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(RESEARCH ARTICLE)

Availability and utilization of digital tools in nurturing effective classroom practices among secondary school computer studies teachers in Ekiti State, Nigeria

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Abstract

The study examined the level of availability and utilization of digital tools in secondary schools in Ekiti State. The study adopted descriptive research design of survey type. The population comprised all computer studies teachers in all the public secondary schools in Ekiti State, Nigeria. Thirty-two (32) computer studies teachers were randomly selected in each of the three Senatorial Districts in the State, making the sample a total of ninety-six (96). The instrument was a self-developed questionnaire titled Questionnaire on Availability and Utilization of Digital Tools in schools (QAUDT). Validity of QAUDT was ensured by experts in Tests and Measurement. Cronbach Alpha method was used to ascertain its reliability with co-efficient of 0.76. Data collected were analyzed using frequency counts and percentage. Findings revealed: the level of availability of digital tools in schools is below average, level of utilization of the available tools is above average, and some factors perceived as constraints to sufficient availability, and effective utilization of digital tools. The study recommended that government and other stakeholders should intervene in improving the level of availability of digital tools in schools, so that computer studies teachers can efficiently deliver their lessons in tandem with the objectives of the curriculum which aimed at making students acquire skills and competencies required in this digital word of competitiveness.

Keywords: Availability; Utilization; Digital tools; Computer studies; Secondary schools

1. Introduction

The world appears to have been digitalized; information dissemination is done in seconds and operations in offices are fast turning paperless. This may have been facilitated by information and communication technology devices such as computer, internet, global system for mobile communications (GSM) and satellites. This digitalization can only be applicable to a country only if such country moves in the direction of the global computer literacy and ensures her citizenry become computer literate. One of the sure ways of achieving this is fusing computer studies into the school curriculum at all levels. This is because it is the responsibility of schools to graduate students who can fit into the digitalized age. Hence, it will not be an over-statement that computer literacy is needed in a society like ours if we must be part of this global digitalization. Researches have revealed that introduction and implementation of computer studies as school subject in many countries across the world came about as a result of policy pronouncement and the need to cope with the trend of science and technology (Mwale, Chilala, & Kumar, 2011; Ogwo, Maidoh, & Onwe, 2015). However, for effective implementation of computer studies as a subject in schools, there must be adequate provision of necessary tools for a seamless teaching and learning experience.

Computer studies according to Edhuze (2003) as cited in Nwanze (2014) is a course of study that involve instruction and cultivation of fundamental skills necessary for autonomous manipulation of computer system in a bid to achieve

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educational goals. These goals, in Nigerian education system, are as specified by the National Policy on Education (FRN, 2013). Within this framework, computer studies as a subject aims to equip students with the skills and competencies required in today's digitally competitive world. These foundational skills and competencies enable them to engage with computer-related terms and practices. Thus, the subject is structured to enhance individuals' comprehension of computer functionality, applications, and limitations, while also offering insights into contemporary information processing methods.

Suberu (2013) identified the objectives of teaching computer studies in secondary schools as: exposing students to the basic rudiments of computer and its workings, laying solid foundation in computer science at early stage of educational exposure, encouraging and stimulating the interest of the students toward venturing into computer science related disciplines, paving way for easy application of computer knowledge in other disciplines, ensuring literacy in computer science at secondary school level, and meeting the demand of our time to keep up with the ever changing trends in technological development.

According to the National Policy on Education (FRN, 2013), the aim and objectives of introducing computer studies as a school subject is that at the end, students should possess appropriate level of literacy, numeracy, communication, manipulative and problems solving skills in order to be employable and conveniently fit in to the larger society. Students are expected to master the skills of computer appreciation or application and not just what it is and can do. Hence, students are expected to be taught in such a way as not only to conceptualize and understand the computer, but also to be able to effectively manage their own learning, reinforce it and apply such knowledge or training in practical situation.

Studies have shown that teaching computer studies is done mostly by using lectures and questioning methods to the neglect of practical in computer laboratories and part of the reasons adduced to this is the difficulty that computer studies teacher are facing in getting digitals teaching tools required for practical teaching (Chikumba, 2011; Geladze, 2015; Eze, Ugwanyi and Orsu, 2016; Olaniyi and Ajayi, 2020). This ugly scenario can make teaching of computer studies beset with a number of problems and these problems can in turn slow down the pace of learning and application of the subject as specified by the National Policy on ICT Education (FME, 2019). Since one of the goals of introducing computer studies into secondary school education is to equip students with the skills and competencies required in today's digitally competitive world (FRN, 2013); it will not be out of place if digital tools are employed in the teaching and learning of the subject.

Digital education tools are technology-based tools that can facilitate learning and teaching. With the rise of digital technology, education can no longer maintain a confined, one-dimensional status. Tools which are capable of transforming the way teachers teach and the way students learn and interact can be employed to create engaging, interactive experiences. With these digital tools, students can be able to play a more productive role and be at the centre of the learning process while the teacher plays a leading role in the process. According to Dancsa et al (2023), the use of different digital tools provides actively engaged students with skills that can improve their problem-solving and critical thinking abilities. It is worthy of note that there are myriads of these tools and in most cases they are being referred to as information and communication technology (ICT) facilities or ICT tools.

