

TEACHERS PERCEPTION ON THE RISK FACTORS SURROUNDING THE USE OF DIGITAL FACILITIES IN TEACHING AND LEARNING IN RURAL AREA IN ENUGU STATE

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Abstract

The study examined teachers' perception on the risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State. Two research questions and two null hypotheses were formulated to guide the study. This study adopted a descriptive survey research design. The population comprised all 505 primary school teachers from the 38 primary schools in Nsukka Local Government Area (L.G.A.), which includes Nsukka town, Opi, Ede-Oballa, Aru uno, Edem, Obimo, and Eha- Alumona. A simple random sampling technique without replacement was used to select 20 out of the 38 primary schools, ensuring equal opportunity for all schools to be chosen. From each of the 20 sampled schools, six teachers were randomly selected, bringing the total sample size to 120 teachers. Data were collected using a structured questionnaire titled "Teachers perception on the risk factors surrounding the use of digital facilities in teaching and learning in rural Questionnaire (TPRFSUDFTLRQ)" developed by the researchers. The instruments were validated by three experts; two from the Department of Educational Foundations and one from the Department of Science Education (Measurement and Evaluation unit). After validation, Cronbach's Alpha was used to determine the internal consistency of the instruments, yielding a reliability coefficient of 0.83, indicating high reliability. A total of 120 copies of the questionnaire were administered to the respondents by the researchers. Data collected were analyzed using percentages, mean, and standard deviation. The decision rule was based on the following benchmarks: for the availability of devices, items with 50% and above were considered available, while those with 49% and below were considered unavailable. A mean benchmark of 2.50 and above was used to determine accepted items, while items with a mean value of 2.49 and below were rejected. The response formats used for the research questions were as follows: for the availability of devices Available (AV = 2), Not Available (NAV = 1); for the extent of usage, Very High Extent (VHE = 4), High Extent (HE = 3), Low Extent (LE = 2), Very Low Extent (VLE = 1); and for Low Extent. The study found among others that many rural communities do not have access to internet facilities, poor network connections limits speed and accuracy in using digital facilities and Poor internet facilities can lead to damages of some digital facilities like modem and wifi are perceived. Based on the findings, it was recommended among others that Government should cater for the cost of digital facilities as to improve the use of digital facilities in teaching and learning in rural area in Enugu State and that access to internet facilities should be made by the government to minimize the risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State

Keywords: teachers' perception, risk factors, digital facilities, teaching and learning

Introduction

The integration of digital facilities in teaching and learning has become increasingly important in modern education. Digital technology has the potential to enhance student engagement, improve academic performance, and increase access to educational resources. However, the effective use of digital facilities in teaching and learning is contingent upon various factors, including the availability of infrastructure, teacher training, and technical

support. In rural areas, particularly in Enugu State, Nigeria, the adoption and utilization of digital facilities in teaching and learning are fraught with challenges. Chukwu, Onuoha, and Aroh (2021) opined that despite the potential benefits of digital technology, many rural schools in Enugu State face significant barriers, including limited access to reliable internet connectivity, inadequate infrastructure, and insufficient funding.

Teachers play a critical role in the successful integration of digital facilities in teaching and learning. Their perceptions of the risk factors surrounding the use of digital facilities can significantly influence their willingness to adopt and utilize digital technology in the classroom. Understanding teachers' perceptions of these risk factors is essential for developing effective strategies to support the integration of digital facilities in rural schools. The successful implementation of a primary school curriculum depends largely on teachers' perception and willingness to integrate innovative instructional tools such as Digital facilities/devices. As technology continues to reshape educational practices globally, its adoption in Nigerian primary schools remains a subject of concern. Teachers' perception towards use plays a crucial role in determining its effectiveness in classroom instruction and curriculum implementation. According to Obih, Ejeh, and Azubuike (2019), the curriculum serves as the foundation of any education system, outlining the knowledge, skills, and values that learners must acquire. However, Osam (2018) argues that no matter how well a curriculum is designed, its success is dependent on effective implementation, which requires the use of appropriate instructional tools. is a major technological advancement that has transformed various sectors, including education. It includes digital tools and applications such as computers, projectors, mobile devices, and interactive learning software, all of which enhance teaching and learning experiences. Chukwu, Onuoha, and Aroh (2021) emphasize that facilitates knowledge acquisition, promotes independent learning, and improves instructional delivery. Recognizing the significance of in education, the Federal Republic of Nigeria (FRN, 2021) integrated into the National Policy on Education, advocating for its application at all levels of learning.

