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Teachers' Awareness of Effective Integration of Digital Literacy in Public and Private Senior Secondary Schools in Port Harcourt Metropolis, Nigeria

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ABSTRACT

This study investigated teachers' awareness of effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis. A descriptive survey research design was adopted, with a population of 3,494 teachers from both public and private schools. Using simple random sampling, 1,048 teachers were selected as the study sample. Data were collected through a self-structured questionnaire titled Teachers' Awareness for Effective Integration of Digital Literacy Questionnaire (TWEIDLQ), which was validated by experts and yielded a reliability coefficient of 0.73. The data collected were analyzed using mean and standard deviation to answer the research questions, while t-test statistics were used to test the hypotheses at 0.05 level of significance. The findings revealed that teachers' knowledge of digital tools, attitudes towards digital literacy, and access to professional development significantly influenced the effective integration of digital literacy in both public and private senior secondary schools. It was concluded that gaps in teachers' digital competencies and attitudes, as well as inadequate professional training, limit effective integration of digital literacy. The study recommended capacity building workshops, attitudinal re-orientation programs, and continuous professional development for teachers enhance digital literacy integration in senior secondary schools in Port Harcourt Metropolis.

Keywords: Teachers' awareness, digital literacy, knowledge of digital tools, integration; professional development;

INTRODUCTION

Education in Nigeria plays a pivotal role in national development, encompassing various levels from primary to tertiary education. The Nigerian government has recognized the importance of education in achieving sustainable development goals (SDG), leading to initiatives aimed at improving educational quality and accessibility. However, challenges such as inadequate infrastructure, limited resources, and disparities between urban and rural areas continue to affect the effectiveness of the education system (World Bank, 2025).

Teachers' awareness of digital literacy is crucial for the effective integration of technology in education. In Nigeria, many educators have limited exposure to digital tools and resources, hindering their ability to incorporate technology into their teaching practices. This lack of awareness affects their confidence and competence in utilizing digital platforms for instructional purposes (Agarry, Babalola, & Jacob, 2024). The knowledge of digital tools encompasses teachers' understanding and proficiency in using various technological devices and applications relevant to education. In Port Harcourt Metropolis, teachers' familiarity with digital tools varies significantly, with some educators demonstrating high proficiency while others struggle to operate basic devices. This disparity impacts the uniformity of digital literacy integration across schools (Badmus, 2025). Attitude towards digital literacy refers to teachers' perceptions and openness to adopting technology in their teaching methods. Positive attitudes are essential for embracing digital tools, yet many teachers exhibit resistance due to fear of inadequacy or unfamiliarity with technology. Overcoming these attitudinal barriers is vital for fostering a conducive environment for digital literacy integration (Irele, 2024). Professional development and training in digital literacy are integral to enhancing teachers' skills and confidence in using technology. Continuous professional development programs equip educators with the necessary competencies to integrate digital tools effectively. In Port Harcourt, there is a growing emphasis on providing teachers with training opportunities to bridge the digital skills gap (Etesike, Ogbuabor, & Ofor, 2025).

Digital literacy involves the ability to access, manage, and evaluate information using digital technologies. It encompasses a range of skills, including information literacy, media literacy, and technological literacy. In the context of Nigerian secondary schools, digital literacy is essential for preparing students for the demands of the 21st century, enabling them to navigate and utilize digital platforms effectively (David-West, 2022). Teachers' awareness is a significant determinant in the successful integration of digital literacy in education. When educators are knowledgeable and confident in using digital tools, they can create engaging and interactive learning experiences for students. In Port Harcourt Metropolis, schools that prioritize teacher awareness programs have witnessed improved digital literacy outcomes among students (Agarry et al., 2024).

Public and private senior secondary schools in Port Harcourt Metropolis exhibit varying levels of digital literacy integration. Private schools often have better access to resources and infrastructure, facilitating the incorporation of technology in teaching. Conversely, public schools face challenges such as limited funding and outdated equipment, affecting their ability to integrate digital literacy effectively (Badmus, 2025).

Previous studies have highlighted the importance of teachers' awareness in integrating digital literacy; however, there is limited research focusing specifically on Port Harcourt Metropolis. Existing literature predominantly addresses general trends without delving into regional disparities or the unique challenges faced by educators in this area. This study aims to fill this gap by providing a localized analysis of teachers' awareness and its impact on digital literacy integration (Etesike et al., 2025). enhancing teachers' awareness of digital literacy is paramount for the effective integration of technology in education. Addressing the gaps in knowledge, attitude, and professional development can significantly improve the digital literacy outcomes in senior secondary schools in Port Harcourt Metropolis. This research seeks to contribute valuable insights into the strategies needed to empower educators and foster a digitally literate student population.

