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Original Research Article

Digital Competencies Needed by Teachers for Utilizing Mobile Learning Applications for Effective Lesson Delivery in Technical Colleges in Aba Education Zone of Abia State

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Abstract

This study was set to determine the digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery in Technical Colleges in Aba Education Zone of Abia State. Two research questions guided the study in line with two hypotheses. The study adopted descriptive survey research design and was carried out in Aba, Abia State. The population for the study constitutes 43 Technical College Teachers (sampled purposively) and 55 IT Practitioners (obtained through preliminary survey). Data pertinent to the study were collected using a structured questionnaire developed by the researchers titled "Digital Competencies Needed for Utilizing Mobile Learning Applications Questionnaire (DCNUMLAQ)". The questionnaire was validated by three research experts and the reliability of the instrument was established using Cronbach Alpha which gave a reliability co-efficient result of 0.77. Mean and standard deviation were used to answer the research questions while the null hypotheses were tested using t-test at .05 level of significance and appropriate degree of freedom. Some of the findings include that the ability to; provide students with task management tools to organize their work, exploit computer games for pedagogical purposes, create screen capture tutorials, being able to detect plagiarized works in students assignments are part of the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone. Based on the findings of the study, the recommendations made among others include that technical college teachers should be retrained for capacity development and adoption of trending technological skills into classroom teaching for enhanced learning outcome, and education administrators/policy makers should enact policies especially for on-time assessment of teachers' capacity in the use of ICT for teaching in technical colleges for effective lesson delivery.

Keywords: Digital Competencies, Mobile Learning Applications, Effective Lesson Delivery.

INTRODUCTION

Education can be seen as a veritable tool for all round development of man. In view of that, education is defined as a process by which man is made useful through the inculcation of moral and acceptable ethical standards for wide understanding and effective utilization of the resources within his environment and beyond. According to Udensi (2012), education is a process of assisting a learner to acquire knowledge, skills and acceptable attitudes and moral behaviours that would make them responsible citizens, able to take care of themselves and their families and be more functional in their environment. The author maintained that education develop individuals to develop their environment and ultimately their nation from generation to generation. The Federal Republic of Nigeria, in its National Policy on Education (FRN, 2013) affirmed that quality education empowers its recipients with the appropriate skills, knowledge and values to adapt and contribute effectively in national development. Thus, education takes place at different settings and places including Technical College level.

Technical colleges are core-skill embodied institutions of learning where students are enriched with saleable practical competencies for self and societal relevance. According to Okolie, Elisha, Osuji and Igwe

(2019), technical colleges are educational institutions established with the aim of training students to acquire appropriate vocational skills, knowledge, attitudes, habits of thoughts and qualities of character that enable them develop their intellectual, social, physical, emotional and economic capabilities to become self-reliant and thus contribute to economic growth and development of their nations. Okafor (2010) also stated that technical education as offered at technical college level is aimed at imparting to its recipients skills, scientific knowledge and competencies that can enable them to work very efficiently in industrial and commercial ventures through a systematic and well programmed training and instruction. Okolie (2014) noted that Technical Colleges are different from normal secondary schools; the reason is that it places emphasis on vocational education and skills acquisition rather than theoretical knowledge and ability to read and write.

The vocational education and skill training acquired in technical colleges are in different trade areas. Okolie, Igwe and Elom (2019) identified the vocational and technical subjects as trades offered in technical colleges to include; furniture making, painting, automobile mechanics, electrical and electronics repairs and installations, welding and fabrication, plumbing, woodworking, carpentry, and Joinery, etc. These subjects cannot be taught effectively and the goals of technical education achieved maximally without the active participation of a competent teacher.

A teacher in this context can be defined as an individual who through training acquires acceptable capacities for molding an individual to become responsible in all spheres of life. Ibelegbu (2013) posited that a teacher is a facilitator of learning who helps students to realize their full potentials educationally, emotionally, and socially in career selection and transition. According to McDiarmid and Clevenger-Bright (2018), a teacher is a person who helps others to acquire knowledge, competencies or values. In essence, the teacher plays immeasurable role in ensuring that the recipients acquire desirable knowledge which can enhance the development of the individual and that of the economy. Hence, the afore-stated function(s) of the teacher can only be actualized if the teacher is competent enough in his area of speciality. According to Cuban (2013), the role and expertise of teachers are critical because teachers are at the front line of designing and delivering the learning experiences. It has been well argued that just making technology available in schools does not mean that teachers will make use of the technology, nor will it necessarily be used effectively. Hence, the need for a competent teacher in various areas of study.

