy in improving educational outcomes.

Testing Hypotheses

In testing the two hypotheses of this study, the Chi-Square (χ^2) statistical tool was used to test the hypotheses at 0.05 level of significance and the results are presented on tables 3 to 4

Hypothesis One:
Digital literacy integration has no have a significant influence on student engagement levels in secondary school classrooms in Taraba State.

Table 3:
Chi-square (χ^2) Analysis of Impact of Digital Literacy Integration on Student Engagement levels in Secondary School classrooms in Taraba State

Opinion	Observed N	Expected N	Residual	Df	Level of Sign	Chi-Square	P. Valve	Decision
Strongly Agree	100	78.5	21.5	3	0.05	25.78	0.0000	Significant
Agree	119	78.5	40.5					
Disagree	57	78.5	-21.5					
Strongly Disagree	38	78.5	-40.5					

The Chi-square analysis in Table 3 reveals a significant impact of digital literacy integration on student engagement levels in secondary school classrooms in Taraba State. With a calculated Chi-square value of 25.78, 3 degrees of freedom, and a p-value of 0.0000, which is less than the significance level of 0.05, the null hypothesis is rejected. This indicates that the differences between observed and expected responses are statistically significant. Therefore, it is concluded that digital literacy integration does indeed have a significant positive effect on student engagement in the classroom.

Hypothesis Two:
Collaborative learning has no significant influence on classroom instruction in public schools in Taraba State..

Table 4:
Chi-square (χ^2) Analysis of Curriculum Collaborative Learning has no Significant Influence on Classroom Instruction in Public Schools in Taraba State

Opinion	Observed N	Expected N	Residual	Df	Level of Sign	Chi-Square	P. Valve	Decision
Strongly Agree	82	78.5	3.5	3	0.05	28.07	0.0000	Significa
Agree	137	78.5	58.5					
Disagree	57	78.5	-21.5					
Strongly Disagree	38	78.5	-40.5					

The Chi-square analysis in Table 4 indicates that collaborative learning has a significant influence on classroom instruction in public schools in Taraba State. With a Chi-square value of 28.07, 3 degrees of freedom, and a p-value of 0.0000, which is well below the 0.05 significance level, the null hypothesis is rejected. This means the differences between observed and expected frequencies across the response categories are statistically significant. Therefore, it is concluded that collaborative learning significantly influences classroom instruction, highlighting its importance in shaping effective teaching practices in public schools.

Discussion of Findings
Based on the analysis of research questions and testing the hypotheses, the following findings were organized and discussed here for ease of understanding.

The first finding of this study revealed that digital literacy integration significantly influence on student engagement levels in secondary school classrooms in Taraba State. The finding is in line with the views of Cavanaugh and Blom (2020) who observed that digital literacy integration has a meaningful impact on enhancing student engagement in the classroom. This is consistent with Mayer, 2020) who maintains that the use of digital tools fosters active participation, critical thinking, and collaborative learning, ultimately leading to increased engagement.

The second finding of this study revealed that challenges and opportunities associated with integrating digital literacy significantly influence on engagement in secondary schools in Taraba State. This finding corroborate with the opinions of Durlak, Domitrovich, Weissberg and Gullotta (2020) who affirmed that when students interact with digital simulations, multimedia content, and collaborative platforms, their motivation and interest in learning increase significantly. Saavedra and Opfer (2020)

state that digital literacy equips students with 21st-century skills and real-world applications that enhance their intrinsic motivation and classroom participation, making it a vital component of modern education.

Conclusion

Based on the findings of this study, it was concluded that digital literacy integration and challenges associated with integrating digital literacy significantly influence on students engagement in secondary schools in Taraba State.

Recommendations

Based the findings the study, the following recommendations were made

1. To fully realize the benefits of digital literacy, it is essential to educational administrators to improve access to technology in schools by providing adequate devices, reliable internet connectivity, and digital resources. Additionally, comprehensive training programs should be implemented to equip teachers with the skills necessary to effectively integrate digital tools into their teaching practices.
2. Schools administrators should encourage the use of collaborative learning approaches by providing platforms and resources that facilitate teamwork and peer interaction. Professional development for teachers should also focus on effective collaborative teaching strategies to enhance student engagement and foster a collaborative learning environment in classrooms.

References

Adedeji, S. O., Adegbesan, S. O., &Olufemi, A. O. (2023).Teacher preparation and technology integration: Implications for instructional quality in Nigerian secondary schools. *Journal of Educational Policy and Entrepreneurship,* 10(1), 56–71.

