Perception and Utilisation of Mobile Information and Communication Technology for Learning in Secondary Schools in Ekiti State, Nigeria

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Abstract
The gains associated with the integration of mobile information and communication technology (MICT) for learning has led stakeholders, few school proprietors to avail their schools with digital devices. However, MICT deployment does not necessarily interpret to student's technology utilisation for learning purposes. This current study presumed that the use of MICT for learning

purpose is subjective to the perception of the students, since perception drives the actual use of technology. Thus, the purpose of this study is to investigate the perception and utilization of MICT for learning in secondary schools in Ekiti State. A quantitative research approach of a survey type was employed, while adopting a multistage sampling technique to select 100 secondary school students in Ekiti State, Nigeria. This study employed a validated researcher-designed questionnaire with a reliability value of 0.73. Data collected were analysed using mean, rank ordering and t-test. The study revealed that secondary school students perceived MICT useful and easy to use; they use MICT for learning; and irrespective of their gender, they have similar perception to the use of MICT for learning. The study concluded that integrating MICT into senior secondary school curriculum is imperative, and students need to be motivated to use MICT for learning purpose. It is therefore recommended that stakeholders should provide policies that will encourage the full integration of MICT for learning in secondary schools, as this will interpret to greater academic achievement and equally ease the achievement of Nigeria national educational goals.

Keywords: Perception; Utilisation; Instructional Technology; Mobile Information and Communication Technology; Perceived Ease of Use; Perceived Usefulness.

Introduction

Nigerian education is primarily targeted towards achieving five primary goals as captured in the National Policy on Education, namely: developing morally sound, patriotic and effective citizenry; integrating individuals into a Nigeria society; providing all citizens with equal access to qualitative educational opportunities; inculcating national consciousness and unity; and developing appropriate skills such as mental, physical and social abilities and competencies that are required to live and contribute positively to the Nigerian nation (Federal Republic of Nigeria, FRN, 2013). These novel goals are generated based on

the recognition that the role of education in the development of a nation is immense, and it serves as the cornerstone of a knowledge-based economy that can support sustainable development and economic growth.

Abanikannda and Ajani (2019) emphasized that the understanding of the impactful roles of education have necessitated Nigerian Government to enact several policies, and equally generated conscious effort at devoting immense resources to create a better country. Significant among various other policies enacted was the National Information Communication Technology Policy, (Ministry of Communication and Technology, 2012). Part of the objectives of this policy was to transform and redrive different national sectors including the educational sector through Information and Communication Technology (ICT). Emphatically, FRN (2013) emphasized the need for the adoption of ICT at all levels of education in order to aid the achievement of Nigerian national goals.

The decision of the Nigerian government in selecting Information and Communication Technology (ICT) as a major driver to achieving the general Nigerian national goals, but inclusive of its capability to achieve all of her specific goals (a-e) as stated in the National Policy on Education (FRN, 2013).Evidently, the advancement in ICT has endeared virtually all walk of life to embrace its utilisation for specific and varied purposes. ICT has evolved new communication systems and practices with which human activities are now conducted. Physical life events are now transformed to virtual realities, driven through digital devices and data networks.

Information and Communication Technology (ICT) has comprehensively impacted its benefits on every society as the greatest agent of human development. Significant to education, the educational sector has graciously enjoyed in the emergence of ICT. The flexibility and ability of ICT to cater for individual needs has greatly enchants educators to integrate it into

instruction. The integration of ICT into education provides greater opportunity for individualized and personalized learning (Oladosu, Adedokun-Shittu, Sanni & Ajani, 2020); facilitates higher efficiency, productivity, and educational outcomes (Kwok, 2017); improves the quality of cognitive, creative and innovative thinking among students (Adedokun-Shittu, Ajani, Nuhu, & Shittu, 2020); influence students' higher–order thinking skills (Polly, 2011); promotes self-paced learning, collaborative learning, and active participation in classroom (Oladosu *et al.,* 2020; and host of others.