Competency, simply put, is the ability to display mastery of skill or knowledge. It can be defined as the capacity to effectively carry out a specific task with a touch of excellence. According to Olivia and Ratnawaki (2015), competency is the ability of an individual to apply knowledge and experience that had been possessed in a certain area to perform a function carefully, accurately and objectively. Olga (2018) stated that competency is more than just knowledge and skills; it involves the ability to meet complex demands by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context. Competency is essential to an educator's pursuit of excellence. The author maintained that teachers need a wide range of competencies in order to face the complex challenges of today's world. Hence, these competencies are not limited to the utilization of modern technologies, but include the use of mobile learning applications in teaching and learning in educational institutions including technical colleges.

On the fore-going, Eady and Lockyer (2013) noted that technology has changed dramatically over recent decades. The increasing variety and accessibility of technology has expanded the toolbox and the opportunities teachers have to use technology. Globally, the governments, education systems, researchers, school leaders, teachers and parents have considered technology to be a critical part of a child's education. Onyebuenyi (2018) stated that technological advancement has continued to add value to the dynamic nature of the society in recent times, especially in the industries and the educational institutions, thereby making production, teaching and learning easier. The author stressed that the fields of engineering, technology and industrial education have continued to experience technological innovations in contemporary world in order to meet the challenges and demands of the society. Oluka and Onyebuenyi (2017) added that innovations in technology had contributed immensely to the development of man and few can imagine living without technology, hence, technology as a key component of human life, shapes the future and makes it compatible with nature through the discovery of more efficient methods and processes for the simplification of living. This simplification applies to teaching and learning. Hence, one can come to the conclusion that the whole processes are geared towards digitalizing the world.

Thokozani, Sylvia, and Moses (2019) stated that the digital world is increasingly penetrating the education space, with digital technology gradually being used as a vehicle to deliver educational knowledge and skills in new and innovative ways. -The need for technical teacher's development in using digital resources as means to bridge the knowledge gap in teaching the topic, tools and equipment is to be emphasized in these modern times. According to Fatemi (2009), technology and innovation have brought tremendous change in the way the students learn; with a global network, newer avenues and resources of

learning available, technology exposure and technology adoption amongst students in schools is no longer confined to the classrooms. For the students to take effective advantage of technology, the teachers have to play a key role not just as imparters of knowledge but also as facilitators who will guide the students in using technology for their benefits.

In the same vein, Organization for Economic Co-operation and Development (OECD, 2010) stated that the need to keep pace with society and prepare students for their roles in society is just two reasons to use technology in education. The author maintained that the important role that technology plays in education gives teachers the opportunity to design meaningful learning experiences with embedded technology. According to Eady and Lockyer (2013), teachers use digital resources for a variety of purposes and in many ways, including: (1). As a way to introduce students to a topic (2). As part of a teacher lecture or demonstration (3). As a stimulus to group or whole-class discussion (4). To provide students with access to different text types (5). To engage students in activities that is not possible in the classroom (6). To allow students to work at their own pace as a review or extension activity. Bennett, Maton and Kervin (2018) affirmed that teachers can support students to process information by helping them to organize new information, link it to their existing knowledge and use memory aids to retrieve information. Digital learning resources and computer software can be used to facilitate these processes including mobile learning applications.

The term "Mobile learning" is derived from the use of mobile devices in teaching and learning activities. According to Vangie (2021), mobile learning (m-learning) is education via the Internet or network using personal mobile devices, such as tablets and smartphones to obtain learning materials through mobile apps, social interactions and online educational hubs. It is flexible, allowing students' access to education anywhere, anytime. The author stressed that the phrase "mobile learning" is most often used to describe the technology the mobile devices and apps used in the classroom, however it may also be used to describe the support of always-on learning with mobile technology. McQuiggan, McQuiggan, Sabourin and Kosturko (2015) defined mobile learning as instant and optionally accessible, anywhere and anytime learning, which helps us create our knowledge, satisfy our curiosity, collaborate with others and enrich our experiences.