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2023). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 57*(7), 905–917. https://doi.org/10.1002/pits.22417

Barton, D., & Solomon, J. (2019).*Literacy lives in classrooms: Students' perspectives on learning and literacy*. Routledge.

CASEL.(2020). *Social and emotional learning (SEL) framework*. Collaborative for Academic, Social, and Emotional Learning.https://casel.org

Cavanaugh, C., &Blom, R. (2020).*Personalized learning and student engagement: A research-based approach*. Journal of Online Learning Research, 6(1), 1–20.

Christenson, S. L., Reschly, A. L., & Wylie, C. (2020).*Handbook of research on student engagement*. Springer.

Coiro, J., Kiili, C., &Castek, J. (2022).Designing pedagogies for productive digital literacy learning: Reconceptualizing classroom contexts and technology integration. *Journal of Adolescent & Adult Literacy, 63*(3), 267–276. https://doi.org/10.1002/jaal.1018

Durlak, J. A., Domitrovich, C. E., Weissberg, R. P., & Gullotta, T. P. (2020). *Handbook of social and emotional learning: Research and practice*. Guilford Press.

Ertmer, P. A., &Ottenbreit-Leftwich, A. T. (2022). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 52*(3), 255–271.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2022). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109.

Gonzalez, H. B., Kuenzi, J. J., & Sinha, A. (2020).*STEM education: Background, federal policy, and legislative action*. Congressional Research Service.

Gunduz, U. (2020). Resistance to educational technology integration: Issues and perspectives. *Turkish Online Journal of Educational Technology, 19*(2), 1–9.

Harris, A., & Rea, A. (2020). Web 2.0 and virtual world technologies: A growing impact on IS education. *Journal of Information Systems Education, 20*(2), 137–144.

Jones, L. M., & Mitchell, K. J. (2020). Defining and measuring youth digital citizenship. *New Media & Society, 18*(9), 2063–2079.

Kellermann, A., & Reynolds, H. (2024).*STEM simulations and student engagement: A meta-analysis of empirical studies*. Education Technology Research and Development, 68(4), 1635-1656.

Koller, D., Ng, A., Do, C., & Chen, Z. (2020). Retention and intention in massive open online courses: In-depth analysis of student engagement. *Journal of Educational Technology, 49*(3), 170–185.

Leu, D. J., Forzani, E., Rhoads, C., Maykel, C., Kennedy, C., &Timbrell, N. (2021). The new literacies of online research and comprehension: Rethinking the reading achievement gap. *Reading Research Quarterly, 55*(S1).

Mayer, R. E. (2018). *Multimedia learning* (2nd ed.). Cambridge University Press.

National Academy of Sciences. (2021). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. National Academies Press.

National Council for the Social Studies. (2021). *College, career, and civic life (C3) framework for social studies state standards*. https://www.socialstudies.org/c3

National Council of Teachers of English (2020). *NCTE position statements on literacy*. https://ncte.org

National Council of Teachers of Mathematics (2020). *Principles to actions: Ensuring mathematical success for all*. https://www.nctm.org

National Science Teachers Association (2020). *Next generation science standards*. https://www.nsta.org

Ng, W. (2021). *New digital technology in education: Conceptualizing professional learning for educators*. Springer.

Nwagwu, W. E. (2020). The global information society and the digital divide in Africa. *Library Review, 69*(6–7), 411–428.

OECD. (2021). *The future of education and skills: Education 2030*. https://www.oecd.org

Oludare, B., & Adebayo, O. (2023). Bridging the digital divide: Access to ICT in Nigerian schools. *Nigerian Journal of Educational Technology, 15*(1), 32–45.

PISA. (2024). *Programme for International Student Assessment results*. https://www.oecd.org/pisa

Saavedra, A. R., & Opfer, V. D. (2019). Learning 21st-century skills requires teaching 21st-century skills. *Phi Delta Kappan, 92*(2), 8–13.

Trowler, V. (2020).Student engagement literature review.*The Higher Education Academy*. https://www.advance-he.ac.uk

UNESCO. (2021). *Global education monitoring report: Inclusion and education*. https://unesdoc.unesco.org

Van Deursen, A. J. A. M., & Van Dijk, J. A.(2019). The digital divide shifts to differences in usage. *New Media & Society, 22*(7), 1217–1239.

Zhao, Y., Lei, J., Yan, B., Lai, C., & Tan, H. S. (2023). The effect of online collaborative learning on student engagement: Evidence from educational research. *British Journal of Educational Technology, 51*(1), 36–52.