Statement of the Problem

Teachers' awareness of digital literacy is a key factor influencing the effective integration of technology in senior secondary schools. Ideally, educators should possess adequate knowledge of digital tools, maintain a positive attitude toward technology and continuously engage in professional development or training in digital literacy. When teachers are aware and competent in these areas, they are able to seamlessly incorporate digital resources into teaching and learning, thereby enhancing student engagement, improving instructional delivery, and preparing students for the demands of the 21st-century digital economy. Knowledge of digital tools equips teachers to select and use appropriate digital platforms, while a positive attitude encourages the adoption of innovative teaching methods. Additionally,

professional development ensures that teachers remain updated with emerging digital technologies, enabling them to implement effective digital literacy strategies in the classroom.

However, the current reality in public and private senior secondary schools in Port Harcourt Metropolis often falls short of this ideal. Many teachers exhibit limited knowledge of available digital tools and educational software, and some display reluctance to incorporate technology due to fear of inadequacy or lack of confidence. Moreover, opportunities for professional development are unevenly distributed, with public school teachers often having fewer training programs compared to their private school counterparts. These gaps in knowledge, attitude, and training hinder the effective integration of digital literacy, resulting in a situation where students do not fully benefit from digital learning resources and the potential advantages of technology-enhanced instruction are underutilized.

The present situation is therefore characterized by inconsistent levels of digital literacy integration across schools. While some private schools may have access to advanced digital tools and regularly train their teachers, many public schools continue to rely on traditional teaching methods with minimal technological support. This situation is largely driven by insufficient infrastructure, limited funding, lack of policy enforcement on digital literacy training, and low teacher motivation in some schools. To address these challenges, possible solutions include implementing regular teacher training programs focused on digital literacy, providing access to necessary digital tools and resources, and creating incentives that encourage teachers to adopt technology in their teaching. By improving teachers' knowledge of digital tools, fostering positive attitudes toward digital literacy, and ensuring continuous professional development, schools can enhance the effective integration of digital literacy, ultimately improving student learning outcomes and bridging the technology gap between public and private institutions.

Purpose of the study

The purpose of this study was to examine the Teacher's Awareness for Effective integration of Digital Literacy in Public and Private Senior Secondary Schools in Port Harcourt Metropolis. The specific objectives of the study are :

1. To examine the extent to which teachers' knowledge of digital tools influences the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis.
2. To examine the extent to which teachers' attitude towards digital literacy affects the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis.
3. To examine the extent to which professional development/training in digital literacy impacts the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis.

Research Questions

The following research questions have been presented to guide the study

1. To what extent does teachers' knowledge of digital tools influence the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?
2. To what extent does teachers' attitude towards digital literacy affect the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?
3. To what extent does professional development/training in digital literacy impact the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?

Hypotheses.

The following null hypotheses have been formulated to be tested at 5% level of significance.

1. There is no significant difference in the mean rating of Public and Private school teachers regarding the influence of knowledge of digital tools on the effective integration of digital literacy.
2. There is no significant difference in the mean rating of Public and Private school teachers regarding the influence of attitude towards digital literacy on the effective integration of digital literacy.

3. There is no significant difference in the mean rating of private and public school teachers regarding the influence of professional development/training on the effective integration of digital literacy.

LITERATURE REVIEW

Knowledge of digital tools

Knowledge of digital tools refers to a teacher's understanding, familiarity, and proficiency in using various technological devices and software applications for instructional purposes. It encompasses the ability to operate computers, educational software, interactive whiteboards, projectors, learning management systems, and other digital platforms that facilitate teaching and learning. Teachers with high knowledge of digital tools can select and apply the appropriate technology to enhance lesson delivery, improve student engagement, and support interactive learning activities (Badmus, 2025; Agarry, Babalola, & Jacob, 2024).

This knowledge is not limited to technical skills but also includes pedagogical competence knowing how to integrate digital tools effectively into the curriculum to achieve learning objectives. For instance, a teacher may know how to create digital quizzes, use online collaboration platforms, or incorporate multimedia content to illustrate complex concepts. The extent of a teacher's knowledge of digital tools directly influences their confidence in using technology, their willingness to experiment with new teaching methods, and ultimately, the effective integration of digital literacy into the classroom (Irele, 2024).