Sagirani, Sunarto, Hariadi, Amelia and Lemantara (2018) on the other hand defined mobile learning application as a learning application created specifically to accommodate the learning needs of students with the goal of gaining more learning experiences with more effective mobile devices. There are many mobile learning applications which varies in design and content but all for the enhancement of learning. Halden (2016) identified 5 great mobile learning applications to include BoostHQ, Evernote, SkillPill, Udemy and WordPress. Ashutosh (2018) listed Edmodo, Socrative, Projeqt, Thinglink, TED-Ed, cK-12, ClassDojo and many more applications. These mobile learning applications plays immeasurable roles in ensuring that the distance-related barriers in education are minimized in a bid to attaining the set object of education. Mobile learning applications when adopted in teaching and learning activities has many benefits. According to Harry (2018), some of the benefits of using mobile learning applications are: (1). Ideal for people looking for information on the move (2). Suited for online as well as offline viewing (3). Immensely popular with Millennial (4). Facilitate higher completion rates (5). Provide access to just-in-time information. (6). Ideal for performance support.

However, mobile learning application has easy guides for its contents' creation and effective utilization. According Naismith and Corlett (2016), the guides in design of mobile learning contents are: 1). Create quick and simple interactions, (2). Prepare flexible materials that can change according to the needs of learner, (3). Design access of device and interaction by considering the different devices and standards, (4), Contribute to the learning experience using the characteristics and constraints of mobile devices, (5). Use mobile technologies as a learning facilitator not a tool for only distributes learning contents, (6). Design materials with learner-centered approach. With this view, it is imperative to state that the utilization of mobile learning applications and its content by technical college teachers require digital competencies. These competencies as in this context may be seen in the areas of digital skills and digital tool- identification skills.

While skill is perceived as the ability to carry out a task effectively, Mbah and Umurhurhu (2016) defined skill as the ability to make purposeful movements that are necessary to complete or master a particular task. Digital skill is therefore defined in this context as ability to utilize trending technological devices in carrying out a specific task. This ability is prerequisite in the utilization of mobile learning applications. Digital skills are broadly defined according to Asli (2022) as the skills needed to "use digital devices, communication applications, and networks to access and manage information," from basic online searching and emailing to specialist programming and development.

According United Nations Educational, Scientific and Cultural Organization (UNESCO, 2018), digital skills are defined as a range of abilities to use digital devices, communication applications, and networks to access and manage information. They enable people to create and share digital content,

communicate and collaborate, and solve problems for effective and creative self-fulfillment in life, learning, work, and social activities at large. Fernando (2021) identified some digital skills to include: (a) Programming, web, and app development, (b). Digital business analysis (c). Digital marketing and content creation (d). Digital design and data visualization (e). Digital product management (f). Data science (g). User experience design. Noticias (2012) listed ability to use social bookmarking to share resources with and between learners, use blogs and wikis to create online platforms for students, exploit digital images for classroom use and others as part of the digital skills every 21st century teacher should possess.

Digital tool-identification skills on the other hand can be defined as the ability to know and choose particular set of digital working instrument for a specified task. Digital tool-identification skill in this context refers to the ability of an individual to know and select a particular digital tool for the utilization of mobile learning applications for effective learning. According to Andre (2019), digital tools for online content creation are utilized in the creation of school marketing videos that can promote your school, boost enrollment, and enrich students' classroom experience. It involves all the tools required for the creation of online educational contents. Ashutosh (2018) identified some of these tools to include Edmodo, Socrative, Thinglink, Projeqt, ClassDojo, cK-12, eduClipper, Storybird, Animoto, Kahoot and TED-Ed. However, digital tools and its application depend on the purpose for which it intends to fulfil. These competencies are highly needed for effective utilization of mobile learning applications in technical colleges in Aba Education Zone.