However, despite these policy efforts, many primary school teachers remain reluctant or inadequately equipped to utilize devices in classroom instruction (Salau, 2019). Teachers, as the primary implementers of the curriculum, play a crucial role in determining the extent to which is integrated into teaching and learning. Their perception shaped by personal experiences, training, and infrastructural support directly influences their willingness to adopt tools. According to Osam (2018), teachers serve as the bridge between educational policies and students' learning experiences, meaning their attitudes toward can either enhance or hinder its adoption. Negative perceptions towards use may arise due to inadequate training, lack of resources, weak infrastructure, and insufficient government support (Ezenwa, 2021). These challenges hinder the effective use of in curriculum implementation, thereby limiting students' exposure to digital learning experiences.

Primary education is a critical stage in Nigeria's educational system, serving as the foundation for learners' cognitive and social development. According to the National Policy on Education (FRN, 2021), primary education is essential for equipping children with fundamental skills that prepare them for secondary education and beyond. However, Mlungishi and Dominique (2021) observe that without the integration of modern instructional strategies such as, traditional teaching methods may fail to address the learning needs of 21st-century learners. Therefore, ensuring that teachers embrace in delivering the curriculum is essential for achieving educational objectives (Yakubu & Aboho, 2022). Given the increasing global reliance on technology in education, it is imperative to examine teachers' perception of use in primary schools, particularly in Nsukka Local Government Area, Enugu State. This study seeks to assess teachers' perception of devices in curriculum implementation, identify the challenges affecting their adoption, and propose strategies for enhancing integration in primary school education. Understanding teachers' perspectives will enable policymakers and stakeholders to

develop targeted interventions that improve utilization and enhance learning outcomes in Nigerian schools especially in rural communities where technical=know- how is not adequately provided.

High cost of infrastructure development in remote areas - Rural Nigeria infrastructure costs are high as a result of a number of factors such as low population densities, hard geographies, non-availability of skilled manpower, complexity of acquiring land, shortage of existing infrastructures, the necessity for distant connectivity, among other factors which result in relatively higher construction and maintenance costs for rural schools when compared to an urban region (Chaurey & Trung le, 2022).

High costs of digital devices and internet services- In rural Nigeria , the exorbitant price of digital equipment such as smartphones and computers, as well as that of internet services, is a major obstacle to access, allowing for a "digital divide" where many residents lack the means to afford going online, largely because of low incomes, low population densities, and the high infrastructure expenses of carrying connectivity to far-flung locations. (ACT,18th March, 2024). The integration of Digital facilities in education has gained global recognition for enhancing teaching methodologies, promoting interactive learning, and improving students' academic performance. While has been incorporated into Nigeria's National Policy on Education, its practical implementation in primary schools remains limited due to infrastructural deficiencies, lack of teacher training, and inadequate government support. Despite the benefits of , teachers' perceptions significantly influence its adoption in classrooms. Some teachers view as beneficial and are willing to integrate it, while others perceive it as challenging due to insufficient technical support, poor internet connectivity, and irregular power supply. Existing research has primarily focused on use in higher education and secondary schools, with limited studies examining teachers' perception of in primary school curriculum implementation, particularly in Nsukka Local Government Area. Additionally, most studies have emphasized infrastructure and policy gaps rather than investigating teachers' personal experiences, motivation, and professional development in integration. This study seeks to bridge this gap by exploring how teachers perceive devices in primary school curriculum implementation, identifying key barriers, and proposing strategies to enhance adoption. The findings will be valuable for educational policymakers, curriculum planners, and school administrators in improving utilization in primary schools.

