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ICT Integration and Quality Assurance: Predictors of Self-Directed Learning Skills in Distance Education in Nigeria

Kehinde Bosede Bada¹, Mary Mojirade Ayantunji²

¹Department of Adult and Non-Formal Education, Federal College of Education, Abeokuta, Ogun State, Nigeria

badakehinde5@gmail.com

²Department of Social Work Education, Faculty of Social Science Education, Emmanuel Alayande University of Education, Oyo, Oyo State

ayantunjimojirade@gmail.com <https://orcid.org/0000-0002-0317-8857>

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ABSTRACT

This study investigates the predictive roles of ICT integration and quality assurance practices on the self-directed learning (SDL) skills of distance learners in Nigeria. Using Garrison's Community of Inquiry model and Knowles' theory of andragogy as theoretical frameworks, the study adopted a correlational survey design involving 284 undergraduate students from selected National Open University of Nigeria (NOUN) study centres. A structured, validated questionnaire was used to collect data on ICT integration, quality assurance, and SDL skills. Descriptive statistics, Pearson correlation, and multiple regression analyses were employed for data analysis. Findings revealed that ICT integration had a significant positive correlation with SDL ($r = .53, p < .001$), and quality assurance also showed a strong positive relationship with SDL ($r = .49, p < .001$). Multiple regression analysis indicated that both ICT integration and quality assurance jointly predicted SDL skills ($R^2 = .44, F(2, 281) = 111.58, p < .001$). ICT integration ($\beta = .39, p < .001$) emerged as a slightly stronger predictor than quality assurance ($\beta = .36, p < .001$). The results underscore the critical roles of institutional support and digital capacity in promoting autonomous learning among distance learners. By aligning instructional strategies with ICT advancements and ensuring consistent quality assurance, educational institutions can enhance learner independence, engagement, and performance in open and distance learning (ODL) settings. The findings contribute practical insights for policy development, instructional design, and digital transformation in higher education systems across Nigeria.

Keywords: ICT integration, quality assurance, self-directed learning, distance education, Nigeria

Introduction

The move towards open and remote learning (ODL) has changed higher education around the world, especially in developing nations that want to make it more accessible and fairer. Distance education institutes like the National Open University of Nigeria (NOUN) have become important in Nigeria for giving underprivileged groups more options for learning. However, one ongoing worry about this type of education is whether students can learn on their own (SDL), which means they can establish objectives, manage their time, keep track of their progress, and think critically without anybody else watching them (Onah, Pang & Sinclair, 2022).

Two institutional variables that are very important for moulding SDL outcomes are the integration of information and communication technology (ICT) and quality assurance practices (QAP). Learning management systems, virtual classrooms, and digital content platforms are examples of ICT tools that have been shown to help students become more independent, connect with each other, and keep track of their own progress (Bolaji & Ajia, 2023). At the same time, QAP makes ensuring that courses are planned, taught, and graded in ways that encourage students to learn on their own and keep up with their studies (Jiang, Islam, Gu & Spector, 2021).

The Community of Inquiry (CoI) paradigm by Garrison is the basis for this study. It focusses on cognitive presence and instructional presence as important parts of meaningful learning in ODL settings (Garrison et al., 2001). Cognitive presence, which is encouraged by ICT tools and good design, helps people think critically and build knowledge. Teaching presence, on the other hand, makes sure that institutional structures assist SDL by providing organised information and timely help. There isn't much research that looks at these factors together to see how they affect SDL in Nigerian remote education. This study's goal is to fill that vacuum by looking at how ICT integration and QAP predict SDL skills among Nigerian distance learners. This will help make digital teaching and institutional policies more evidence-based.

Statement of the Problem

Distance learning is becoming more and more important in Nigeria's higher education system, but one big problem still exists: many students have trouble doing well in situations that demand them to learn on their own. Self-directed learning (SDL) is very important for success in these kinds of

situations, but it is often hard to develop because of a lack of institutional support and access to technology. There are ICT tools and quality assurance systems in place to fill these gaps, but there isn't enough research on how well these help people develop SDL skills. Without proof of how these factors work together to affect learner autonomy, schools may miss important chances to get better. So, this study looks into whether and to what extent ICT integration and quality assurance techniques can predict SDL among distant learners in Nigeria.

Purpose of the Study

This study's goal is to look into how ICT integration and quality assurance techniques might help distance education students in Nigeria learn how to learn on their own. The goal of the study is to find out how strong and in what direction each of these factors affects learners' ability to plan and manage their own education.