Aba is one of the capital cities of Abia State, popularly known for business, construction services and other industrialized services. According to Ikenwa (2019), Aba is a city in the southeast of Nigeria and the commercial center of Abia State with two local government areas namely; Aba South and Aba North. Aba South is the main city centre and the heartbeat of Abia State, south-east Nigeria. It is located on the Aba River with many villages such as; Aba-Ukwu, Eziukwu-Aba, Obuda-Aba, Umuokpoji-Aba and other villages from Ohazu merged due to administrative convenience. In Aba, there are many establishments who render professional digital information technological (IT) services (sales and training). Whereas, Aba Education Zone of Abia Stateis one of the education zones that made up the 3 educational zones in Abia State. Aba Education Zone of Abia State constitutes of Obingwa, Aba North, Aba South, Osisioma Ngwa, Ugwunagbo, Isialangwa North, Isialangwa South, Ukwa East and Ukwa West Local Government Areas. Within Aba education zone, there are technical colleges including Boys Technical College-Aba and Federal Science & Technical College (FSTC)-Ohanso while Abia State is one of the South-Eastern States bounded on the north and northeast by Anambra, Enugu and Ebonyi, on the West by Imo, East and Southeast by Cross River State and to the South by Rivers State with a population of over 2.000000 (FRN Official Gazette, 2007). Within Abia state, parents enroll their wards into these technical colleges because of its attendant benefits.

Consequently, irrespective of the said benefits of the utilization of modern technologies in education as evident in mobile learning and its application, it is disheartening that most teachers of technical colleges in Aba Education Zone of Abia State are ignorant of the use this technology in teaching and learning activities. This could be traced down to lack of awareness or knowledge of the use of these innovations whereas Igwe, Amarachi, Ogundana, Egere, and Anigbo (2018) attributed it to a problem of skills mismatch in the Nigerian education system. Pelgrum (2011) affirmed that teachers' lack of technological competence is a main barrier to their acceptance and adoption of ICT into teaching and learning. Thus, this knowledge-gap in the use of mobile learning has hampered the development of technical education at the college level in Aba Education Zone of Abia State and has undoubtedly given rise to the high level of irresponsibility and social misconducts actively displayed by graduates of technical colleges in Aba Education Zone. On this note, the study sought to determine, through the opinions of Technical College Teachers and IT Professional found all over the cities of Aba, the digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State.

Statement of the Problem

In recent time, technology has been a veritable tool for the transformation of learning and its processes. By this view, technology helps in bridging the relationship gap between teachers/educators and students, reinvent approaches to learning and collaboration, shrink long-standing equity, give all-time access to materials, and adapt different learning experiences to meet the needs of contemporary learners. It has become necessary to state that learning process is no longer confined to the traditional classroom settings, rather the present time demands that teachers through effective utilization of technological innovations, including mobile learning applications act as learning facilitators to students on an individual basis in a wider network. The utilization of ICT enables the teacher to break out of the traditional teaching methods and locate learning resources from different avenues that include both online and conventional methods, which promotes personal development as well as opportunities to engage in collaborative teamwork that allow students and teachers to proactively identify assessment opportunities against a range of criteria, capabilities and

competencies. These numerous benefits of utilizing digital technological innovations like mobile learning applications in the teaching and learning in technical colleges in Aba Education Zone of Abia State remain untapped. Here, most teachers are found ignorant of these innovations, resulting from technological-skill illiteracy. This had constituted a major problem affecting the development of the nation, delay in the attainment of educational goals as this situation has been leading to the mass- graduation ill-trained students who in-turn become rogues involving in different forms of socio-economic misconducts like raping, drug addiction, robbery and others. Thus, the problem of the study is "what are the digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State?"

Purpose of the Study

The general purpose of the study was to determine the digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State. Specifically, the study sought to determine the digital;

1. Tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.
2. Skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State.

Research Questions

The following research questions were formulated to guide the study:

1. What are the digital tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone?
2. What are the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone?

Hypotheses

1. There is no significant difference between the mean ratings of Technical College Teachers and IT Practitioners on the tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.
2. A significant difference does not exist in the mean ratings of Technical College Teachers and IT Practitioners on the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.