Statement of the Problem

The effective implementation of the primary school curriculum is essential for laying a strong foundation in a child's educational journey. Ideally, Information and Communication Technology should play a crucial role in enhancing curriculum delivery, fostering interactive learning, and improving teaching efficiency. Integrating into primary education is expected to facilitate personalized learning, promote creativity, and ensure access to quality instructional materials. However, in reality, the use of in primary school curriculum implementation remains inadequate, particularly in Nsukka Local Government Area. Many teachers lack the necessary skills, infrastructure is insufficient, and government support is often limited. Additionally, poor electricity supply, high costs of devices, and limited internet access further hinder effective integration. Teachers' perceptions also play a significant role, as negative attitudes or lack of confidence in using can contribute to its underutilization in classrooms. Given these challenges, there is a need to examine teachers' perceptions of devices in implementing the primary school curriculum. This study aims to explore the extent to which teachers utilize, identify factors influencing their perception, and highlight potential strategies for improving adoption in primary education. The findings will provide insights for policymakers, educators, and school administrators to enhance the use of in primary school curriculum implementation.

Purpose of the Study

The general purpose of this study is to teachers' perception on the risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State. Specifically, the study seeks to:

1. ascertain the teachers' perception on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State
2. examine limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State.

Research Questions

The study is guided by the following research questions:

1. What are teachers' perception on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State?
2. What are the perception of teachers towards limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State?

Methods

This study adopted a descriptive survey research design. The population comprised all 505 primary school teachers from the 38 primary schools in Nsukka Local Government Area (L.G.A.), which includes Nsukka town, Opi, Ede-Oballa, Aru uno, Edem, Obimo, and Eha-Alumona. A simple random sampling technique without replacement was used to select 20 out of the 38 primary schools, ensuring equal opportunity for all schools to be chosen. From each of the 20 sampled schools, six teachers were randomly selected, bringing the total sample size to 120 teachers. Data were collected using a structured questionnaire titled "Teachers perception on the risk factors surrounding the use of digital facilities in teaching and learning in rural Questionnaire (TPRFSUDFTLRQ)" developed by the researchers. The instruments were validated by three experts, two from the Department of Educational Foundations and one from the Department of Science Education (Measurement and Evaluation unit). After validation, Cronbach's Alpha was used to determine the internal consistency of the instruments, yielding a reliability coefficient of 0.83, indicating high reliability. A total of 120 copies of the questionnaire were administered to the respondents by the researchers. Data collected were analyzed using percentages, mean, and standard deviation. The decision rule was based on the following benchmarks: for the availability of devices, items with 50% and above were considered available, while those with 49% and below were considered unavailable. A mean benchmark of 2.50 and above was used to determine accepted items, while items with a mean value of 2.49 and below were rejected. The response formats used for the research questions were as follows: for the availability of devices Available (AV = 2), Not Available (NAV = 1); for the extent of usage—Very High Extent (VHE = 4), High Extent (HE = 3), Low Extent (LE = 2), Very Low Extent (VLE = 1); and for Low Extent.

Results

Research Question 1: What are teachers' perception on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State?

Table 1: Mean Ratings on perception on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning in rural area

S/N	Items	Male Teachers 90		Female Teachers 30		Overall 120		Dec
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{x}$	SD	
	Perception of teachers on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning in rural area in the following areas:							
1	Many teachers see believe that digital facilities is not affordable in rural areas	2.60	.98	2.55	.93	2.58	.96	HE
2	Many technicians in rural areas damage instead of repairing digital facilities	2.57	.89	2.51	.92	2.54	.91	HE
3	Many digital facilities soled in rural areas are not original	2.56	.95	2.55	.89	2.56	.92	HE
4	Many teachers do spend more to higher experts from town to install digital facilities in Nsukka.	2.59	.92	2.54	.91	2.57	.92	HE
5	High cost of security personnel to secure digital facilities is another barrier.	2.50	.93	2.54	.85	2.53	.89	HE
Cluster Mean/SD		2.57	.92	2.56	.90	2.57	.92	HE

The data analysis on Table 1 above shows the mean ratings of teachers' perception on cost of digital facilities as risk factors surrounding the use of digital facilities in teaching and learning. In the above Table, male teachers mean ranged from 2.50 to 2.64, while the female teachers mean ranged from 2.51 to 2.61. The values of their cluster means are 2.57 and 2.56 with standard deviations of .92 and .90 respectively. However, their overall mean ranged from 2.53 to 2.60 with cluster mean of 2.57 and standard deviation of .92. The finding of the study signifies that teachers' perception on cost of digital facilities as a risk factors surrounding the use of digital facilities in teaching and learning to a high extent. The standard deviations of the respondents show that they are homogenous in their responses.