Teachers' attitude towards digital literacy

Teachers' attitude towards digital literacy refers to their perceptions, beliefs, and disposition toward the use of digital technologies in teaching and learning. A positive attitude indicates openness, willingness, and enthusiasm to adopt digital tools, while a negative attitude reflects resistance, fear, or reluctance to integrate technology into instructional practices. Teachers' attitudes play a significant role in determining how effectively digital literacy is implemented in classrooms, as even teachers with adequate knowledge of digital tools may fail to integrate them if they are unwilling or skeptical of their benefits (Irele, 2024; Agarry, Babalola, & Jacob, 2024).

In public and private senior secondary schools, the influence of teachers' attitude is evident in the level of digital adoption. Private schools often encourage innovation and provide incentives for teachers to use digital platforms, which fosters positive attitudes and increases the effective integration of digital literacy. Conversely, in many public schools, negative attitudes may arise due to inadequate resources, lack of training, or unfamiliarity with technology, which limits the application of digital tools in teaching (Badmus, 2025). Therefore, improving teachers' attitudes through motivation, awareness campaigns, and exposure to successful digital teaching strategies is critical for enhancing the overall integration of digital literacy across both school types.

Professional Development/Training in Digital Literacy

Professional Development/Training in Digital Literacy refers to structured programs designed to enhance teachers' competencies in using digital tools and technologies for instructional purposes. These programs aim to equip educators with the necessary skills to integrate digital resources effectively into their teaching practices, thereby fostering an environment conducive to digital literacy. In the context of senior secondary schools in Port Harcourt Metropolis, such professional development initiatives are crucial for bridging the digital divide and ensuring that both public and private schools can leverage technology to improve educational outcomes (Nwobodo, 2025).

Recent studies underscore the significance of continuous professional development in enhancing teachers' digital competencies. For instance, ongoing training programs are essential for teachers to stay abreast of technological advancements and pedagogical strategies, thereby improving their ability to integrate digital tools into the curriculum effectively (Nwobodo, 2025). Similarly, Mohamed and Arulprasam (2024) demonstrated that professional development programs positively influenced teachers' performance and students' academic achievements, emphasizing the need for regular and targeted training sessions. Furthermore, the National Information Technology Development Agency (NITDA) has initiated various

programs aimed at enhancing digital literacy among educators. The NITDA Digital States Initiative, for example, focuses on training teachers in digital skills, including digital marketing, productivity tools, and content creation, to empower them to incorporate technology into their teaching practices effectively (National Information Technology Development Agency [NITDA], 2025). Such initiatives are pivotal in fostering a digitally literate teaching workforce capable of navigating the challenges and opportunities presented by the digital age.

Professional development and training in digital literacy are instrumental in equipping teachers with the skills necessary for the effective integration of digital tools in education. By investing in continuous and comprehensive training programs, educational stakeholders can ensure that teachers are well-prepared to utilize technology to enhance teaching and learning processes, thereby improving educational outcomes in senior secondary schools across Port Harcourt Metropolis (Mohamed & Arulprasam, 2024; Nwobodo, 2025).

METHODOLOGY

The study adopted a descriptive survey research design to investigate extent of teachers' awareness for effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis. The study was conducted in Port Harcourt Metropolis, focusing on public and private secondary schools in the Port Harcourt and Obio/Akpor Local Government Areas. The population of the study comprised 3,494 teachers, from public and private senior secondary schools in the study area. A sample of 30% of the population, totaling 1,048 teachers, was selected using simple random sampling technique. Data were collected using a self-structured questionnaire titled "Teachers' Awareness for Effective Integration of Digital Literacy Questionnaire (TWEIDLQ)", which had two sections: Section A for demographic data and Section B subdivided into B1, B2, and B3 to collect information aligned with the study objectives. Responses were measured on a 4-point Likert scale: Very High Extent (VHE – 4 points), High Extent (HE – 3 points), Low Extent (LE – 2 points), and Very Low Extent (VLE – 1 point). The instrument was validated for face and content by three experts two in Educational Technology and one in Educations Measurement and Evaluation with their feedback incorporated into the final version. Reliability of instrument was established using the test-retest method on 20 teachers from Imo State University, yielding a Pearson Product Moment Correlation coefficient of 0.73, indicating the instrument was reliable. The copies of the questionnaire were administered to 1,048 respondents, 598 from the private schools and 814 from public schools, with the assistance of five trained field assistants and 1,412 copies were successfully retrieved and used for analysis. Data were analyzed using mean and standard deviation to answer research questions, while hypotheses were tested using t-test statistics. Decisions were based on pre-determined boundary limits for response options: VHE (3.50–4.00), HE (2.50–3.49), LE (1.50–2.49), and VLE (1.00–1.49), with values equal to or above each threshold considered representative of that response category.