In providing credence to the active role of ICT in 21st century education, Shehu, Urefhe, and Promise (2015) claimed that ICT has increasingly become the critical determinant of educational success in the 21st century. Corroborating Shehu *et al.,* (2015), Abanikannda and Ajani (2019) concluded that the interactive, mobility, and ubiquitous nature of ICT networks which are accessed through various mechanisms, especially Mobile ICT (MICT) has given credence to the increasing usage of ICT in human daily lives without biasness or restrictions of location, time, place, gender and age. The significance of MICT for instruction, especially for learning in the 21st century where majority of the learners are digital natives (Prensky, 2001) cannot be underestimated.

Researchers such as Oladipupo, Nuhu, Ajani, and Ishola (2019) believe that learning in the 21st century cannot be said to be complete and successful, if institutions and/or instructors fail to incorporate MICT into the learning system. Mehdipour and Zerehkafi (2013), and Oladipupo *et al.,* (2019) posited that the components of MICT, especially for mobile learning, which attracts the attention of many researchers in the world cannot be deflated from the evidence that MICT created an avenue for blended learning environment or fully online learning. The effectiveness of MICT for learning has been established through various nodes and empirical evidences abound on its motivational, interest stimulating, and knowledge facilitation

role in the classroom (Ali, Haolader, & Muhammad, 2013; Oladosu, *et al.,* 2020; Adedokun-Shittu, *et al.,* 2020).

In other to promote the use of MICT in Nigerian schools, Nigerian Government through the National Policy on Education (FRN, 2013) stated that instruction should be learner-centred; practical and activity-based; experiential and technology supported. This statement of purpose indicated that learning should be based on active participation rather than passive activities. While this is understandable, it is also important to note that, the introduction of technology in schools require an adequate understanding of stakeholders' perception about the technology, especially the students who are the end-users. The fact that most of the secondary school students are digital natives does not guarantee the automatic use of the technology for learning.

In some schools where MICT is already been employed, most of the users, especially teachers and students are overwhelmed with the benefits, and this have necessitated teachers and students alike to use MICT without understanding the fundamentals of integrating and utilising MICT for classroom instruction (Adedokun-Shittu, Olasehinde-Williams, Obielodan, & Salawu, 2017). Equally, Adedokun-Shittu, et al., (2017) averred that MICT utilisation in the 21st century classroom has extended beyond the use of any available technological tool, such technology should be able to engage learners in the classroom activities.

Based on the understanding that the students are the end-users of MICT, their perceptions towards the technology should be a significant concept to be investigated. In the opinion of Schacter (2011), perception is described as the identification and interpretation of sensory information to represent and understand the environment to meet desired goals. For the proper understanding of perception in this study, studies such as Oladosu *et al.,* (2020), McNair and Green, (2016) and Adetunla (2016) shed some light on why most technological

products are not used appropriately for learning, especially by the students. One of the major reasons primarily identified and attributed as a key factor is the technology itself and users' factors such as users' perception on the technology. In relation to perception towards MICT, MICT is technology dependent, hence, the prediction of conceptual models such as; Theory of Reasoned Action [TRA] (Fishbein & Ajzen, 1975); Theory of Planned Behaviour [TPB] (Ajzen, 1985); Technology Acceptance Model [TAM] (Davis, 1989); Social Cognitive Theory [SCT] (Bandura, 1989); Model of PC Utilisation [MPCU] (Thomson, Higgins, & Howell, 1991);Innovation Diffusion Theory [IDT] (Rogers, 2003);and Unified Theory of Acceptance and Use of Technology [UTAUT] (Venkatesh, Morris, Davis, & Davis, 2003) comes to mind.

Significant among these models, TAM (Davis, 1989) is the most profound conceptual model that is frequently used in studies to explain and predict the use of technology dependent resources. Thus, it is equally found appropriate for this study, because of the nature of MICT and the characteristics of the stakeholders, in this case, secondary school students.TAM (Davis, 1989) theorized that the acceptability and usage of technological resources is strongly dependent on critical variables such as how user(s) perceived it, either in terms of its ease to use or its usefulness in meeting their goals. Oladosu *et al.,* (2020) further asserted that TAM expatiated on the actual use of technological tools such as MICT is influenced by the user's behavioural intentions, attitude, perceived usefulness, perceived ease of use of the technology, other external variables such as self-efficacy, anxiety, motivation, external control, and a host of other external factors. This is shown in Figure 1 below.