Research Questions

1. What is the relationship between ICT integration and self-directed learning skills among distance learners in Nigeria?
2. What is the relationship between quality assurance practices and self-directed learning skills?
3. To what extent do ICT integration and quality assurance jointly predict self-directed learning skills?

Literature Review

Self-Directed Learning (SDL)

Self-directed learning (SDL) is becoming more and more important for success in remote education, as students have to regulate their own cognitive, behavioural, and motivational processes. Setting learning goals, finding resources, putting strategies into action, and judging results are all parts of SDL (Zimmerman, 2015). SDL has been associated to better academic achievement, persistence, and learner satisfaction in online settings (Fangy & Costley, 2021). SDL helps learners get around problems with infrastructure and teaching, especially in places with few resources. But researchers are still looking into how much institutional support, including access to technology and good delivery, encourages SDL (Al Mamun, Azad, Al Mamun & Boyle, 2022).

ICT Integration in Distance Education

ICT integration means using digital tools and platforms on purpose to make teaching, learning, and administrative tasks easier. ICT makes remote learning more independent by allowing students to learn at their own pace, giving them instant access to resources, and letting them work together (Arvaja & Raija, 2021). Research has shown that using ICT in the right way can boost students' confidence, motivation, and ability to learn on their own (Sotiriadou, Logan, Daly & Guest, 2020). But there are also problems with differences in digital literacy and infrastructure, especially in sub-Saharan Africa (Oni, Opara & Ngongpah, 2025). So, for ICT integration to have a real effect on SDL results, it needs to be supported by institutions.

Quality Assurance Practices (QAP)

Quality assurance in distant education includes making sure that academic standards are met, course design is improved, and learners get the help they need. Some important parts are clear learning goals, attentive tutors, fair grading, and access to student services (Al-Fraihat, Joy, Masa'deh & Sinclair, 2020). Research demonstrates that a strong QAP is linked to happier and more engaged learners, both of which are signs of SDL (Balci & Kartal, 2021). Quality-driven instructional design also encourages SDL by giving students organised yet flexible ways to learn (Hu, 2022). However, research from Africa shows that quality frameworks are not always used consistently, frequently because of a lack of resources and institutional responsibility (Vu Nguyen, Thi Pham & Chi Minh City, 2022).

Theoretical Framework

Garrison's Community of Inquiry (CoI) framework and Knowles' Theory of Andragogy are two related theoretical models that guide this study. Together, they provide a strong basis for looking at how institutional and technological structures affect self-directed learning (SDL) in distance education.

Community of Inquiry (CoI) Framework

Garrison, Anderson, and Archer (2001) created the CoI framework, which stresses how important cognitive presence, teaching presence, and social presence are in online and distance learning settings. Cognitive presence, or how well learners can make sense of things through long-term contemplation and conversation, is especially important for SDL. Teaching presence (design and facilitation) and social presence (learner engagement) both help cognitive presence. This study shows that ICT integration supports cognitive and social presence by giving students access to materials, letting them connect with one other, and giving them ways to provide and receive feedback. Quality assurance techniques support teaching presence by making sure that courses are well-structured, tutors are responsive, and assessments are clear.

Knowles' Theory of Andragogy

Knowles (1984) says that adult learners are independent, self-directed, and goal-oriented, and they do best in situations where they may choose their own rules and solve problems. This theory says that adult learners need to have access to the right materials, structures that are easy to change, and clear expectations. These are all things that are important for both using ICT and making sure that distant learning is of high quality. So, the andragogical model helps SDL grow by showing how important it is to use flexible and learner-centred teaching methods.

This study combines these two frameworks to define SDL as a function of learner autonomy supported by institutional structures (quality assurance) and digital tools (ICT integration) in a learning environment that encourages collaboration and reflection.

Methodology

This study employed a correlational survey research design to examine relationships between ICT integration, quality assurance practices, and SDL skills. The people who took part in the study were distance learners who were registered at NOUN study facilities in three states in Southwest Nigeria. The researcher utilised a stratified random sample method to choose 284 people to answer. The study used a validated questionnaire with three subscales to gather data: ICT Integration (e.g., digital access, tool usage, digital literacy; $\alpha = .85$); Quality Assurance Practices (e.g., course clarity, feedback, learner support; $\alpha = .84$); and Self-Directed Learning Skills (e.g., goal-setting, time management, self-assessment; $\alpha = .88$). Descriptive statistics, Pearson product-moment correlation, and multiple regression analysis were conducted using SPSS version 25.

