



DIGITAL LITERACY SKILLS AND ACADEMIC RESILIENCE AMONG SECONDARY SCHOOL STUDENTS IN AKWA IBOM STATE, NIGERIA

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Abstract

The research examined the extent to which digital literacy skills predict academic resilience among secondary school students in Akwa Ibom State, Nigeria. In carrying out this study, four hypotheses were formulated. The study adopted the correlational research design. A total of 1,053 students were selected from a population of 20,432 Senior Secondary School Two (SS2) students in public secondary schools in Akwa Ibom State through a Multi-stage sampling technique. The "Digital Literacy Skills and Academic Resilience Questionnaire" (DLSARQ) was used for data collection. Three experts validated the instrument. The instrument had a reliability index of .79, which was determined using the Cronbach Alpha reliability procedure. The simple linear regression analysis was used to test all the null hypotheses at .05 significance level. The findings of the study revealed that Academic resilience has a significant positive relationship with technical proficiency, critical information evaluation, digital communication and digital safety. Also, technical proficiency, critical information evaluation, digital communication and digital safety practices significantly predict academic resilience among secondary school students. Based on the findings of the study, it was recommended, among others, that practical digital skills training be integrated into the school curriculum to enhance the technical capacity of students.

Keywords: *Technical Proficiency, Critical Information Evaluation, Digital Communication and Digital Safety Practices and Academic Resilience of Students*

Introduction

In the last decade, the world has experienced advancement in almost every field, including industry, politics, information and communication technologies, media, medicine and education. All sectors have witnessed a transformation process due to these advancements. The education sector is one such sector where such unprecedented change has been witnessed. In the age of globalisation, the education sector is becoming increasingly dynamic. But in the current context, there are various reasons like poverty, inefficiency of parenting abilities, inadequate emotional support, pandemics, political terrorism, and natural disasters that put children's development at risk across the globe and can impact people, families, and the destiny of entire societies. To inform governments and international policymakers to reduce risks and foster resilience in children, there is a critical need for a global and comprehensive science of resilience grounded on evidence-based research concerning threats to child development. Academic resilience refers to a child's ability to sustain resilience in academic and academically related areas.

Resilient people have the mental toughness to handle stress and adversity. It is the mental toughness that people can draw upon to survive bad times without losing their temper. Resilient people, psychologists say, are better able to handle adversity and come out of it. Academically resilient students achieve good grades in spite of adversity. It is employed in the context to indicate academic accomplishment despite a tricky or challenging position within the educational process (Mallick & Kaur, 2016). In the schooling context, resilience is generally framed as a pupil's capacity for coping well with problems and expectations within the learning environment. It may also be referred to as the greater likelihood of success in various life endeavours despite poor conditions brought about by early characteristics, experiences, and circumstances. Such students remain successful despite stressful situations and experiences that make them vulnerable to poor performance at school or, by extension, school dropout (Alva, as cited in Radhamani & Kalaivani, 2021).

Academic resilience refers to students' ability to recover or maintain academic achievement amid adversity, whether limited access to resources, personal or emotional challenges, or environmental stress. Resilience in this context refers to applying adaptive coping mechanisms for dealing with adversity and is directly linked to academic achievement and motivation (Tabor & Howard, 2019). In digital literacy, however, academic resilience is particularly crucial, as individuals proficient in digital ways are better at problem-solving, information access, and learning persistence amid adversity (Niemi, 2020). In Akwa Ibom State, where some issues, such as inadequate digital infrastructure, can limit students' chances to learn, building academic resilience through digital literacy can be pivotal in improving their ability to survive despite academic challenges. This connection underscores the need for research on how various aspects of digital literacy can improve students' academic resilience. However, the present study considers the association between digital literacy capacity and students' academic resilience.

