

## Digital Literacy; An analysis of the Influence of Educational Qualifications and years of Experience of Educators

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### Abstract

In the evolving landscape of education, digital literacy has emerged as a critical skill for both educators and students alike. However, the extent to which educators' digital literacy is influenced by their educational qualifications and years of experience remains a topic of inquiry. This prompted this study that sought to investigate the influence of Educational Qualifications and years of experience of educators on their digital literacy. The study employed an analytic descriptive research design. A sample of 96 educators was drawn using disproportionate stratified random sampling based on gender from educators in secondary schools in Obio-Akpor LGA of Rivers State. The Digital Literacy Scale was used in obtaining data for the study. Validities were ensured using expert judgment and empirical evidence of factor analysis, while Cronbach's alpha method was used to obtain a reliability coefficient of 0.933 for the instrument. Data were analyzed using mean, standard deviation, and one-way ANOVA. Results showed that educational qualifications and years of experience did have an influence on digital literacy but their influences were not significant. Based on findings, it was recommended that educators should develop a culture of continuous lifelong learning and innovation by engaging in ongoing professional development activities to enhance their digital literacy skills

**Keywords: Literacy, technology, qualification, learning**

### Introduction

In the rapidly evolving landscape of education, digital literacy has emerged as a critical skill for educators and teachers to effectively navigate and leverage technology in teaching and learning environments. Digital literacy is the ability to access, use, and disseminate information in the digital age, Nwangwu, (2015). Digital literacy can also be seen as the confident, critical, and creative use of information and communications technology (ICT) for work, employment, learning, leisure,

involvement, and/or participation in society (Ala-Mutka,2011). Terms like digital competence, digital literacy, digital ability, and digital skills. Internet literacy, multimedia literacy, cyber literacy, online literacy, and information literacy have been interchangeably used with the term digital literacy. (Huerta & Sandoval-Almazn, 2007; Rahmawati, 2024). It essentially refers to the ability to access, evaluate, create, and communicate information effectively and ethically using digital technologies. According to Spires and Bartlett (2012), digital literacy encompasses intellectual processes of locating and consuming digital content, creating digital content, and communicating digital content while Anisa et al (2023) posit that digital literacy has three main components, such as digital competence at level, digital usage at level, and digital transformation

With the integration of digital tools and resources into educational practices, the proficiency of educators in digital literacy plays a pivotal role in shaping the quality of teaching and learning experiences for students. It has therefore been viewed as a catalyst for educational innovation because it results in the development of new digital media and teaching resources. (Anisa et al 2023). Digital literacy is a fundamental skill for teachers to integrate into the teaching-learning process. The demands of education 4.0 and the future concept of society 5.0 in the industry necessitate teachers to renew the teaching process through digital integration (Widana 2020]. This is essential because one of the environments where digital literacy can be taught in schools, and teachers are responsible for developing and improving students' digital literacy skills in schools Alanoglu et al (2021)

Educators and teachers must know how to deliver the materials using digital tools Rahmawati (2024) viewed. He further posited that not only are we talking about the teacher's skill in using digital tools. However, teachers also must know how to filter the appropriate source of material, digital learning media, digital safety, and communication literacy when delivering all the materials through the teaching process. Educators and teachers are, the fundamental actors in introducing digital development to students—teachers who have mastered digital literacy, can assist and support students in using technology appropriately for learning or implementation (Alkali & Amichai-Hamburger 2004; Balaban & Sobodić 2022; Ishak et al 2022; Ilomäki, et al, 2011; Reimer et al 2020; Rantala & Suoranta, 2008; Udeogalanya 2022). That is with digital literacy skills, educators, and teachers can seamlessly integrate technology into teaching by utilizing digital tools, applications, and online resources to enrich student's learning experiences. Learning will also be more engaging and

interactive as teachers can utilize multimedia elements such as images, videos, and animations to explain material more compellingly (Atmojo et al), 2022)

Furthermore, in today's digital age, digital literacy significantly empowers educators and teachers to harness the potential of technology to enhance instruction, engage students, and promote meaningful learning experiences. Educators proficient in digital literacy can leverage a variety of digital tools and platforms to create interactive lessons, facilitate collaboration, provide personalized feedback, and foster critical thinking and creativity among students. Moreover, digital literacy enables educators to adapt to changing educational paradigms, such as online and blended learning models, and effectively address the diverse needs of 21st-century learners. This has led to studies being carried out by educators/teachers and digital literacy. (Anisa et al 2023; Al Khateeb 2017; Cheng & Cheng 2006; Dias-Trindade et al 2021; Muñoz & Ruiz-Domínguez 2020; Ishak et al 2022; Igun 2022; Ibrahim 2016; Oso 2020; Udeogalanya 2022; Widana 2020). Observation has shown that digital literacy may be influenced by some factors such as the educational qualification and years of experience of educators and teachers.