RESULTS

Research Question 1: *To what extent does teachers’ knowledge of digital tools influence the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?*

Table 1: Mean and Standard Deviation on the extent does teachers’ knowledge of digital tools influence the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis

S/N	Items	Private Teachers (598)			Public Teachers (814)			Aggregate		
		Mean	SD	RM	Mean	SD	RM	Mean	SD	RM
1	Teachers have adequate knowledge of digital tools that enhance teaching and learning in the classroom.	3.66	0.49	VHE	3.72	0.63	VHE	3.69	0.56	VHE
2	teachers knowledge to digital tools helps me to effectively integrate digital literacy in lesson delivery.	3.34	0.65	HE	3.82	0.57	VHE	3.58	0.61	VHE
3	Limited knowledge of digital tools affects teachers ability to integrate digital literacy effectively.	2.88	0.78	HE	3.96	0.31	VHE	3.42	0.55	HE
4	teachers knowledge to digital tools influences students’ engagement and participation in learning activities.	3.05	0.96	HE	3.59	0.83	VHE	3.32	0.90	HE
5	Lack of sufficient knowledge of digital tools hinders the effective use of digital literacy in my school.	2.81	0.54	HE	3.86	0.51	VHE	3.34	0.53	HE
6	teachers knowledge to digital tools enables me to prepare and deliver technology-supported instructional materials.	2.66	0.70	HE	3.70	0.53	VHE	3.18	0.62	HE
7	Teachers’ knowledge to digital tools is a key factor for the successful integration of digital literacy in schools	2.90	0.58	HE	3.45	0.67	HE	3.18	0.63	HE
Grand Mean/SD		3.04	0.67	HE	3.73	0.58	VHE	3.39	0.63	HE

Source: Field Survey Data, 2025

The analyzed data in Table 1 for research question one showed that five items were High extent, while 2 items were on very high extent by the Public and Private teachers . The confirmation was made with a grand mean of 3.04 and 3.73 and standard deviation of 0.67 and 0.58 as responses of the respondents on both Public and Private teachers. This shows that Teachers have adequate knowledge of digital tools that enhance teaching and learning in the classroom. This is true since the grand mean value was above the benchmark of 2.50, meaning that most of the respondents were on the High extent range of the scale.

Research Question 2: *To what extent does teachers' attitude towards digital literacy affect the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?*

Table 2: Mean and Standard Deviation on the extent teachers' attitude towards digital literacy affect the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis

S/N	Items	Private Teachers (598)			Public Teachers (814)			Aggregate		
		Mean	SD	RM	Mean	SD	RM	Mean	SD	RM
8	Teachers attitude towards digital literacy motivates me to integrate it into my lessons.	3.53	0.84	VHE	3.25	0.72	HE	3.39	0.78	HE
9	Negative attitudes of teachers towards digital literacy hinder its effective integration in schools.	3.43	0.84	HE	3.97	0.27	VHE	3.7	0.56	VHE
10	Teachers with positive attitudes towards digital literacy achieve better teaching outcomes.	3.09	0.97	HE	3.49	0.51	HE	3.29	0.74	HE
11	teachers attitude towards digital literacy determines how often I use digital tools in lesson delivery.	3.41	0.59	HE	3.34	0.54	HE	3.38	0.57	HE
12	Resistance to digital literacy among teachers reduces its effective integration in schools.	2.78	0.56	HE	2.98	0.54	HE	2.88	0.55	HE
13	Positive attitude towards digital literacy enhances students' digital competence.	3.11	1.17	HE	3.29	0.70	HE	3.2	0.94	HE
14	Teachers' attitudes play a significant role in determining the success of digital literacy integration.	3.28	0.67	HE	3.44	0.76	HE	3.36	0.72	HE
Grand Mean/SD		3.23	0.80	ME	3.39	0.57	ME	3.31	0.69	HE

Source: Field Survey Data, 2025

The analyzed data in Table 2 for research question two showed that six items were high extent, while 1 item were on very high extent by the Public and Private teachers . The confirmation was made with a grand mean of 3.23 and 3.39 and standard deviation of 0.80 and 0.57 as responses of the respondents on both Public and Private teachers . This shows that Teachers attitude towards digital literacy motivates me to integrate it into my lessons. Positive attitude towards digital literacy enhances students' digital competence. This is true since the grand mean value was above the benchmark of 2.50, meaning that most of the respondents were on the High extent range of the scale.