Research Question 2: What are the perception of teachers towards limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State?

Table 2: Mean Ratings on teachers towards limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural.

S/N	Items	Teachers 90		Principals 30		Overall 120		Dec
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{x}$	SD	
6	Teachers towards limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning							
	Many rural communities do not have access to internet facilities.	3.12	.80	3.11	.82	3.11	.82	HE

7	Some places that have network access can cause serious hazard to students do to radiation .	2.34	.84	2.37	.82	2.36	.83	LE
8	Poor network connections limits speed and accuracy in using digital facilities	2.52	.81	2.51	.82	2.51	.82	HE
9	So many digital facilities cannot work without internet facilities	2.55	.80	2.53	.82	2.55	.81	LE
10	Poor internet facilities can lead to damages of some digital facilities like modem and wifi	3.07	.84	3.04	.82	3.04	.83	HE
Cluster Mean/SD		2.62	.82	2.61	.82	2.62	.82	HE

The data analysis on Table 2 above shows the mean ratings of male teachers and female teachers on the extent to which limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural areas. Table 2, the male teachers mean ranged from 2.25 to 3.12, while the female teachers mean ranged from 2.23 to 3.11. The values of their cluster means are 2.62 and 2.61 with standard deviations of .82 and .82 respectively. However, their overall mean ranged from 2.24 to 3.11 with cluster mean of 2.62 and standard deviation of .82. The finding of the study signifies that perception of teachers towards limited access to internet facilities as risk factors surrounding the use of digital facilities in teaching and learning in rural area is high. The standard deviations of the respondents show that their responses were closely related.

Discussion

The findings of the study revealed that many teachers believe digital facilities are not affordable in rural areas. In addition, many technicians in rural communities often damage rather than repair digital equipment, and some digital facilities sold in these areas are not original. Teachers frequently spend extra funds to hire experts from urban centers to install these facilities, and the high cost of security personnel to protect the digital resources further compounds the challenge. These findings align with the work of Chaurey and Trung Le (2022), who noted that infrastructure costs in rural Nigeria are significantly higher due to factors such as low population densities, difficult geographical terrain, limited skilled manpower, complexities in land acquisition, scarcity of existing infrastructure, and the need for long-distance connectivity. These factors collectively result in higher construction, installation, and maintenance costs for rural schools compared to urban areas.

The findings of the study revealed that access to internet facilities in rural communities is limited. Poor network connections reduce the speed and accuracy of using digital tools, and inadequate internet infrastructure can even cause damage to devices such as modems and Wi-Fi routers. This observation is consistent with Chaurey and Trung Le (2022), who emphasized that the high cost and complexity of infrastructure development in remote areas hinder the effective deployment and maintenance of digital technologies, creating disparities between rural and urban educational settings.

Conclusions

The issue of poor network coverage and cost of digital technology has been a bottleneck to rural schools. Many rural communities are striving hard to initiate the use of digital technology in their school system, but were apprehended by cost of security, servicing and general network barriers. Many teachers at the same time, have limited knowledge on the use of digital technology triggering them into hiring experts from developed areas/ town.

Recommendations

The following were the recommendations for the study

1. Government should cater for the cost of digital facilities as to improve the use of digital facilities in teaching and learning in rural area in Enugu State
2. access to internet facilities should be made by the government to minimize the risk factors surrounding the use of digital facilities in teaching and learning in rural area in Enugu State
3. Government and other major stakeholders in the education sector should supply schools with necessary tools to facilitate effective teaching and learning.
4. Teachers should be regularly exposed to in-service training, seminars, conferences, and workshops to enhance their proficiency in using tools for teaching.

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