RESEARCH METHOD

A descriptive survey research design was employed for this study. The study was carried out in Aba, Abia State. The population for the study constitutes 43 Technical College Teachers (sampled purposively) and 55 IT Practitioners (obtained through preliminary survey). The instrument for data collection was a structured four point rating scale questionnaire with a 38-items statement developed by the researchers titled "Digital Competencies Needed for Utilizing Mobile Learning Applications Questionnaire (DCNUMLAQ)". The questionnaire had two sections, namely: A and B. Part A comprised the respondents; data while B had the questionnaire items with response options of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) assigned numerical values of 4, 3, 2 & 1 respectively. The instrument was validated by three research experts with the reliability index of 0.77 established using Cronbach's Alpha in SPSS. In analyzing the data collected, mean and standard deviation were used to answer the research questions while t-test was used for testing the null hypotheses. In decision making, items with mean scores of 2.50 and above were regarded as Agree while those with mean scores below 2.50 are regarded as Disagree. For the hypotheses, when the significant value is more than the level of significance, the hypothesis was rejected, while the null hypothesis was not rejected when the significant value is less than the level of significance.

RESULTS

The results in-line with the research questions and corresponding null hypotheses that guided the study is presented below.

Research Question 1

What are the digital tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone?

Table 1: Mean and Standard Deviation of Respondents regarding Digital Tools Needed by Teachers for Utilizing Mobile Learning Applications for Effective Lesson Delivery in Technical Colleges in Aba Education Zone

S/N	Digital tools required for utilizing mobile learning applications include;	Teachers (43)		IT Practitioners (55)		Overall 98		Remark
		$\bar{x}_1$	SD_1	$\bar{x}_2$	$\bar{x}_2$	SD_G	$\bar{x}_G$	
1	iKITMovie	3.12	0.82	3.09	0.92	3.11	0.87	Agree
2	Clip studio	3.20	0.79	3.18	0.79	3.19	0.79	Agree
3	Moovly	3.16	0.92	2.99	1.01	3.08	0.97	Agree
4	Harmony	3.22	0.86	3.31	0.73	3.27	0.79	Agree
5	Synfig studio	3.14	0.80	3.08	1.00	3.11	0.90	Agree
6	Blender	3.02	0.84	3.40	0.70	3.21	0.77	Agree
7	GoAnimate	3.40	0.63	3.22	0.68	3.31	0.66	Agree
8	Animaker	3.09	0.65	3.09	0.92	3.09	0.79	Agree
9	Powtoon	3.28	0.78	3.26	0.78	3.27	0.78	Agree
10	Ezvid	2.45	1.19	2.11	0.93	2.32	1.11	Disagree
11	Render forest	2.44	1.19	2.20	1.15	2.30	1.16	Disagree
12	Hippo video	3.09	0.80	3.00	0.85	3.05	0.83	Agree
13	VideoAnt	3.40	0.63	3.29	0.79	3.35	0.71	Agree
14	EDpuzzle	3.23	0.69	3.33	0.71	3.34	0.70	Agree
15	Playposit	2.34	0.49	2.20	1.35	2.27	0.92	Disagree
16	Snagit	3.41	0.66	3.56	1.65	3.49	0.94	Agree
17	**Edmodo**	3.11	0.82	3.67	1.05	3.39	0.94	Agree
18	**Projeqt**	3.54	0.66	3.43	0.69	3.49	0.68	Agree
19	**TED-Ed**	3.40	0.63	3.35	0.59	3.38	0.61	Agree
20	**eduClipper**	3.35	0.78	3.29	0.85	3.32	0.82	Agree
21	**Kahoot**	3.02	0.84	2.88	0.90	2.95	0.87	Agree
	Cluster Mean/SD	**3.11**	**0.78**	**3.09**	**0.91**	**3.11**	**0.84**	**Agree**

NB: Standard Deviation (SD)

In Table 1, the overall mean responses of the respondents on items number 1 to 9, 11 to 14 and 16 to 21 ranged from 2.95 to 3.49 with an indication of agree responses while items number 10, 11 and 15 has mean ratings of 2.32, 2.30 and 2.27 which indicates disagree responses. However, the cluster mean of 3.11 obtained for all the items under research question 1 denotes that digital tools with their identification skills are needed for utilizing mobile learning applications for effective lesson delivery by technical college teachers in Aba Education Zone. Thus, the low standard deviation of 0.84 obtained for all the items affirms homogeneity in the respondents' opinions to the said items.

Hypothesis 1

There is no significant difference between the mean ratings of Technical College Teachers and IT Practitioners on the tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.