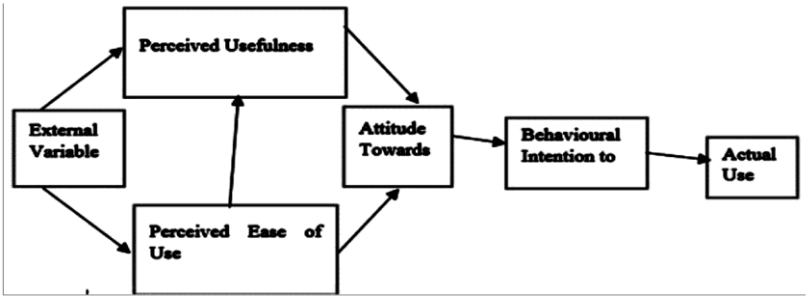

Figure 1: Technology Acceptance Model
Source: Davis (1989)

Critical to this current study, perception as a concept was adopted and conceptualized as Oladosu *et al.,* (2020) positioned that perception cannot be identified as a standalone concept, without understanding the intestinal variable such as perceived usefulness (PU) and perceived ease of use (PEoU). Oladosu *et al.,* described PU as the degree to which user believes the target system would enhance his or her job performance, while the PEoU was described as the degree to which user expects the target system to be free of effort in achieving desired outcome. As regards this, MICT will be positioned to be perceived useful when they can use it in achieving learning goals, and it will be perceived easy to use, if it becomes easy to learn with.

Within the context of this study, MICT deployment does not necessarily interprets to student's utilisation of the technology for learning, it can only be used for learning when they have positive perception towards MICT. In the report of Adedokun-Shittu et al., (2020), the authors claimed that, various Government in Nigeria, such as the case of Osun State provided digital devices to public secondary school students in the State, but unfortunately, most of the students do not use the devices for learning purposes, rather they play games, listen to music,

or watch videos with the devices. The researcher concluded that efforts are still needed to identify the negative skewness in this event. This current study presumed that in situation like this, students' perception (PU and PEoU) towards learning devices are critical, as this will help in understanding students' perspectives to how the devices can be designed and deployed to achieving educational goals. Thus, the purpose of this study is to investigate the perception and utilization of MICT for learning in secondary schools in Ekiti State.

Research Question

To address the focus of this study, the following questions were raised and answered:

1. What is the perceived usefulness of MICT for learning among senior secondary school students?
2. What is the perceived ease of use of MICT for learning among senior secondary school students?
3. Do senior secondary students utilise MICT for learning?

Research Hypotheses

H_{01}: there is no significant difference between male and female senior secondary students' perceived usefulness of MICT for learning.

H_{02}: there is no significant difference between male and female senior secondary students' perceived ease of use of MICT for learning.

H_{03}: there is no significant difference between male and female senior secondary students' utilisation of MICT for learning.

Methodology

This study adopted a quantitative research design of a survey type, while targeting government-owned secondary school students in Ekiti State, Nigeria. Multistage sampling technique was employed to select the sample size. First stage included a purposive sampling technique to select one school in Ekiti State.

The school was selected on the basis of the availability of MICT devices in the school, and students having access to the devices. The second stage employed a simple random sampling technique to select 100 participants for the study.

The research instrument for the study was a researcher-designed questionnaire with 4 sections. Section A of the instrument solicited for the demographic data of the respondents; Section B was interested in respondents' PU of MICT; Section C elicited information on respondents PEoU of MICT for learning; and Section D solicited for information on respondents' utilisation of MICT for learning. Sections B, C and D were rated on a modified Likert Mode Scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) with weighted value of 4 to 1 in terms of scoring. In ascertaining the reliability coefficient of the instrument, Cronbach Alpha Coefficient was used to determine the internal consistency reliability of the instrument revealing a value of 0.73. The data collected were analysed using descriptive and inferential statistics with the use of Statistical Package for Social Sciences (SPSS) software version 23.0. Frequency distribution and mean were used to answer the research questions while, *t*-test was used to test all the hypotheses at 0.05 level of significance.