Educational qualifications, including degrees, certifications, and professional development opportunities, are essential determinants of educators' competencies and expertise. Educational levels are attained via educational programs or moving from one educational level to the next. According to Eteng-Uket & Iruloh 2023, the educational levels are; the Primary and Secondary Education level which leads to the award of a Senior School Certificate (SSC) or the West African Senior School Certificate (WASSC). The tertiary Education level which consists of undergraduate education leads to the award of a B.Sc. and post-graduate education climax in a Ph.D. certificate. Higher levels of formal education in relevant fields may equip educators with the foundational knowledge and skills necessary to integrate digital tools and resources effectively into their teaching practice. Additionally, specialized training or certifications in digital literacy can enhance educators' proficiency in utilizing technology to support teaching and learning goals. Studies though inconsistent have revealed that educational qualifications of educators influence digital literacy. For instance, the study of Oso (2020) found the educational qualification of educators not to have a significant influence on digital literacy while studies by Ibrahim (2016) and Anisa et al (2023) found the educational qualification of educators to have a significant influence on the digital literacy

The years of experience of educators also play a significant role in shaping their digital literacy skills and practices. Experienced educators may have accumulated a wealth of pedagogical knowledge, instructional strategies, and practical insights into integrating technology into their teaching practice through years of classroom experience. However, the extent to which educators' digital literacy evolves may vary depending on factors such as access to professional development opportunities, technological infrastructure, and organizational support within educational institutions. Studies though inconsistent have revealed that the educational qualification of educators influences digital literacy. For instance, the studies of Ibrahim (2016) and Al Khateeb (2017) found years of experience of educators to have a significant influence on digital literacy studies while that of Cheng and Cheng (2006) found years of experience of educators not to have a significant influence on digital literacy. Understanding the influence of educational qualifications and years of experience on educators' digital literacy is crucial for informing professional development initiatives, assessment practices, curriculum design, and policy decisions aimed at promoting digital literacy and competence among educators. An analysis of these factors can provide insights into the strengths and areas for improvement in educators' digital literacy skills and inform targeted interventions to support ongoing professional growth and development.

As has been earlier mentioned, In the evolving landscape of education, digital literacy has emerged as a critical skill for both educators and students alike. However, the extent to which educators' digital literacy is influenced by their educational qualifications and years of experience remains a topic of inquiry. While it is widely recognized that educational qualifications and professional experience play significant roles in shaping educators' competencies, the specific impact of these factors on digital literacy within the educational context requires further investigation. Such insights are essential for informing strategies for professional development, assessment, curriculum design, and technology integration initiatives aimed at enhancing educators' digital literacy skills, and for effective integration of technology in teaching practices and, consequently, improving the quality of digital learning experiences for students. This is more so as little research on this area has yielded inconsistent results. The foregoing necessitated this study, which was aimed at investigating the influence of educational qualification and years of experience of educators on their digital literacy.

The following research questions guided the study

1. What is the influence of educational qualification on the digital literacy level of educators?

2. What is the influence of years of experience on the digital literacy level of educators?

The following hypothesis was tested at a 0.05 level

1. There is no significant difference in the influence of educational qualification on the digital literacy level of educators
2. There is no significant difference in the influence of years of experience on the digital literacy level of educators

### **Methodology**

The research design was a descriptive survey. Within this design, the analytic descriptive design was employed. This design was employed as the study seeks to describe the influence of educational qualifications and years of experience on the digital literacy skills of educators. This design is also suitable when comparisons are to be made between various strata of a sample for the variables that are being studied. (Nwankwo, 2013). The population of the study was all 735 educators (teachers) in 16 secondary schools in Obio-Akpor LGA of Rivers State. A sample of 96 educators (teachers) was drawn using disproportionate stratified random sampling based on gender.

