PERCEIVED E-LEARNING READINESS OF SECONDARY SCHOOL STUDENTS IN KWARA STATE, NIGERIA

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Abstract

E-learning has become an increasingly popular learning approach in Nigerian educational sector due to the rapid growth of Internet technologies. E-learning is the use of information and communication to enhance and facilitate teaching and learning. The main focus of this study was to investigate secondary school students' perceived e-learning readiness in Kwara State. Specifically, the study determined the students' accessibility to e- learning materials; perceived e-learning skills possessed by secondary school students; and gender influence on secondary school students' e-learning readiness. The research design was a descriptive type using the survey method. Sample comprised 100 secondary school students in Kwara State using random sampling for the collection of data. The instrument was a researcher designed questionnaire which was subjected to descriptive statistical analysis (percentage, frequency and mean) and used to answer the research questions with the aid of Statistical Package for Social Science (SPSS 26.0).The findings of the study revealed that secondary school students in Kwara State are; computer literate, as 55% of the respondents have access to computer and 89% have access to Internet services on their mobile phone; highly proficient in e-learning skill as 94% of the respondents can do a lot of operations with e-learning materials; the results show a positive impact, with both male and female respondents reporting favorable outcomes. The mean scores from respondents were 17.37 and 18.41, respectively, indicating a slightly higher positive impact among female respondents. From the research findings, it was recommended that educators should embrace the latest trend in technology, e-learning materials should be provided in all secondary schools, training and information sessions on e-learning should be provided and resources should be allocated for the procurement of latest e-learning materials.

Introduction

Education plays a major role in unlocking individual and national development and all forms of equity and might. Education generally is believed to have contributed to the promotion of economic growth and development (Amaghionyeodiwe, 2017; Omojimite, 2018), and Secondary Education in particular is acknowledged as a means of contributing in no small way to national economic growth and development. Secondary Education therefore, has the capacity through research, knowledge creation and dissemination avenues that are required in achieving economic growth and development (Babatunde &Adefabi, 2019). Hence, one of the major objectives of secondary education is the building of skills and competencies for national growth and human development.

Human capital development, in recent times, has been driven by advancements in Information and Communication Technology (ICT). Information and Communication Technologies are made up of diverse tools, such as, computers, electronic media and mobile devices, platforms and the Internet among others (Morri, 2023; Rosenberg, 2021; Rossett & Sheldon, 2017) are employed by users for searching and exploring, analyzing and computing, exchanging and presenting information in a fast changing world of work, networking, education and other activities (Manville, 2018).

E-learning is a term that is used to refer to all information communication technology, networks, internet and other forms of media that can be used to enhance teaching and learning so as to transfer knowledge and skill. The integration of information communication technology in education has changed and transformed the education sector worldwide and created positive impacts provided successful implementation strategies are followed (**Techopedia, 2022**). E-learning takes various forms for instance, it can be web-based, computer-based, virtual classrooms and content delivery via e-networks, audio or video tape, satellite TV, video conferencing, CD-ROM, I-pods, E-mails, wireless and mobile technology among others (Eke, 2019). The growth in internet characterized by the decreased costs and increased bandwidth has facilitated the expansion and increased the use of e-learning to offer formal as well as informal educational opportunities that were previously not possible to hundreds of millions of learners (Bonk, 2019).

E-learning also refers to online learning or virtual learning which has been defined as a wide set of application and processes such as web-based learning, computer-based learning, virtual classrooms (VCR), and digital collaboration. It includes the delivery of content via internet audio- and videotape, satellite broadcast, interactive TV, and CD-ROM (Kaplan-Leiserson, 2018). The explosion of the knowledge age has changed the content of what is learnt and how it is learnt – the concept of VCR is a manifestation of this knowledge revolution (Wikipedia 2018). VCR is basically a virtual learning environment where courses are not taught in classrooms faced-to-face but delivered on the internet (Cruthers, 2018). VCR has great advantages, such as improving access to advanced educational experiences by allowing students and teachers to participate in remote learning communities; and improving the quality and effectiveness of education by supporting a collaborative learning process (Watson, 2022, Cruthers, 2018). Regardless of the level or class, e-learning can be adopted and applied in the education system.

E-learning adoption and usage has been successful in the developed world as the success factors depict/render to that effect. The changes in education have led to manifestation shift from teacher centeredness to learner centeredness through to subject centeredness. This implies that the teacher can no longer decide what to be learnt but rather the interests of the learner do so and determine how they should learn it. It is therefore a learner-controlled self-paced education environment; there by allowing the learners to work on their pace, convenience access and assessment (Eke, 2019).