Table 2: t-test analysis in the mean ratings between Technical College Teachers and IT Practitioners on the Tool-Identification Skills Needed by Teachers for Utilizing Mobile Learning Applications for Effective Lesson Delivery in Technical Colleges in Aba Education Zone

Respondents	N	$\bar{x}$	SD	t-value	Df	Sig. (2tailed)	Decision
Teachers	43	3.11	0.78	0.335	96	0.911	Not Significant
IT Practitioners	55	3.09	0.91				

NB: NS (Not Significant), SD (Standard Deviation), Df (Degree of freedom)

Table 2 shows that the t-value of 0.335 is obtained at 0.05 level of significance, 96 degree of freedom with the significant value of 0.911. Thus, since the significance value (0.911) is more than the level of significance (0.05), the null hypothesis is not significant and therefore not rejected for these items. This implies that a significant difference does not exist in the mean ratings of Technical College Teachers and IT Practitioners on the tool tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.

Research Question 2

What are the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone?

Table 3: Mean and Standard Deviation of Respondents Regarding Digital Skills Needed by Teachers for Utilizing Mobile Learning Applications for Effective Lesson Delivery in Technical Colleges in Aba Education Zone

S/N	Digital skills required for utilizing mobile learning applications include ability to:	Teachers (43)		IT Practitioners (55)		Overall 98		Remark
		$\bar{x}_1$	SD_1	$\bar{x}_2$	SD_2	$\bar{x}_G$	SD_G	
1	Exploit digital images for classroom use	3.14	0.90	3.35	0.82	3.25	0.86	Agree
2	Create digital audio	3.58	0.84	3.45	0.57	3.52	0.71	Agree
3	Use video content to engage students	2.45	1.19	2.11	0.93	2.32	1.11	Disagree
4	Compile a digital e-portfolio for their own development	3.31	0.75	3.40	0.70	3.36	0.73	Agree
5	Use info-graphics to visually stimulate students	3.12	0.80	3.22	0.80	3.17	0.80	Agree
6	Have a knowledge about online security	3.11	0.99	3.04	1.00	3.08	1.00	Agree
7	Curate web content for classroom learning	3.23	0.79	3.19	0.93	3.21	0.86	Agree
8	Be able to detect plagiarized works in students assignments	3.09	0.86	3.40	0.58	3.25	0.72	Agree
9	Create screen capture tutorials	3.25	0.69	3.32	0.71	3.29	0.70	Agree
10	Provide students with task management tools to organize their work	3.59	0.60	3.60	0.58	3.60	0.70	Agree
11	Exploit computer games for pedagogical purposes	3.54	0.66	3.43	0.69	3.49	0.68	Agree
12	Use polling software to create a real-time survey in class	2.44	1.19	2.20	1.15	2.30	1.16	Disagree
13	Use of collaborative tools for text construction	3.25	0.75	3.35	0.62	3.30	0.69	Agree
14	Use of mobile devices like tablets	3.57	0.75	3.35	0.59	3.46	0.67	Agree
15	Use of online graphic organizers	3.32	0.99	3.25	0.93	3.26	0.96	Agree
37	Use digital tools for time management purposes	3.26	0.76	3.32	0.73	3.29	0.67	Agree
38	Exploit group text messaging tools for collaborative project work	3.48	0.62	3.22	0.86	3.35	0.74	Agree
	Cluster Mean/SD	**3.22**	**0.83**	**3.19**	**0.78**	**3.21**	**0.81**	**Agree**

NB: Standard Deviation (SD)

Data presented in Table 3 shows that the overall mean responses of respondents on items number 22, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37 and 38 ranged from 3.08 to 3.60 indicating agree responses by the respondents while items number 24 and 33 has mean ratings of 2.32 and 2.30 indicating disagree perception by the respondents respectively. However, the cluster mean rating of 3.21 obtained for the whole items under (research question 2) study shows that digital skills are necessary in present time and are needed for utilizing mobile learning applications for effective lesson delivery by technical college teachers in Aba Education Zone. Thus, the relatively low cluster standard deviation of 0.81 obtained for all the items indicates similarity in the opinions of respondents.