The instrument for data collection was the Digital Literacy Scale (DLS). The Instrument was divided into two parts; Part A and Part B. Part A contained items that are socio-demographic such as sex, age, Educational Qualifications, and years of experience Part B contains items on Digital Literacy. This part contained 50 items. Respondents are to indicate with a tick (√) their digital literacy level on the digital Literacy scale using the response format of Poor (P) =1, Fair (F) =2, Good (G)=3, and Excellent (E) =4 as the response option. Scores expected from this part range from 1 to 200, with lower scores indicating poor digital literacy skills and high scores indicating excellent digital literacy levels. Validity was ensured using expert judgment and empirical evidence of factor analysis. Face and content validity was ensured by seeking expert judgments. These experts critically analyzed the items for the content, language, correct ambiguities, usefulness, thoroughness, clarity, and literacy requirements. The construct validity of the scale was estimated using the multivariate factor analysis, and the first factor loading for all items was significantly greater than 1. The Cronbach alpha method of internal consistency was used to estimate the instruments' reliability. These instruments were pilot-tested on a sample other than the sample for the actual study. Each item on the scale was

evaluated for quality and selection based on the inter-item analysis and item-total statistics. Thus, Cronbach alpha was used to obtain a reliability coefficient of 0.933 for the digital literacy scale. Data were analyzed using mean, standard deviation, and one-way ANOVA

**Results**

**Research Question 1;** What is the influence of educational qualification on the digital literacy level of educators

**Hypothesis 1;** There is no significant difference in the influence of educational qualification on the digital literacy level of educators

**Table 1. Mean, SD, and One-way ANOVA Analysis of the no significant difference in the influence of educational qualification on digital literacy of educators**

Edu Qua.	n	$\bar{x}$	SD	Df	Mean Square	F	Sig.	P	Decision
SSCE	5	161.0	45.02						
B.Sc./ B.Ed.	81	170.7	23.7						
M.Ed.	9	7	3	2, 92					
Above	95	162.4617	30.86606		461.76606	.699	.500	0.05	Reject Ho <sub>1</sub> P>0.05
Total		169.2	25.6						
		169.4	25.6	4					

The table presents the mean, standard deviation (SD), and the results of a one-way ANOVA analysis examining the influence of educational qualification on the digital literacy level of educators.

The results presented for each educational qualification group: SSCE (Secondary School Certificate Examination), B.Sc./B.Ed. (Bachelor of Science/Bachelor of Education), and M.Ed. and above (Master of Education and above) provide insights into the digital literacy levels of educators with varying levels of educational attainment.

For SSCE qualification, the sample size (N) is 5, with a mean digital literacy score of 161.0 and a standard deviation (SD) of 45.02. For B.Sc./B.Ed. qualification, the sample size is 81, with a mean

digital literacy score of 170.7 and a standard deviation of 170.7. For M.Ed. and above qualification, the sample size is 9, with a mean digital literacy score of 162.2 and a standard deviation of 30.2.

With a small sample size of only 5 individuals holding an SSCE qualification, the mean digital literacy score is 161.0, indicating the average level of digital literacy among this group which is lower than the average digital level of 169.4 of the group. The standard deviation (SD) of 45.02 suggests variability in digital literacy scores within this group. With an N of 81 individuals holding a B.Sc./B.Ed. qualification, the mean digital literacy score is higher at 170.7 compared to the SSCE group and also higher than the average digital level of 169.4 of the group. The standard deviation (SD) of 23.73 indicates significant variability in digital literacy scores within this group. This group consists of 9 individuals with an M.Ed. qualification or higher. The mean digital literacy score is 162.2, which is slightly higher than that of the SSCE group but lower than the B.Sc./B.Ed. group and the average digital level of 169.4 of the group. The standard deviation (SD) of 30.82 suggests variability in digital literacy scores within this group. The result suggests that educators with B.Sc./B.Ed. qualification tend to have higher digital literacy scores compared to those with SSCE or M.Ed. and above qualifications.