Research Question 5: *To what extent does professional development/training in digital literacy impact the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis?*

Table 4.5: Mean and Standard Deviation on the extent does professional development/training in digital literacy impact the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis

S/N	Items	Private Teachers (598)			Public Teachers (814)			Aggregate		
		SD	RM	\bar{X}	SD	RM	\bar{X}	SD	RM	
15	Teachers participation in training programs directly influences how they integrate digital literacy in class.	3.61	0.72	VHE	3.11	0.52	HE	3.36	0.62	HE
16	Regular professional development enhances the sustainability of digital literacy integration in schools.	3.52	0.76	VHE	3.36	0.73	HE	3.44	0.75	HE
17	Professional training in digital literacy is essential for effective teaching in the 21st century.	3.48	0.78	HE	3.96	0.31	VHE	3.72	0.55	VHE
18	The absence of training opportunities reduces teachers' capacity to implement digital literacy.	3.56	0.85	VHE	3.21	0.55	HE	3.39	0.7	HE
19	Teachers who undergo digital literacy training integrate digital tools more effectively than those who do not.	3.14	0.87	HE	3.18	0.53	HE	3.16	0.7	HE
20	Training programs have improved my ability to integrate digital tools effectively into teaching.	2.86	0.45	HE	3.18	0.61	HE	3.02	0.53	HE
21	Professional development in digital literacy increases my confidence in using technology for teaching.	3.58	0.67	VHE	3.44	0.70	HE	3.51	0.69	VHE
Grand Mean/SD		3.39	0.73	HE	3.34	0.56	HE	3.37	0.65	HE

The analyzed data in Table 3 for research question three showed that five items were high extent, while two items were on very high extent by the Public and Private teachers. The confirmation was made with a grand mean of 3.39 and 3.34 and standard deviation of 0.73 and 0.56 as responses of the respondents on both Public and Private teachers. This shows that Teachers participation in training programs directly influences how they integrate digital literacy in class. Professional development in digital literacy increases my confidence in using technology for teaching. This is true since the grand mean value was above the benchmark of 2.50, meaning that most of the respondents were on the High extent range of the scale.

Test of Hypotheses

Hypothesis 1: There is no significant difference in the mean rating of Public and Private school teachers regarding the influence of knowledge of digital tools on the effective integration of digital literacy.

Table 4.: t-test of Differences in the mean rating of Public and Private school teachers regarding the influence of knowledge of digital tools on the effective integration of digital literacy

Respondents	N	\bar{X}	SD	df	Lev. of sig.	Std. error	t-cal	t-crit	Decision
Private Teacher	598	3.04	0.67	1410	0.05	0.03	23.0	1.96	Reject Significant Difference
Public teacher	814	3.73	0.58						

Source: Field Survey Data, 2025

Table 4 above shows the result on the table show that t-calculated value of 23.0 which was greater than the t-critical value of 1.96 at 0.05 level of significance and with a degree of freedom of 1410, since the t-calculated (23.0) was greater than the t-tabulated (1.96). The null hypothesis was therefore rejected which states that there is a significant difference in the mean rating of Public and Private school teachers regarding the influence of knowledge of digital tools on the effective integration of digital literacy.

Hypothesis 2: There is no significant difference in the mean rating of Public and Private school teachers regarding the influence of attitude towards digital literacy on the effective integration of digital literacy.