In developing countries e-learning is still in its infancy and early adoption stage, and the countries experience challenges unique from developed countries (Bhuasiri 2022). There are deliberate efforts in such countries to implement e-learning. In Nigeria, e-learning adoption has been observed mainly in higher institutions of learning but very minimal at the secondary school level. Despite the minimal adoption, the implementation of e-learning has not gone unchallenged. The challenges have been accountable for the small adoption percentage usage, abandonment, and failure of e-learning projects. Looking at e-learning in today's organizations, it can be defined as the delivery of instructional content or learning experience enabled by electronic technology and it is one of the major innovations that diffuses corporate settings. E-

learning requires that the learner use the internet, collaborate with peers and interact with the trainer for support (Ojwang 2019).

Readiness can be seen as the state or degree of being fully prepared for something, task, willingness to do something or the quality of being immediate, quick or prompt (Jones & Brown, 2022). Readiness can be seen as prompt willingness or temporarily ready to respond in a particular way. Learning readiness refers to how an individual is to seek out knowledge and participate in behavior change. E-learning readiness can be defined as the state of being ready or prepared to roll out the e-learning program. There are various determinant factors of e-learning readiness which include the technical skills of the implementers, the attitude of both the teachers and the students towards the e-learning programs, the content to be delivered via the e-learning infrastructure and more importantly the budget allocated for the e-learning program.

Ali, (2022) opined that e-learning is increasingly sought after for its effectiveness in enhancing teaching and learning. However, many students still patronize traditional/local books as a source of information in our secondaryschools rather than ICT that is more efficient and reliable. Information communication technology applied to education enhance the delivery of instruction, access to knowledge, improves learning, produces richer teaching and learning outcomes compared to face-to-face teaching as it encourages friendly atmosphere and offers unlimited means of achieving educational goals (Ali, 2022).

E-learning offers unlimited access, equity, quality and other abundant opportunities in education in general (Ronsenberg, 2019), and promote better access to quality education. In an age of rapid and unprecedented developments in ICTs, with increased levels of deployment of these newer technologies in the education sector, there is the belief which has been adequately conversed, that e-learning holds the key to the provision of greater access, greater flexibilities and higher quality of education in the sector, through better teaching strategies, improved learning environments and growing opportunities being made possible by e-learning, computers and the Internet (Okebukola, 2016).

Fakinlede(2021) opined that the Nigerian educational sector has not benefited as it should from the advantages provided by e-learning, mainly due to poor communication technology infrastructure (Yusuf & Falade, 2015), negative perceptions of teachers, negative attitudes of students and uncooperative attitudes of decision makers are some of the reasons for the slow adoption and implementation of newer educational technologies for e-learning (Asunka, 2018). Also, the state of Internet connectivity in secondary schools has been summarized by three major characteristics; too little, too expensive and poorly managed (Gakio, 2020).

Consequently, as demand for education continues to increase (Okebukola, 2016) and with little or no expansion of infrastructure, it is becoming more obvious that access, equity and demand would be further compromised in the years ahead, if certain immediate and calculated steps are not taken towards adoption of e-learning delivery methods in educational sector in Nigeria.

Purpose of the Study

The main purpose of this study was to examine e-learning readiness of secondary school students in selected secondary schools in Kwara State. Specifically, the study sought to:

1. determine the perceived extent of secondary school students' access to e-learning materials.
2. examine the e-learning skills possessed by secondary school students.
3. find out if gender influences the secondary school students' e-learning readiness.

Research Questions

This study was guided by the following research questions:

1. What is the extent of accessibility of e-learning materials to the secondary school students?
2. What is the extent at which secondary school student's possessed e-learning skills?
3. What is the extent to which gender affect e-learning readiness?

Methodology

The study employed a descriptive survey research design. It is a quantitative research, the study described perceived e-learning readiness of secondary school students in Kwara State, Nigeria. The instrument used for this study was a researcher-designed questionnaire and it consisted four sections (A-D). Section A sought to gather demographic information of the respondents, Section B aimed at finding out information on the access to e-learning materials by secondary school students. Section C elicit information about e-learning skills possessed by the students while Section D is centered on perceived e-learning readiness by secondary school students, which were Strongly Agree, Agree, Disagree and Strongly Disagree for sections D, while section C is based on not proficient & highly proficient. Section B is based on yes and no options for item on access to ICT.