Digital literacy is central in preparing learners to handle academic challenges most effectively and develop resilience within learning settings. Digital literacy is a fundamental competency within the modern learning setting, comprising a range of competencies necessary for learners to effectively manage and engage with digital technologies. These skills run beyond the scope of entry-level use of technology, including abilities to analyse content online critically, use digital software for collaboration and communication, generate content, and know online safeguards (Martin, 2021). As classrooms rely more on digital resources, students must develop skills to vet and select content, leading to enhanced understanding of course materials. According to UNESCO (2020), digital literacy is a key enabler of lifelong learning, and it makes learners independent, critical thinkers. Research has confirmed that digitally literate learners are better positioned to use online learning resources, collaborate with others, and resolve problems (Cunningham & McCarthy, 2020). This is particularly important as internet learning platforms continue to grow, especially in regions like Akwa Ibom State, where digital access is either limited or uneven and therefore presents a challenge in fostering equitable educational access. The following digital literacy competencies are considered in this study: technical proficiency, critical information evaluation, digital communication and digital safety practices.

Technical proficiency refers to a student's ability to use digital tools and technology effectively. In education, this entails understanding how to use digital devices, apply software programs, and operate in digital learning environments. Technical proficiency enables students to effectively use digital tools to access educational resources, manage assignments, and participate in online learning. As Martin and Grudziecki (2020) state, not only does technical proficiency support academic learning, but it also equips learners to keep up with fast-evolving educational technologies. Poor technical proficiency among secondary school learners tends to frustrate their access to e-learning platforms and other digital applications to

support learning. With more digital technology integration into the curriculum, learners without technical skills will be severely disadvantaged. Technical proficiency is central to developing resilience, as learners with technical expertise can work around obstacles such as inadequate infrastructure or a shift to online learning during disruption. A study conducted by Al-Fadhli (2019) confirmed that digitally comfortable learners are better equipped to handle the dynamics of modern education, especially in online or remote setups. They can diagnose and fix technical issues, learn new digital platforms faster, and adapt to new educational technologies. As there is an increase in the utilisation of digital technology in education, the ability to troubleshoot technical problems becomes a significant aspect of academic involvement and retention.

Critical information evaluation is the ability that allows one to critically analyse the credibility, reliability, and relevance of information on the internet. This ability is gaining importance as students get access to large volumes of information on the internet, some of which may be false or misleading. McGrew et al. (2018) assert that the ability to evaluate online resources critically allows students to make informed decisions, mainly when conducting research or seeking solutions to academic problems. With the information age comes information overload, and students must sift through good and bad information to avoid misinformation, which can hurt their academic performance and academic resilience. Critical thinking is the foundation of academic success, and the capacity to analyse digital information is an important component of this skill. Critical analysis of information involves scrutiny of the reliability, relevance, and validity of digital information. As Buckingham (2021) points out, this is an important skill since students are exposed to misinformation and low-quality sources in their learning. Critical information analysis enables students to make informed decisions and enhances their capacity to manage academic problems. The importance of critical information analysis is also increased by the spread of digital disinformation and misinformation, particularly in learning environments. A study by Leu et al. (2015) found that learners who lacked critical evaluation skills were more prone to misinformation, which could hinder their learning process.

Digital communication involves using digital media to exchange information, collaborate with colleagues, and interact with teachers. It defines the process of using digital means like emails, messaging apps, and virtual group collaboration tools to communicate properly. Students who are equipped with effective digital communication skills are better positioned for peer working, seeking assistance from teachers, and group projects, according to Alexander and Salas (2021). These interactions will likely serve as a buffer against academic challenges, promoting resilience. Effective digital communication promotes collaboration, peer support, and teacher-student interaction, which are crucial for academic resilience. Moreover, ineffective digital communication can result in misunderstandings, isolation, and lower academic confidence. Since digital tools are now at the center of education, students who cannot communicate effectively through these platforms may struggle to achieve academic resilience. This necessitates targeted research to determine how online communication predicts academic resilience and informs interventions for improving students' collaborative skills.