1.1. Statement of the Problem

The Federal Government of Nigeria in the National Policy on Education is mindful of the importance of computer education in the world today. Hence, the inclusion of computer studies as a subject to the nation’s secondary school curriculum. None the less, there are presuppositions that teaching and learning of computer studies in schools is associated with problems. In the circumstance, therefore, one is prompted to ask: what exactly is the situation? What are the problems associated with the teaching of computer studies? It is against this backdrop that this study is designed to establish the level of availability of digital tools, their utilization and the constraints to their utilization in the teaching and learning of computer studies.

1.2. Purpose of the Study

The purpose of this survey is to ascertain the level at which digital tools are available for secondary school computer studies teachers, investigate the extent of the utilization of the available tools and probe into the constraints being faced by the teachers in using the tools.

1.3. Research Questions

Three research questions were raised to guide the study:

- What is the level of availability of digital tools for teaching computer studies in Ekiti State secondary schools?
- To what extent are computer studies teachers utilizing digital tools?
- What are the constraints to the effective utilization of digital tools in teaching computer studies in Ekiti State?

2. Methodology

The descriptive research design of survey type was used for this study. The population comprised all computer studies teachers in all the public secondary schools in Ekiti State. Thirty-two (32) computer studies teachers were randomly selected in each of the three Senatorial Districts in the State, making the sample a total of ninety-six (96). A self-developed questionnaire titled Questionnaire on Availability and Utilization of Digital Tools in schools (QAUDT) was used for data collection.

The questionnaire is made up of four sections. Section one sought information on the biodata of respondents. Items in section two addressed the level of availability of digital tools for computer studies teachers. Items in section three addressed the extent of utilization of digital tools by computer studies teachers. Section four contains items on the perceived constraints in sufficient availability and effective utilization of digital tools. Face and content validity of QAUDT was ensured by experts in Tests and Measurement. Cronbach Alpha method was used to ascertain the reliability and the co-efficient is 0.76. Data collected from the study were analyzed using descriptive statistics: frequency counts and simple percentage.

3. Results

3.1. Research Question 1: What is the level of availability of digital tools for teaching computer studies in Ekiti State secondary schools?

Table 1 Level of availability of digital tools for teaching computer studies in Ekiti State secondary schools

		Number of Respondents = 96			
		Available		Not Available	
S/N	Digital Tools	F	%	F	%
1	Desktop computers	83	86.5	13	13.5
2	Tablets	18	18.8	78	81.3
3	Laptops	80	83.3	16	16.7
4	Digital whiteboards	31	32.3	65	67.7
5	USB flash drives	43	44.8	53	55.2
6	Disc player	50	52.1	46	47.9
7	Smartphones	27	28.1	69	71.9
8	Printer	53	55.2	43	44.8
9	Educational video	21	21.9	75	78.1
10	Game-based learning tools	29	30.2	67	69.8
11	Educational software	33	34.4	63	65.6
12	Scanner	39	40.6	57	59.4
13	e-books	26	27.1	70	72.9
14	Projector	30	31.3	66	68.8
15	Web Camera	41	42.7	55	57.3

F = Frequency Source: Field Survey Data, 2025

Table 1 reveals the checklist provided by the computer studies teachers about the digital tools available for their teaching. The table shows that digital tools are mostly not available (i.e. <50%) for teaching. Out of fifteen digital tools on the checklist, four, namely, desktop computers (86.5%), laptops (83.3%), disc player (52.1%), and printer (55.2%) are mostly available for teaching. The remaining eleven digital tools, namely, tablets (18.8%), digital whiteboards (32.3%), USB flash drives (44.8%), smartphones (28.1%), educational video (21.9%), game-based learning tools (30.2%), educational software (34.4%), scanner (40.6%), e.books (27.1%), projector (31.3%), and web cam (42.7%)

are mostly not available for teaching. It was observed by the researcher that the digital tools required by the teachers for the teaching of computer studies are mostly not available to a certain degree and proportion.

3.2. Research Question 2: To what extent are computer studies teachers utilizing digital tools?

Table 2 Extent of utilization of digital tools by computer studies teachers

Extent of utilization	Frequency	%
Low	15	15.6
Moderate low	27	28.1
Moderate high	30	31.3
High	24	25
Total	96	100

Source: Field Survey Data, 2025

Table 2 shows that the extent to which computer studies teachers in Ekiti State utilize digital tools is high as 31.3% and 25% utilize digital tools to a moderate high and high extent respectively. However, from the sampled teachers, only 15.6% and 28.1% of them utilize digital tools to a low and moderate low extent respectively.

3.3. Research Question 3: What are the constraints to the effective utilization of digital tools in teaching computer studies in Ekiti State?