The face and content validity of the instrument was conducted. Pilot study was conducted among 30secondary school students who are not part of the study, which was a trial test of the main study. This enabled the researcher to determine the degree of consistency of the research instrument when used for the main study. Cronbach Alpha was used to determine the reliability coefficient, a coefficient of 0.72 was given. The research strictly adheres to ethical principles throughout its execution. Data were collected and subsequently analyzed using the Statistical Package for Social Sciences (SPSS). The interpretation of data obtained from the questionnaire serves as the foundation for the discussion of findings, with means and standard deviation employed as analytical representation of respondent responses.

Data Analysis Results and Interpretation

Research Question 1: What is the extent of accessibility of e-learning materials to the secondary school students?

Table 1: Mean and Standard Deviation on Accessibility to e-learning materials by Secondary School Students in Kwara State

S/N	Statements	Yes(%)	No(%)	$\bar{X}$	STD
1.	I have access to a personal mobile computer at home	76	24	2.25	0.458
2.	I have access to personal computer (PC) or laptop in my school Computer Laboratory.	45	55	1.55	0.500
3.	I have access to Internet services	89	11	2.81	0.314
4.	I have access to e-library in my school	61	39	1.91	0.552
5.	I own a smart phone	90	10	2.90	0.302
6.	I have access to mobile devices (tablet or ipad)	85	15	2.75	0.359

7.	I have access to the Internet at my leisure time	89	11	2.81	0.314
8.	I have access to e-book website	64	36	1.96	0.482
9.	I have access to educational applications	79	21	2.21	0.409
10.	I have access to educational game and simulations website	66	34	1.98	0.663

The results show that the highest access to e-learning materials was ownership of smart phones (mean=2.90, Std=0.302) which was closely followed by having access to internet services both at school and at leisure time (mean=2.81, Std=0.314). Furthermore, a high proportion of the respondents claimed to have access to mobile devices (mean=2.75, Std=0.359), and PC or laptop (mean=2.25, Std=0.458). The least access to e learning materials was the access to laptops or PC in the school computer laboratory (e-library) (mean=1.55, Std= 0.500).

Research Question 2: What is the extent at which secondary school student's possessed e-learning skills?

Table 2: Mean and Standard Deviation on Extent to which Secondary School Students Possessed E-learning skills in Kwara State

S/N	Statements	Not proficient (%)	Highly proficient (%)	$\bar{X}$	STD
.	I can switch on a computer system	6	94	5.39	1.246
2.	I can run an application program (e.g MS-Word, Adobe flash)	6	94	5.16	1.331
3.	I can create folder on a computer system	3	97	5.53	1.049
4.	I use e-mail for educational purpose	11	89	4.70	1.439
5.	I can save a document on a computer	3	97	5.57	0.977
6.	I use internet to gather educational data and information	3	97	5.33	1.006
7.	I can upload to the Internet with relevance illustration	8	92	4.88	1.335
8.	I download educational materials from the Internet	6	94	5.23	1.188
9.	I use social media such as face book, twitter, blog for educational purpose.	8	92	4.81	1.376
10.	I can develop graphic design of instructional activities	26	74	3.77	1.663
11.	I can create a Google site for a group discussion	28	72	3.67	1.735
12.	I can record live event with an electronics devices	18	82	4.38	1.722
13.	I can design with graphics applications (eg photo shop, Corel draw)	26	74	3.98	1.781
14.	I am a computer linguist	10	90	4.35	1.459

Table 2 revealed that, secondary school students demonstrate proficiency in various e-learning skills, with the highest proficiency observed in saving documents on a computer (mean= 5.57, Std=0.98) this is closely followed by creating folder on a computer system (mean=5.53, Std=1.04) and operating a computer system (mean=5.39, Std=1.25) respectively. Furthermore, the least skill possessed by the students were development of graphic designs of instructional activities (mean=3.77, Sd=1.66) and creating Google site for group discussion (mean=3.67, Std=1.74).