Digital safety behaviours are practiced and intended to secure the individual against risks while online, such as cyberbullying, identity theft, and exposure to dangerous content. Digital safety behaviours safeguard students from online threats that can interrupt their learning and well-being. For students, digital safety behaviours are crucial in maintaining a safe and comfortable digital environment of learning. From Livingstone & Helsper (2021), strong digital safety awareness equips learners to engage online resources without raising threats. Failure to adopt proper digital safety protocols can intensify stress and distraction, weakening learners' attention on learning. Besides, digital safety is essential to academic

resilience because it minimises anxiety and distraction with respect to online threats. According to Jones & Mitchell (2016), students aware of digital security will likely utilize internet learning resources without fear of identity theft, harassment, or privacy violations. Students are safe through this and can concentrate on what they are supposed to do in school. Such safety makes students overcome learning barriers that could otherwise interfere with learning. In Akwa Ibom, where digital threats may be higher without training, promoting digital safety behaviours can make students more self-assured and confident in seeking academic pursuit, enabling more determination and resilience even in the face of academic failures.

The rapid speed of adopting digital technology in education has revolutionised how teaching and learning are conducted globally. For Nigeria and Akwa Ibom State, increasing reliance on digital media for educational purposes presents secondary school students with opportunities and challenges. In order to survive under such conditions, students require digital literacy competencies of technical proficiency, critical information evaluation, digital communication and digital safety practices. These competencies are required to navigate the virtual learning platform and succeed academically. These competencies, however, are not adequately offered by most developers in Akwa Ibom State through proper digital literacy training and exposure, which can impair their ability for academic resilience.

Despite institutional, technological, and socioeconomic barriers, academic resilience, or the capacity to sustain or improve academic achievement, is essential. Unfortunately, there is minimal research on how digital literacy skills influence academic resilience among secondary school students in the state. Limited access to digital infrastructure, insufficient exposure to assessment of critical information, and low awareness of digital safety practices are other complicating factors. Without explicit information on how these variables relate, policymakers and teachers are left perplexed when formulating effective interventions. This study seeks to close this gap by investigating how the various components of digital literacy construct the academic resilience of secondary school students in Akwa Ibom State, Nigeria.

Purpose of the Study

The primary objective of this study is to determine the extent to which digital literacy skills predict academic resilience among secondary school students in Akwa Ibom State, Nigeria. Specifically, this study is meant to determine the:

- i. relationship between the independent variables (technical proficiency, critical information evaluation, digital communication and digital safety) and academic resilience among the students.
- ii. extent to which technical proficiency, critical information evaluation, digital communication and digital safety predict academic resilience among students.

Research Hypotheses:

The following null hypotheses were formulated and tested at .05 level of significance.

- i. There is no significant relationship between the independent variables (technical proficiency, critical information evaluation, digital communication and digital safety) and students' academic resilience.
- ii. Technical proficiency, critical information evaluation, digital communication and digital safety do not significantly predict academic resilience.

Methodology

This study adopted the correlational design. The correlational design is intended to measure the association level between two variables. The study was conducted in Akwa Ibom State, one of the six (6) states in Nigeria's South-South geopolitical region. The population of this study comprised all the 20,432 SS2 students in all the 237 public secondary schools in Akwa Ibom State's 31 Local Government Areas. A multi-stage sampling approach was used

to choose study participants from secondary schools in Akwa Ibom State. The researcher used the stratified random sampling technique in stage one to select three Senatorial Districts in Akwa Ibom State: Akwa Ibom North East, Akwa Ibom North West and Akwa Ibom South. Two Local Government Areas were randomly picked from the six LGAs of the three Senatorial Districts at stage two via simple random sampling. A single random sampling technique was utilised to give all the Local Governments an equal chance to be selected by the research. Similarly, three secondary schools were randomly chosen from the six already selected local government areas, giving 18 schools in total. Finally, Taro Yamane (1967) Table was utilised for determining the sample size of the specified population and, on such a determination, it was deemed appropriate that the total population of 20,432 Senior Secondary School Two (SS2) students should have 1,053 students included as samples.

