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Evaluation Of Student-Teachers' Preparation For The Use Of Digital Skills In Higher Institutions In Delta State

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ABSTRACT
This paper evaluated student-teachers' preparation for the use of digital skills in higher institutions in Delta State. The study adopted survey research design with two specific objectives, two research questions and one hypothesis. The population of the study comprised of all the 1183 full-time final year undergraduate students on the 2022/2023 academic session of three higher institutions in Delta State. The sample size of 299 respondents was drawn using Taro Yamane. The stratified random sampling was used to constitute the sample. Instrument for data collection was self-designed questionnaire titled "Evaluation of Student-Teachers' Preparation for the Use of Digital Skills Questionnaire (ESTPUDSQ)". Mean and standard deviation was used to analyze research questions while analysis of variance (ANOVA) tested hypotheses at 0.05 level of significance. The study revealed that there is positive significant difference on the extent student-teachers' possess the knowledge of Digital skills and student-teachers' preparation for the use of digital skills in Higher Institutions in Delta State. The study recommended that to enhance the extent to which student-teachers are prepared to use digital skills in higher institution, it is imperative for teacher institution programs to integrate digital skills systematically and comprehensively into their curricula and higher institutions should prioritize the integration of comprehensive digital skill training within teacher institution programs and many others.\
Keywords: Evaluation, student-teacher's, preparation, digital skills, higher Education.

INTRODUCTION

The Covid-19 outbreak has had a significant impact on different facets of human life. The impact it has on different aspects such as economics, politics, health, and institutions cannot be overemphasized. In order to reduce the spread of the disease, some set of rules were introduced by the government which required both teachers and students to participate in distance learning from their own residences as a safety measure against the dangerous disease and the distance mode of teaching and learning required digital skills. Many schools had to shut down because teachers did not have the required digital skills. Nevertheless, some educational systems and teachers were not sufficiently equipped for the transition to online teaching and learning hence the educational system was largely disrupted. Bossu (2007) stated that numerous educators lacked the necessary digital skills and knowledge when it came to teaching and learning online. The pandemic-induced lockdown emphasized the significance of teachers possessing expertise in effectively utilizing digital technology for online education. Before the outbreak occurred, more than 60% of teachers lacked the necessary skills to make effective use of digital devices in the classroom. In OECD member countries, only 65% of teachers have the adequate skills and knowledge to utilize digital devices effectively for teaching purposes. Furthermore, a limited percentage of teachers

granted permission to their students to regularly or whenever possible, make use of digital resources for school projects or assignments (OECD, 2020). The importance of teachers possessing digital skills is clear in today's times. They must always be prepared to apply these skills in their instructional techniques. This will give them the ability to effectively interact with students in today's context and guarantee the durability of our educational system, even when faced with unexpected events such as disease outbreaks or natural disasters. Since the emergence of the coronavirus pandemic, many unfounded allegations have arisen implying that prior planning for similar pandemics is evidence of deliberate actions by authorities to cause disease outbreaks.. It is crucial to be prepared for natural disasters or nuclear catastrophes because they can pose risks beyond just infectious diseases. For instance, in December 2022, a video clip from a news report called "devastating contagion" was uploaded on YouTube and rapidly disseminated online, offering proof of an imminent occurrence of a novel illness. A meeting called "Catastrophic contagion" was held in Belgium on October 23, 2022. The event was organized by the John Hopkins Center for Health Security, the World Health Organization (WHO), and the Bill and Melinda Gates foundation. Ten current and former health ministers, along with senior officials in public health, from different nations such as Senegal, Rwanda, Nigeria, Angola, Liberia, Singapore, India, and Germany, were present at the event. Furthermore, Bill Gates, who serves as co-chair of the Bill and Melinda Gates Foundation, was in attendance as well. They each took part in simulated meetings of the World Health Organization's emergency health advisory board, which were staged in 2025. The main purpose of these sessions was to discuss a made-up contagious disease named "Severe Epidemic Enterovirus Respiratory Syndrome (SEERS) 2025". This illness outbreak has the ability to transform into a worldwide epidemic that may cause more deaths than COVID-19, with a particular focus on children and young people. In Hopkins' (2022) study, the emphasis was placed on the fact that the fictional epidemic described in the situation was not intended to make any predictions. Preparing for upcoming events is a valuable habit (Katz 2022). The majority of people should be highly interested in creating a professional community that encourages the continuous development of plans for future events. If we fail to get ready, we won't be sufficiently prepared for the next outbreak of a contagious illness. Given that there will inevitably be an occurrence of a fresh contagious disease, a catastrophic event of nature, or a spreading incident. Nevertheless, the countries that thrive the most are the ones that allocate resources towards being ready. Therefore, it is crucial that everyone possesses knowledge about possible future disasters such as epidemics or unexpected occurrences, and that there is a necessity for preparedness. After completing their education at a higher institution, student-teacher's must believe in their capacity to adjust to the role of educators in today's digital age.