Research Question 3: What is the extent at which gender affect e-learning readiness?
Table 3:
Mean and Standard Deviation on Influence of gender on the use E- learning

S/N	Questionnaire items	SA	A	D	SD	$\overline{X}$	SD
1.	Male students prefer virtual learning	17%	58%	22%	3%	3.11	0.709
2.	Female students prefer reading e-book compared to their male counterparts	22%	41%	34%	3%	2.90	0.876
3.	Retention ability of male students is higher when taught using electronic devices	25%	43%	28%	4%	3.00	0.827
4.	Male students prefer to use e - learning than female students	27%	36%	30%	7%	2.91	0.911
5.	Male students possess higher e - learning skills (e.g application development, editing)	33%	30%	30%	7%	3.01	0.952
6.	Female students understand computer languages compared to male students	14%	29%	48%	9%	2.02	0.847
7.	Male students use e-learning materials more effectively than female students	30%	30%	30%	10%	2.20	0.985
8.	Female student contribute better in an e-learning environment	14%	33%	41%	12%	2.11	0.882

Table 3 revealed that most male students have stringer affinity for virtual learning (mean=3.11, Std=0.71).Additional, a significant number of students perceive that male students possess higher e-learning skills (mean= 3.01, Std=0.95) and have better retention abilities when taught using electronic devices (mean= 3.00, Std=0.83). In contrast, the fewest students agreed that female students have a weaker understanding of computer languages compared to male students (mean=2.02, Std=0.85).

Discussion of Findings

The findings of research question one revealed that ownership of smartphones is the highest factor in accessing e-learning materials, followed closely by access to internet services both at school and during leisure time. This suggests that students are increasingly relying on mobile devices for learning (Huang et al., 2023). Additionally, a significant proportion of respondents have access to mobile devices and PCs/laptops, indicating a growing trend towards mobile learning (Sharma et al., 2021). However, the least access to e-learning materials was found to be in school computer laboratories (e-libraries), which contradicts the findings of Kirschner and Karpinski (2019) who argued that computer labs are essential for e-learning.

This discrepancy may be due to the increasing adoption of mobile devices and online learning platforms, making computer labs less necessary (Bao et al., 2021). The findings suggest that students are increasingly relying on mobile devices and internet services for e-learning, but there is still a need to improve access to e-learning materials in school computer laboratories.

The findings of research question two revealed that secondary school students possess varying levels of e-learning skills. The highest skills possessed are basic computer operations such as saving documents, creating folders, and switching on computers. These findings support the idea that students are familiar with basic computer operations (Kent et al., 2020). However, the findings also reveal that students lack advanced e-learning skills such as development of graphic designs for instructional activities and creating Google sites for group discussion. This contradicts the findings of Lee et al. (2019) who argued that students are proficient in using digital tools for collaborative learning.

The disparity in e-learning skills may be due to the varying levels of exposure to technology and training received by students (Hew et al., 2020). Therefore, educators and policymakers should prioritize providing students with opportunities to develop advanced e-learning skills to enhance their learning experiences.

The findings of research question three revealed that gender plays a significant role in the use of e-learning among secondary school students. Majority of the students perceived that male students prefer virtual learning, possess higher e-learning skills, and have higher retention abilities when taught using electronic devices. These findings support the existing literature that suggests males are more likely to embrace e-learning and have higher levels of digital literacy (Hill, 2022; Knezek & Christensen, 2020).

However, the finding that the least proportion of students agreed that female students understand computer languages as well as male students contradicts the research of Margolis and Fisher (2021), who found that females are equally capable in computer programming and coding. This discrepancy may be due to the existing gender stereotypes and biases that perpetuate the under representation of females in STEM fields (Master et al., 2021). Overall, the findings suggest that gender influences students' perceptions of e-learning, with males being perceived as more adept and females being perceived as less capable. Educators and policymakers should address these gender disparities and promote inclusive e-learning environments that cater to the needs of all students.

Conclusion

The world is fast growing in technological advancement. By implications all aspect of teaching and learning are influenced by the application of technological principles, ethics and products. E-learning allows learners to access content anytime and anywhere, accommodating different schedules and learning paces. It reduces costs related to travel, accommodation, and materials, making education more accessible. Online courses can be taken without the need for commuting, saving time and increasing efficiency for busy learners. It offers diverse multimedia resources, enhancing the learning experience and catering to different learning styles.Online learning can lead to better retention through interactive content and the ability to revisit materials at any time.

Recommendations

Based on the findings of the study, the following recommendations were made;

1. Secondary schools should made mobile devices and PCs accessible to students, either through ownership or shared access.
2. Workshop and training should be organize for students and they should be encourage to practice and apply e-learning skills in real world context.
3. Secondary schools should promote gender-neutral e-learning environments, encouraging both male and female students to explore virtual learning opportunities.

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