Table 5: t-test of Differences in the mean rating of Public and Private school teachers regarding the influence of attitude towards digital literacy on the effective integration of digital literacy

Respondents	N	\bar{X}	SD	df	Lev. of sig.	Std. error	t-cal	t-crit	Decision
Private Teacher	598	3.23	0.80	1410	0.05	0.04	4.0	1.96	Reject Significant Difference
Public teacher	814	3.39	0.57						

Source: Field Survey Data, 2025

Table 5 above shows the result on the table show that t-calculated value of 4.0 which was greater than the t-critical value of 1.96 at 0.05 level of significance and with a degree of freedom of 1410, since the t-calculated (4.0) was greater than the t-tabulated (1.96). The null hypothesis was therefore rejected which states that there is a significant difference in the mean rating of Public and Private school teachers regarding the influence of attitude towards digital literacy on the effective integration of digital literacy.

Hypothesis 3: There is no significant difference in the mean rating of private and public school teachers regarding the influence of professional development/training on the effective integration of digital literacy.

Table 5: t-test of Differences in the mean rating of private and public school teachers regarding the influence of professional development/training on the effective integration of digital literacy

Respondents	N	\bar{X}	SD	df	Lev. of sig.	Std. error	t-cal	t-crit	Decision
Private Teacher	598	3.39	0.73	1410	0.05	0.04	1.25	1.96	Failed to Reject No Significant Difference
Public teacher	814	3.34	0.56						

Source: Field Survey Data, 2025

Table 11 above shows the result on the table show that t-calculated value of 1.25 which was less than the t-critical value of 1.96 at 0.05 level of significance and with a degree of freedom of 1410, since the t-calculated (1.25) was less than the t-tabulated (1.96). The null hypothesis was therefore accepted which states that there is no significant difference in the mean rating of private and public school teachers regarding the influence of professional development/training on the effective integration of digital literacy.

DISCUSSION OF FINDINGS

The findings of the study revealed that teachers' knowledge of digital tools significantly influences the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis. Teachers who demonstrated higher knowledge of digital tools were more effective in applying them in classroom activities. This is in line with the view of Agarry, Babalola, and Jacob (2024), who argued that teachers with adequate knowledge of digital tools enhance instructional delivery and promote digital literacy among students. Based on the findings, it can be observed that insufficient knowledge of digital tools limits integration, particularly in some public schools. This result is in agreement with the view of Badmus (2025), who highlighted that poor knowledge of ICT tools is a major barrier to digital literacy integration in Nigerian schools.

The study further showed that teachers' attitudes toward digital literacy play a vital role in its effective integration. Teachers with positive attitudes were more willing to adopt digital tools in their teaching, whereas negative attitudes discouraged integration. This finding is in line with the view of Irele (2024), who noted that teachers' attitudes either enhance or hinder the successful application of technology in education. Based on the findings, a positive attitude promotes creativity, innovation, and student engagement. This result is in agreement with the view of Adegbiya and Fakomogbon (2023), who stressed that attitude is a strong determinant of technology acceptance and use among teachers in Nigerian secondary schools.

Finally, the findings revealed that professional development and training in digital literacy significantly enhance teachers' ability to integrate digital tools effectively. Teachers who had undergone training reported greater confidence and competence in applying digital literacy in their classrooms. This is in line with the view of Mohamed and Arulprasam (2024), who emphasized that continuous professional development improves teachers' digital competence and student learning outcomes. Based on the findings, the absence of regular training reduces the pace of digital integration, particularly in public schools. This is in agreement with the view of Nwobodo (2025), who observed that the provision of structured training programs enhances the sustainability of digital literacy integration in schools.

CONCLUSION

The study concluded that teachers' knowledge of digital tools, their attitudes towards digital literacy, and the professional development opportunities available to them significantly influence the effective integration of digital literacy in public and private senior secondary schools in Port Harcourt Metropolis. Teachers with strong knowledge of digital tools, positive attitudes, and access to continuous training were more effective in integrating digital literacy into classroom instruction, thereby enhancing teaching and learning outcomes. Conversely, gaps in knowledge, negative attitudes, and limited professional development opportunities hindered successful integration. Strengthening these areas is therefore essential for equipping teachers with the skills required to meet the demands of 21st-century education.

RECOMMENDATIONS

1. Ministries of Education and school administrators should organize regular workshops and training sessions to improve teachers' knowledge and competence in using digital tools for effective classroom integration.
2. School authorities should implement sensitization and motivational programs that encourage teachers to develop and maintain positive attitudes towards digital literacy, emphasizing its benefits for teaching effectiveness and student engagement.

3. : Government and private school proprietors should institutionalize continuous professional development programs on digital literacy, ensuring that teachers are updated with emerging technologies and supported with practical resources for integration.

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