The table as well shows that the computed  $F(2, 94) = .699$ ,  $P > .05$ , i.e.  $p = .500$ , i.e.,  $p = .500$  is greater than 0.05 and this is statistically significant at the chosen alpha level of 0.05. Therefore, the null hypothesis of no significant difference in the influence of educational qualification on the digital literacy level of educators is accepted and the alternate rejected. This implies that there is no significant difference in the influence of educational qualification on the digital literacy level of educators. That simply connotes that educational qualification (whether one has an SSCE B.Sc./B.Ed. or Master of Education and above) does not have a significant influence on on digital literacy

**Research Question 2;** What is the influence of years of experience on the digital literacy level of educators

**Hypothesis 2:** There is no significant difference in the influence of years of experience on the digital literacy level of educators

**Table 2: Mean, SD, and One-way ANOVA Analysis of the no significant difference in the influence of years of experience on digital literacy of educators**

Years Expe	of	n	$\bar{x}$	SD	Df	Mean Square	F	Sig.	P	Decision
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0-5yrs	29	167.	25.1						
		6	7						
6-10yrs.	33	174.	25.6						
11-15yrs	33	6	3	2, 92					Reject Ho <sub>1</sub>
Total	95	166.	25.9	688.6,655.6	1.050	.354	0.05		P>0.05
		0	5						
		169.	25.6						
		4	1						

The table presents the mean, standard deviation (SD), and the results of a one-way ANOVA analysis examining the influence of years on the digital literacy level of educators.

The results presented for each year of teaching experience group: those with 0-5years experience, those with 6-10years, and those with 11-15years experience provide insights into the digital literacy levels of educators with varying levels of years of experience

For educators with 0-5 years of teaching experience, the mean digital literacy score is 167.62, indicating the average level of digital literacy among this group which is lower than the average digital level of 169.4 of the group. The standard deviation (SD) of 25.17 suggests variability in digital literacy scores within this group. With an N of 33 educators with 6-10 years of teaching experience, the mean digital literacy score is higher at 174.6 compared to the 0-5 years of experience group and also higher than the average digital level of 169.4 of the group. The standard deviation (SD) of 25.63 indicates variability in digital literacy scores within this group. The group with 11-15 years of experience consists of 33 educators. The mean digital literacy score is 166.0 which is lower than the educators and teachers with 0-5 years of experience and those with 6-10 years of experience group and the average digital level of 169.4 of the group. The standard deviation (SD) of 25.95 suggests variability in digital literacy scores within this group. The result suggests that educators with 6-10 years tend to have higher digital literacy levels than those 0-5 years of experience and those with 11-15 years of experience. While those with 0-5years experience have higher digital literacy levels than those with 11-15years experience

The table as well shows that the computed  $F(2, 94) = .1050$ ,  $P > .05$ , i.e.  $p = .354$ , i.e.,  $p = .354$  is greater than 0.05 and this is statistically significant at the chosen alpha level of 0.05. Therefore, the

null hypothesis of no significant difference in the influence of years of experience on the digital literacy level of educators is accepted and the alternate rejected. This implies that there is no significant difference in the influence of years of experience on the digital literacy level of educators. That simply connotes those years of experience (whether one has 0-5years experience, or 6-10years or 11-15years experience) do not have a significant influence on digital literacy

### **Discussion of Findings**

The findings of this study shed light on the influence of educational qualifications on the digital literacy levels of educators. The statistical analysis revealed no significant difference in digital literacy levels among educators based on their educational qualifications. This is in line with a related finding of Oso (2020). It is not however with that of Ibrahim (2016) and Anisa et al (2023). However, the influence of educational qualification on educators and teachers' digital literacy and ICT competencies is still a matter of debate and research findings are inconsistent (Ibrahim 2016; Igun, 2005). This result prompts a reevaluation of assumptions regarding the relationship between educational qualification and digital literacy among educators and teachers.