Out of 1,053 copies of the questionnaire distributed to the respondents, 1,035 (98.3 percent) copies were filled correctly and returned, which were used by the researcher in the study. The following is a tool called the "Digital Literacy Skills and Academic Resilience Questionnaire" (DLSARQ) that was used to gather proper information for this study. The tool had two sections. Section A contained 10 items for each of the four Digital Literacy Skills (technical competence, critical assessment of information, digital communication and digital safety practices), and section B contained 20 items for academic resilience. A four-point rating scale of All the Time (ATT), Most of the Time (MOT), Some of the Time (SOT) and Not Always (NA) was used. Respondents were instructed to tick only one option per item. The scale was calibrated to All the Time (ATT) - 4 Points. Most of the Time (MOT) - 3 Points. Some of the Time (SOT) - 2 Points. Not Always (NA) - 1 point. The instrument was validated, and necessary adjustments were made. To ascertain the consistency of the instrument, it was pilot tested using 30 students who were randomly selected from the study area that was not part of the main study and, using Cronbach alpha procedure, a reliability coefficient of 0.79 was obtained, meaning that the instruments were consistent with the data collection. After administration of the instrument, the questionnaires were sorted and coded, and the data collected was analysed using multiple linear regression analysis.

Results

Research Hypothesis 1:

There is no significant relationship between the independent variables (technical proficiency, critical information evaluation, digital communication and digital safety) and academic resilience among students in Akwa Ibom State.

Table 1: Correlation Matrix Showing the Relationships between Independent Variables (Technical Proficiency, Critical Information Evaluation, Digital Communication and Digital Safety) and Academic Resilience among Students in Akwa Ibom State

Variables	1	2	3	4	5
Technical Proficiency	1				
Critical Info. Evaluation	.311**	1			
Digital Communication	.396**	.285**	1		
Digital Safety	.651**	.394**	.370**	1	
Academic Resilience	.349**	.306**	.358**	.341**	1
Mean	33.78	32.13	33.34	33.10	51.07
Std. Dev	5.08	5.43	5.90	4.99	6.14

** Sig. at $P < .05$ level

Table 1 demonstrates the means and standard deviations and the intercorrelation matrix for technical proficiency, critical information evaluation, digital communication and

digital safety, which serve as independent variables alongside Academic Resilience as the dependent variable among students in secondary schools in Akwa Ibom State. The findings reveal positive significant associations between Academic Resilience and technical proficiency ($r = .349$; $p > 0.05$) as well as critical information evaluation ($r = .306$; $p > 0.05$), digital communication ($r = .358$; $p > 0.05$) and digital safety ($r = .341$; $p > 0.05$). Research demonstrates that academic resilience correlates positively and significantly with technical proficiency, critical information evaluation, digital communication, and digital safety.

Research Hypothesis 2:

Technical proficiency, critical information evaluation, digital communication and digital safety do not significantly predict academic resilience among students in Akwa Ibom State.

Table 2: Regression Analysis of Digital Literacy Skills (Technical Proficiency, Critical Information Evaluation, Digital Communication and Digital Safety) as Predictors of Academic Resilience among Students

Model	R	R square	Adjusted R square	Std. error of the estimate		
1	.461	.212	.209	5.462		
ANOVA						
Model	Sum of squares	df	Mean square	F	P	Remarks
Regression	8290.194	4	2072.549	69.465	.000	Significant
Residual	30730.907	1030	29.836			
Total	39021.101	1034				

Variables	B	S.E	β	t
(Constant)	27.623	1.433		19.278
Technical Proficiency	.178	.045	.148	3.949
Critical Info. Evaluation	.178	.034	.158	5.171
Digital Communication	.226	.032	.217	7.027
Digital Safety	.126	.047	.103	2.693