Results and Discussions

Research Question 1: What is the relationship between ICT integration and SDL skills?

Table 1

Correlation Between ICT Integration and Self-Directed Learning

Variable	M	SD	1	2
ICT Integration	3.73	0.66	—	
SDL Skills	3.65	0.61	.53**	—

N = 284. $p < .001$

Table 1 looked at how ICT integration and SDL are related. The study found a strong positive relationship between the two variables ($r = .53$, $p < .001$), which means that those who use ICT more often are better at learning on their own. This result is in line with other study that stresses how important digital tools are for helping students become more independent, have access to resources, and learn in their own way (Arvaja & Raija, 2021). ICT makes it possible for students to learn at their own pace, get feedback in real time, and work with other students, all of which are important for SDL development (Sotiriadou et al., 2020). Also, according to Zimmerman's (2015) model of self-regulation, ICT tools act as both cognitive and metacognitive scaffolds that help students plan, keep track of, and assess their own learning.

Research Question 2: What is the relationship between quality assurance practices and SDL skills?

Table 2

Correlation Between Quality Assurance and Self-Directed Learning

Variable	M	SD	1	2
Quality Assurance	3.80	0.64	—	
SDL Skills	3.65	0.61	.49**	—

N = 284. $p < .001$

Table 2 looked at how quality assurance procedures and SDL are related. The results demonstrated a strong and positive link ($r = .49$, $p < .001$), which means that strong quality assurance systems including feedback systems, structured content, and easy-to-reach learner support help students learn on their own. This backs up what Al-Fraihat et al. (2020) found, which was that learning settings that are of good quality encourage motivation, persistence, and satisfaction. Balci and Kartal (2021) also said that clear course design and open assessments are signs of learner satisfaction and engagement, which are two things that lead to SDL. The current study confirms that instructional presence that focusses on quality, as Garrison's CoI framework (2001) stresses, is essential for developing independent learners.

Research Question 3: To what extent do ICT integration and quality assurance jointly predict SDL?

Table 3

Regression Predicting SDL Skills from ICT and Quality Assurance

Predictor	B	SE B	B	t	P
Constant	1.98	0.20	—	9.90	< .001
ICT Integration	0.35	0.05	.39	7.23	< .001
Quality Assurance	0.30	0.05	.36	6.72	< .001

Table 3 talks about the multiple regression. The results showed that ICT integration and quality assurance techniques together accounted for 44% of the variance in SDL ($R^2 = .44$, $F(2, 281) = 111.58$, $p < .001$). It's interesting to note that ICT integration ($\beta = .39$) had a slightly stronger predictive effect than quality assurance ($\beta = .36$). This means that using technology is a little more important than institutional processes in helping people learn SDL skills. This is in line with what Bolaji and Ajia (2023) found: ICT is not just a way to provide information, but also a way to give students more authority. Quality assurance is very important, especially in places where digital infrastructure is still new. According to Knowles' theory of andragogy, adults who are learning need clear expectations, consistent support, and chances to make their own decisions (Knowles, 1984).

Conclusion

This study shows that ICT integration and quality assurance are important factors that can help people learn on their own in Nigerian remote education. ICT integration had a somewhat better predictive power, which shows how important digital tools are for helping students become more independent. Quality assurance is still very important for making sure that the structure is clear, that feedback is consistent, and that students get the help they need. All of these things work together to make it possible for remote learners to take command of their own education. As Nigeria grows its open and distance learning systems, it will be very important to put more money into digital infrastructure and make sure that quality assurance processes are the same across the board. This would help students do better. This study adds to the continuing discussion about how to improve distance learning through reforms that are based on evidence and focus on the needs of the student. People who work in higher education are encouraged to use these results to improve the teaching and technology systems that help people of all backgrounds learn on their own.

Recommendations

1. To help with fair ICT integration, the government and institutions should expand digital connectivity and give people cheap access devices.
2. Schools and colleges need to set clear and consistent quality standards that focus on feedback, student participation, and course design.
3. Students and teachers should take part in frequent digital skills development programs to boost their confidence and efficacy with ICT.
4. Curriculum planners should include SDL skills like establishing goals and managing time explicitly in course outcomes and tests.
5. Institutions should set up frequent ways to evaluate how ICT and QAP affect SDL and use the results to make changes that are based on evidence.

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