This result suggests that digital literacy is not solely determined by formal educational qualifications. While higher educational qualifications may provide individuals with foundational knowledge and skills, they do not necessarily translate into higher digital literacy levels. This result suggests that digital literacy levels among educators may not necessarily increase with years of experience alone. This implies that simply being in the profession for a longer period does not inherently enhance one's digital skills. The result suggests that digital literacy levels among educators may not be solely dependent on their formal educational qualifications. This implies that individuals with lower educational qualifications, such as those with SSCE (Senior Secondary Certificate Examination), may acquire digital literacy skills through alternative means, such as vocational training, online courses, or self-directed learning. Similarly, individuals with higher educational qualifications, such as B.Sc (Bachelor of Science) or M.Ed (Master of Education) degrees, may not necessarily possess superior digital literacy skills solely based on their academic credentials. Digital literacy is a dynamic skill set that requires continual learning and adaptation to keep pace with technological advancements. Educators with varying educational qualifications may have equal opportunities to engage in professional development activities focused on enhancing digital literacy. Therefore, the influence of years of experience on digital literacy may be mitigated by the availability of training programs,

access to technology resources, individual motivation to acquire new skills, and other factors. Also, the integration of technology into educational programs may play a significant role in shaping educators' digital literacy levels, regardless of their formal qualifications. Schools that prioritize the integration of technology into their curriculum and provide adequate support and training to educators can effectively enhance digital literacy levels across all educational qualification levels.

The findings of this study shed light on the influence of years of experience on the digital literacy levels of educators. The statistical analysis revealed no significant difference in digital literacy levels among educators based on their years of experience. This is in line with the findings of Ibrahim (2016) and Al Khateeb (2017). It is not however with that of a related finding of Cheng and Cheng (2006) whose results revealed that teacher's technological competencies vary with a number of years of teaching. The divergent finding could be due to the variables of study while the current study focused on digital literacy, Cheng and Cheng (2006) studied a related variable technological competence.

It suggests that digital literacy levels among educators may not necessarily increase with years of experience alone. This implies that simply being in the profession for a longer period does not inherently enhance one's digital skills. The rapid pace of technological advancements means that digital literacy requirements are continually evolving. Even experienced educators may need to continually update their skills to keep pace with these changes. Therefore, the effect of years of experience on digital literacy may be less significant compared to ongoing professional development efforts and the ability to adapt to new technologies. In addition, educators with varying levels of experience may have similar access to technology resources and opportunities for professional development. Furthermore, not all educators may prioritize or actively engage in activities that enhance digital literacy, regardless of their years of experience. Factors such as personal interest in technology, prior experience with digital tools, and intrinsic motivation to incorporate technology into teaching practices can significantly influence an individual's digital literacy level. Individuals personal interest, motivation, career goals, availability of training programs, access to technology tools, and individual motivation to integrate technology into teaching practices can greatly influence an individual's digital literacy level. Therefore, the impact of experience on digital literacy may vary widely among educators.

## **Conclusion**

In conclusion, the lack of a significant difference in the influence of educational qualifications on the digital literacy level of educators highlights the importance of providing equal access to training, resources, and support for educators across all educational qualification levels. It underscores the need for institutions to prioritize professional development initiatives focused on enhancing digital literacy skills and to recognize that individuals may acquire these skills through various pathways beyond formal education. Furthermore, the lack of a significant difference in the influence of years of experience on the digital literacy level of educators. This underscores the importance of targeted training, access to resources, and ongoing professional development initiatives in enhancing digital literacy skills among educators. This is regardless of their tenure in the profession. It also highlights the need for individualized approaches to support educators in developing and maintaining relevant digital skills in an ever-changing technological landscape. Additionally, it emphasizes the importance of individual motivation and ongoing learning in developing and maintaining relevant digital skills in the field of education.

### **Recommendations**

It is recommended that educators develop a culture of continuous lifelong learning and innovation by engaging in ongoing professional development activities to enhance their digital literacy skills. Engage in collaboration, peer learning, and knowledge sharing among other educators

It is recommended based on findings that school administrations should develop and implement targeted professional development programs focused on enhancing digital literacy skills for all educators, regardless of their years of experience or educational qualifications. These programs should be tailored to address specific areas of digital competence identified through assessments or surveys.

They should also ensure equitable access to technology resources and tools for all educators, regardless of their tenure or qualifications. This includes providing access to hardware, software, and online platforms necessary for integrating technology into teaching practices.

### **Limitations of the study and suggestions for further studies**

While this study provides valuable insights into the influence of educational qualifications on digital literacy levels among educators, it is important to acknowledge its limitations. The study's sample size and scope may restrict the generalizability of the findings, although notwithstanding, a representation

was obtained and the findings were not affected. Thus future research with larger and more diverse samples is warranted to confirm and extend these findings.

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### **Abolishing the Osu System in Igbo Land**