Table 3 Constraints to effective utilization of digital tools in teaching computer studies

Number of Respondents = 96									
S/N	Items	SA	%	A	%	D	%	SD	%
1	Lack of internet facilities	37	38.5	22	22.9	26	27.1	11	11.5
2	Poor power supply	43	44.8	29	30.2	12	12.5	12	12.5
3	High cost of maintenance	41	42.7	26	27.1	13	13.5	16	16.7
4	Lack of fund for procurement	30	31.3	42	43.8	19	19.8	5	5.2
5	Unsuitability of the physical condition of classrooms	22	22.9	26	27.1	32	33.3	16	16.7
6	Unsuitability of the physical condition of computer laboratory	26	27.1	22	22.9	19	19.8	29	30.2
7	Classes are crowded	19	19.8	22	22.9	22	22.9	33	34.4
8	Classroom management is more difficult with the use of digital tools	19	19.8	13	13.5	42	43.8	22	22.9
9	Government payment of lip service to integration of digital tools	27	28.1	39	40.6	21	21.9	9	9.4
10	Lack of sufficient support from school management	8	8.3	19	19.8	35	36.5	34	35.4

NB: SA = Strongly Agree, A – Agree, D = Disagree, SD = Strongly Disagree; Source: Field Survey Data, 2025

Table 3 shows the constraints to effective utilization of digital tools in the teaching of computer studies in secondary schools. It is observed from the responses of agreement that "lack of fund for procurement" with 75.1% is seen by the teachers as the most pronounced constraint. This is followed by "poor power supply", "high cost of maintenance", "government payment of lip service to integration of digital tools", and "lack of internet facilities" with 75%, 69.8%, 68.7%, 61.4% respectively. Next is "unsuitability of the physical condition of classrooms" as well as "unsuitability of the physical condition of computer laboratory" that have 50% rating. However, it is observed that computer studies teachers do not really see "classes are crowd", "classroom management is more difficult with the use of digital tools", and "lack of sufficient support from school management" with 42.7%, 33.3% and 28.1% respectively because their rating is below average.

4. Discussion

Findings from the study showed that the digital tools required by the teachers for teaching computer studies are mostly not available to a certain degree and proportion. This finding agrees with the findings of Ubogu and Ogbedo (2023) that there are inadequate ICT facilities to be used by teachers and students in teaching and learning process. It is also in tandem with the findings of Ajeigbe, Ogunsakin and Shogbesan (2015) that the ICT facilities required for the teaching of computer studies are not adequate in secondary schools in Osun State; and Amuchie (2015) that ICT resources are available for teaching to a very poor extent in Taraba State. However, the present finding negates Akanni (2022) that ICT resources are available for teaching mathematics in Lagos State.

Further findings from the study also indicated that computer studies teachers utilize the available digital tools to a moderate high extent. This finding corroborates that of Ajeigbe et al (2015) that the extent of usage of ICT facilities in teaching is relatively high among computer studies teachers. On the contrary, the finding disagrees with Akubuilo, Nnnam, and Ugo (2021) that the little available ICT facilities for teaching social studies in Enugu State are being utilized to a low extent. Similarly, it is against Ikwuanusi, Nwoke, and Uzoma (2016) whose finding revealed that available ICT facilities are not being used for teaching and learning; rather they are only being used for administrative purposes.

Findings also revealed that lack of fund for procurement as well as high cost of maintenance as a major constraint pointed out by the computer studies teachers in Ekiti State. This is in tandem with Hillary, Opuda and Alabere (2022) that lack of fund to procure ICT facilities and cost of maintenance of ICT facilities are constraints to the utilization of information communication technologies in secondary schools in Rivers State. In agreement with Amuchie (2015), the teachers also indicated poor power supply and government payment of lip service to integration of digital tools as serious constraints to utilization of digital tools. More so, the constraint of lack of internet facilities was pointed out by the teachers in corroboration to Dele-Ajayi et al (2019) who noticed poor internet services as a barrier to the adoption and integration of ICT facilities.

5. Conclusion

The findings of this study have clearly shown that the digital tools required by the teachers for the teaching of computer studies in secondary schools in Ekiti State are mostly not available. Good enough, there is moderate high extent of utilization of the available tools by the teachers which is likely to be as result of their selfless commitment to impact their students positively despite all odds. It is also concluded that lack of fund for procurement, poor power supply, high cost of maintenance, government payment of lip service to integration of digital tools, and lack of internet facilities serve as constraints to utilization of digital tools in teaching computer studies. As observed, none of these constraints are teacher's or school management's oriented; they are all fall-out of government's inadequacies about the education sector. With the observed efforts of the teachers on utilization of the available digital tools, they would have done more excellently if there is better availability of required digital educational tools.

Recommendations

Based on the findings, it was recommended that the government at all levels should provide enough and functioning digital tools to schools.

Government should increase funding for the entire education sector with emphasis on digital educational tools. This will make the required digital tools more available for computer studies teachers to utilize. Rather than paying mere lip service, government at all levels should put all necessary machineries in place for proper integration of digital tools into the teaching and learning of computer studies. This will be an index of the government's truthfulness to her objectives of introducing computer studies into secondary school system.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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