With considerations for the ethical concerns of participants in this study, the researchers sought consent of the respondents and subsequently informed them about the study procedure and the importance of the study. The respondents were not compelled to respond to the instrument and voluntary participation was ensured. All the respondents were given a sense of autonomy, and anonymity, confidentiality and privacy of the respondents were maintained and considered. Data collected were treated with utmost confidentiality and anonymity.

Results

Administration of Instrument and Demographic Information

Table 1: Presentation of Demographic Data Based on Class

Class	Frequency	Percentage	Gender	Frequency	Percentage
S. S. 1	40	40.0	Male	43	43.0
S. S. 2	28	28.0	Female	57	57.0
S.S. 3	32	32.0	-	-	-
Total	**100**	**100**	**-**	**100**	**100**

Table 1 revealed the proportion of respondents that participated in the study according to their class and gender distribution. Indicatively, most of the students were in S. S. 1, compare to those in higher classes: S. S. 3 (32%) and S. S. 2 (28%). Equally, the proportion of female respondents were larger than the male respondents. Indicating that females were more than males. In summary, S. S. 1 students and female students were the majority of the participants in this study.

Research Question One: What is the perceived usefulness of MICT for learning among senior secondary school students?

Table 2: Perceived Usefulness of MICT for learning

S/N	Item	Mean	Rank Ordering
	Using mobile information and communication technology for learning can help me to accomplish my learning task more effectively.	3.71	1st
	The use of mobile information and communication technology for learning can help me in focusing better in the classroom.	3.52	3rd
	With mobile information and communication technology, I can easily generate useful and current information for learning.	3.52	3rd
	Using mobile information and communication technology for learning can make learning livelier.	3.43	5th
	Using mobile information and communication technology for learning can prepare students for the technology-driven world of work.	3.64	2nd
	Grand Mean	**3.56**	

Table 2 revealed the perceived usefulness of MICT for learning. The Table indicated that all the items have a mean score higher than the benchmark of 2.50. Indicatively, students perceived that if they use MICT for learning, it can help them to accomplish their learning task more effectively; it can prepare them for the technology-driven world of work; can easily generate useful and current information for learning; can help them in focusing better in the classroom; and make learning livelier. Cumulatively, the grand mean of **3.56>2.50** indicated that senior secondary school students perceived MICT for learning useful.

Research Question Two: What is the perceived ease of use of MICT for learning among senior secondary school students?

Table 3: Perceived Ease of Use of MICT for Learning

S/N	Item	Mean	Rank Ordering
	Use of mobile information and communication technology for learning facilitate student/teacher interaction.	3.55	1st
	The use of mobile information and communication technology for learning requires less effort to operate.	3.24	3rd
	Using mobile information and communication technology for learning is flexible to interact with.	3.01	5th
	I believe that interacting with mobile information and communication technology for learning make learning flexible.	3.12	4th
	learning is enriched with the use of mobile information and communication technology for learning.	3.34	2nd
	Grand Mean	**3.25**	

Table 3 revealed the responses of students' perceived ease of use of MICT for learning. All the items have a mean score above the benchmark of 2.50. Students perceived that MICT for learning facilitates student/teacher interaction; learning is enriched with the use of MICT for learning; requires less effort to operate; make learning flexible; and is flexible to interact with. Cumulatively, the grand mean of 3.25>2.50 implies that senior secondary school students perceived MICT for learning easy to use.

Research Question Three: Do senior secondary students utilise MICT for learning?

Table 5: Utilisation of Mobile Information and Communication Technology (MICT) for Learning.

S/N	Item	Mean	Rank Ordering
	The use of mobile information and communication technology aids students' quick access to learning materials.	3.81	1st
	Mobile information and communication technology encourage learners computing ability.	3.53	2nd
	Mobile information and communication technology usage provide sharing of information resources.	3.52	4th
	The use of mobile information and communication technology provides a platform for interaction among teachers and learners.	3.53	2nd
	Mobile information and communication technology usage encourages active learning and academic achievement.	3.42	5th
	Grand Mean	**3.56**	

Table 4 revealed the responses of students' utilisation of MICT for learning. All the items have a mean score above the benchmark of 2.50. Students stated that MICT for learning aids students' quick access to learning materials; encourage learners computing ability; provides a platform for interaction among teachers and learners; and encourages active learning and academic achievement. Cumulatively, the grand mean of **3.56>2.50** implies that senior secondary school students use MICT for learning.