Hypothesis 2

A significant difference does not exist in the mean ratings of Technical College Teachers and IT Practitioners on the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education.

Table 4: t-test analysis in the mean ratings between Technical College Teachers and IT Practitioners on the Digital Skills Needed by Teachers for Utilizing Mobile Learning Applications for Effective Lesson delivery in Technical Colleges in Aba Education Zone

Respondents (IT Practitioners)	N	$\bar{x}$	SD	t-value	Df	Sig. (2tailed)	Decision
Teachers	43	3.22	0.83	0.501	96	0.179	Not Significant
IT Practitioners	55	3.19	0.78				

NB: NS (Not Significant), SD (Standard Deviation), Df (Degree of freedom)

Table 4 shows that the t-value of 0.501 is obtained at 0.05 level of significance, 96 degree of freedom with the significant value of 0.179. Thus, since the significance value is more than the level of significance, the null hypothesis is not statistically significant and hence, not rejected for these items. This implies that a significant difference does not exist in the mean ratings of Technical College Teachers and IT Practitioners on the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone.

DISCUSSION OF FINDINGS

Regarding the digital tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone, the study found GoAnimate, Powtoon, Harmony, Blender, Clip studio, iKITMovie, Synfig studio, Animaker and many more as the digital tools needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone. Hence, these tools are seen to be of immense relevance especially in the development of mobile learning applications'

contents. A good knowledge of these tools would ensure the smooth operation and utilization of this said product of technological innovation, which aims at giving easy access to educational resources.

Thus, the corresponding null hypothesis showed that a significant difference does not exist in the mean ratings of Technical College Teachers and IT practitioners on the tool-identification skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State as the significance value obtained is more than the level of significance set for the study. This finding is in harmony with the findings of Ashutosh (2018) who identified some of the digital educational tools required by teachers to include: Edmodo, Socrative, Thinglink, Projeqt, ClassDojo, cK-12, eduClipper, Storybird, Animoto, Kahoot and TED-Ed.

With reference to the findings of the study regarding the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone, the study unveiled that ability to; provide students with task management tools to organize their work, exploit computer games for pedagogical purposes, create screen capture tutorials, be able to detect plagiarized works in students assignments, curate web content for classroom learning, use info-graphics to visually stimulate students, and have a knowledge about online security are some of the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone. It is therefore necessary that these digital skills are acquired by these teachers for their capacity development which would lead to effective lesson delivery.

Similarly, the hypothesis test of no significant difference on Technical College Teachers and IT practitioners regarding the digital skills needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State yielded a result of no significant difference. This is evident as the significance value obtained is more than the level of significance set for the study.

This finding concurs with Fernando (2021), who identified some digital skills to include (a) Programming, web, and app development, (b). Digital business analysis (c). Digital marketing and content creation (d). Digital design and data visualization (e). Digital product management (f). Data science (g). User experience design. This also tallied with Noticias (2012) who listed ability to use social bookmarking to share resources with and between learners, use blogs and wikis to create online platforms for students, exploit digital images for classroom use and others as part of the digital skills every 21st century teacher should possess.

CONCLUSION

In view of the findings of this study, mobile learning applications can be utilized for effective lesson delivery by technical college teachers in Aba Education Zone of Abia State. This could be actualized through capacity development of teachers in the areas of digital skills and digital tool- identification skills required for utilizing mobile learning applications. Here, it was affirmed by the respondents that digital skills and tools are highly needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State as no significant difference was found to exist in the mean ratings between Technical College Teachers and IT practitioners regarding the digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery in technical colleges in Aba Education Zone of Abia State. On this note, it is believed that if these skills are considered for acquisition by the concerned teachers, mobile learning would be undoubtedly be effectively utilized in the teaching and learning in technical colleges in Aba Education Zone of Abia State.

RECOMMENDATIONS

In view of the findings of the study, the following recommendations were made:

1. Technical college teachers should be retrained for capacity development and adoption of trending technological skills into classroom teaching for enhanced learning outcome.
2. Educational administrators and policy makers should enact a policy especially for on-time assessment of teachers' capacity in the use of ICT in teaching at technical colleges for effective lesson delivery.
3. Adequate digital technological facilities that will enhance the adoption and utilization of online learning facilities should be provided by concerned individuals.

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