$P < 0.05$; critical $F(4, 1030) = 69.465$

Table 2 shows the values of the parameters of the multiple regression analysis between the independent variables (technical proficiency X_1 , critical information evaluation X_2 , digital communication X_3 and digital safety X_4) and academic resilience. The prediction equation for the regression line is $Y = 27.623 + .178X_1 + .178X_2 + .226X_3 + .126X_4$. From the Table, the digital literacy skills when taken against the academic resilience yielded a coefficient of multiple correlations (R) of .461 and the multiple correlation square (R^2) of .212. The R^2 value indicates that 21.2% of the total variance in the academic resilience scores is predicted by the digital literacy skills. Also, the F -value of 69.465 is significant at an alpha level of 0.05 ($F = 69.465$, $df = 4, 1030$; $P < 0.05$). The analysis revealed that the digital literacy skills (technical proficiency, critical information evaluation, digital communication and digital safety) significantly predict academic resilience among students. From the Table, digital communication made the highest contributions to the academic resilience ($\beta = .217$; $p < .05$). The second in the rank of relative contributions is critical information evaluation ($\beta = .158$; $p < .05$). The third in the rank of relative contributions is technical proficiency ($\beta = .148$; $p < .05$), the Table shows that digital safety made the lowest in the order of magnitude of contributions ($\beta = .103$; $p < .05$) these four variables made contributions which were found to be significant.

Summary and Discussion of Findings

The study's discovery with regards to Hypothesis 1 revealed a positive relationship between the independent variables (technical proficiency, critical information evaluation, digital communication and digital safety practices) and students' academic resilience. Martin and Grudziecki (2020) state that technical proficiency allows students to adjust to technological changes while managing academic demands. According to Al-Fadhli (2019), students with technology skills demonstrate improved coping abilities when faced with complex learning environments like blended or online education. This means that technical expertise is a foundation for academic coping with shifting technology demands. It confirms the finding of Buckingham (2021), who further notes that digital literacy has an important role in helping students cope with academic adversity. Leu et al. (2015) additionally assert that critical digital skills help learners navigate difficult information landscapes, whereas their ability to manage stress and sustained academic achievement despite adversity is enhanced.

The result in hypothesis two validated that digital literacy skills (technical proficiency, critical information evaluation, digital communication, and digital safety practices) largely predict students' academic resilience, considering their implication in facilitating student support and cooperation. Technical skills equip one with the skills to embrace adaptive educational technology skills, as stated by Martin and Grudziecki (2020). Critical thinking ability in information assessment allows learners to distinguish reliable information from disinformation, thus facilitating more effective learning strategies, which aligns with Buckingham (2021). Digital communication skills were also a strong predictor, consistent with Alexander and Salas (2021), who stressed that communication skills improve peer collaboration and reduce academic stress. This is supported by the work of Livingstone and Helsper (2021), who defined that a well-educated student on online safety will feel safer using digital learning materials. This, too, aligns with Jones & Mitchell (2016), who stressed that awareness of risks such as cyberbullying and invasion of privacy allows students to focus on their studies without intimidation, building a secure and resilient learning environment.

Conclusion and Recommendations

This study explored the extent to which digital literacy skills predict academic resilience among Akwa Ibom State secondary school students in Nigeria. The findings depict those central aspects of digital literacy: technical proficiency, critical information evaluation, digital communication, and digital safety practices predict academic resilience significantly. Students who acquire these skills can effectively handle educational challenges while adapting to technological changes and sustaining academic performance during difficult times. The research findings underscore the necessity of embedding digital literacy into academic programs while focusing on essential technical abilities and critical thinking skills to build student resilience. Educators and policy makers who develop these skills can create supportive learning environments that equip students for success in our evolving digital world. The study specifies the central role of digital literacy as an asset for the enhancement of students' academic performance and overall resilience, yielding knowledge that is useful to curriculum planning and education policy. Based on the research findings, the following recommendations have been developed:

- i. Practical digital skills training can be integrated into the school curriculum to enhance students' technical capacity.
- ii. Educators need to embrace activities that promote critical thinking about online information, such as testing the credibility of online sources.
- iii. Teachers should encourage using electronic communication tools in group assignments, discussion forums, and online networking.

- iv. Compulsory digital safety awareness programs should address cyber security, data protection, and acceptable online conduct.

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