Hypotheses Testing

Hypothesis One: There is no significant difference between male and female students perceive usefulness of MICT for learning.

Table 6: *t*-test Analysis of Gender Difference in Perceived Usefulness of MICT for Learning

Gender	N	X	SD	df	t	Sig. (2-tailed)
Male	43	3.57	0.21	98	1.01	0.31
Female	57	3.53	0.19			

Deductively, Table 6 showed that there was no significant difference between male and female students perceive usefulness of MICT for learning. This is reflected in the findings of the hypotheses tested df (98), t= 1.012, p>0.05. Thus, the hypothesis which states that "there is no significant difference between male and female students perceive usefulness of MICT for learning" is accepted.

Hypothesis Two: There is no significant difference between male and female students perceived ease of use of MICT for learning

Table 7: *t*-test Analysis of Gender Difference in Perceived Ease of Use of MICT for Learning

Gender	N	X	SD	df	t	Sig. (2-tailed)
Male	43	3.30	0.36	98	1.14	0.29
Female	57	3.18	0.69			

Deductively, Table 7 showed that there was no significant difference between male and female students perceived ease of use of MICT for learning. This is reflected in the findings of the hypotheses tested df (98), t= 1.14, p>0.05. Thus, the hypothesis which states that "there is no significant difference

between male and female students perceived ease of use of MICT for learning" is accepted.

Hypothesis Three: There is no significant difference between male and female students' utilisation of MICT for learning

Table 8: *t*-test Analysis of Gender Difference in Utilisation of MICT for Learning

Gender	N	X	SD	df	t	Sig. (2-tailed)
Male	43	1.32	0.16	98	0.34	0.74
Female	57	1.33	0.33			

Deductively, Table 8 showed that there was no significant difference between male and female students' utilisation of use of MICT for learning. This is reflected in the findings of the hypotheses tested df (98), t= 0.34, p>0.05. Thus, the hypothesis which states that "there is no significant difference between male and female students' utilisation of MICT for learning" is accepted.

Discussion

This study investigated the perception and utilisation of MICT for learning in secondary schools in Ekiti State, Nigeria. Generally, this study found out that secondary school students perceived MICT useful and easy to use; they use MICT for learning; and irrespective of their gender, both male and female students have similar perception to the use of MICT for learning in Ekiti State, Nigeria. Specifically, secondary school students perceived MICT to be useful and easy to use for their learning. This finding corroborated the report of Oladosu *et al*., (2020) on the perceived usefulness and ease of use of social media among Arabic students in Kwara State. The researchers claimed

that due to the characteristics of the newer categories of students being digital natives, they have positive perception towards technological resources. This positive perception most times encourages them to use technological resources for learning. However, sometimes they can be distracted if not monitored.

Other studies such as the study of Basavaraja and Kumar (2017) which reported significant correlation between students' perception and the actual use of ICT resources. The report indicated that as much as students are readily intertwined with ICT principles, they might not be academically inclined towards using them for purposive learning. This finding is found critical to the finding of this current study which related to how students' perception could interpret to its actual use for learning. This implies that, when students perceived a technology to be useful, its utilisation will be guaranteed. This study found that external variables such as student's gender do not interfere with students' perception of MICT. Critical among several other studies is the finding of Wong, Teo, and Russo (2012) who reported that gender had no moderating effect between perceived usefulness, perceived ease of use and actual use of ICT resources usage. Specifically, this outcome may be due to equal access of both male and female students to MICT thereby bridging the gender gap.

Conclusion and Recommendation

Based on the findings of this study, it can be concluded that senior secondary school students have positive perception on the usefulness and ease of use of MICT for learning, while not been gender sensitive. It is therefore recommended that students need to be motivated to use MICT for learning purpose and stakeholders should provide policies that will encourage the full integration of MICT for learning in secondary schools, as this will interpret to greater academic achievement

and equally ease the achievement of Nigeria national educational goals.

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