Statement of the Problem

The traditional method of education, which relies on in-person interactions, has been exposed by the pandemic as having deficiencies and being ineffective. As a result of the pandemic, virtual learning has become essential for both teaching and learning due to the need for social distancing measures. It is now essential for both teachers and students to possess digital skills so they can understand the significance of digital skills in the teaching and learning process. They should be willing to utilize digital resources during their teaching and learning journey since there could potentially be future occurrences such as pandemics and natural disasters. Only a short time ago, many schools had to cease in-person activities due to the COVID-19 pandemic. One of the main reasons for the disruption in teaching and learning activities was the lack of digital skills among our educational institutions and teachers. It is crucial to keep in mind that unforeseen circumstances might occur in the future; hence schools need to adopt a proactive approach. Student teachers need to be taught digital skills so that they can succeed in today's fast-changing world. The pandemic has demonstrated the importance of being ready for unexpected situation. However, the primary concern is whether or not higher institutions possess the necessary resources and abilities to support the acquisition of skills relevant to 21st century. In particular, how are these skills being incorporated into higher institutions? Do student-teacher's have enough understanding of these skills? Are they familiar with the technology platforms used in education? How prepared are they to use digital tools in the future and how skilled are they in using different online learning platforms? This study aims to evaluate the level of preparedness among student-teachers' to use digital skills in higher

institutions in Delta state, to include digital skills in their teaching activities in the nearest future. An assessment is required to determine if the current training for teachers is effectively preparing future educators to use digital tools and teach modern skills in the 21st century.

Aim and Objectives

This paper intended to determine Student-Teachers' Preparation for the use of digital skills in higher institutions in Delta State. Specifically, the objectives of the study were to:

1. Determine the level of student-teachers' knowledge in the use of Digital skills in higher institutions in Delta State.
2. Find out the level of preparedness of student-teachers' to use digital skills in higher institution in Delta state.

Research Questions

The researcher stated the following research questions which guided the study:

1. To what extent do student-teachers' possess the knowledge of Digital Skills in higher institutions in Delta State?
2. To what extent are student-teachers' prepared to use digital skills in higher institutions in Delta State?

Hypothesis

This paper has one hypothesis which was tested at 0.05 level of significance.

1. There is no significant difference on the student-teachers' preparation and use of digital skills in Delta State.

LITERATURE REVIEW

The idea of "digital skill" can also be called "skill for the modern era". Just like many other frequently used phrases, the idea of "21st century skills" has been explained in various ways and there is no universally accepted definition. In actuality, these differences come from how people perceive 21st century skills in relation to "digital skills," which involve knowing and using information and communication technologies. This area of knowledge has rapidly advanced in recent years. However, there is debate about whether 21st century skills are just digital skills or if they encompass a broader range, building upon previous ideas of essential, general, crucial, or adaptable skills. When it comes to abilities, the idea of 21st century skills can be substituted with digital skills. This implies that the abilities referenced in relation to the modern era are identical to digital competencies. ICT alone is not the only basis for the skills needed in the twenty-first century. These skills cover several important abilities including technical knowledge, efficient information management, communication skills, and ability to work well with others, creative thinking, problem-solving abilities, understanding of ethical issues, and awareness of different cultures, ability to adapt to new situations, ability to work independently, and a dedication to ongoing learning. These skills are especially important in the modern era of technology and are commonly found in individuals who have grown up in a digitally interconnected society. The 21st century skills refer to the combination of abilities, knowledge, and attitude that students must develop to succeed in the current digital era. In an era when most workers were involved in industrial labor, key qualities needed for achievement included having specific expertise in a trade, following directions, fostering positive connections with coworkers, showing dedication, and exemplifying attributes like professionalism, effectiveness, promptness, honesty, and impartiality. To secure a job in today's information-driven world, students need to actively use critical thinking skills, showcase their ability to solve problems creatively, work well in teams, communicate effectively through different media platforms, adjust to changing technologies, and effectively manage vast amounts of information. In today's rapidly moving world, students need to be able to quickly adjust, be proactive, and take initiative when necessary. Additionally, they should be able to come up with creative and useful ideas. In accordance with Zuniga (2017), 21st century skills refer to a set of capabilities that students must possess to thrive in today's world. These abilities include different attributes such as familiarity with technology and the capability to quickly adjust in personal, societal, work-related, and educational areas of life. According to Shalabi (2014), the utilization of 21st century skills by students allows them to improve

their thinking and work strategies, effectively use tools in their work, and develop valuable life skills that are crucial for learning, innovation, and the use of technology. They are referred to as a sequence of initiatives that assist educators in obtaining the necessary teaching abilities and expertise to enhance their professional growth and fulfill the requirements of the modern era. These abilities consist of gaining information and understanding in areas such as information literacy and media literacy, as well as communication, critical thinking, and systems thinking. They also include the capacity to identify and solve problems, demonstrate creativity and curiosity, have effective interpersonal and collaborative skills, be self-directed, accountable and adaptable, and exhibit social responsibility. As stated by Scott (2015), the skills needed for success in various aspects of life, both personal and professional, are referred to as 21st century skills. For example, the skills required in the 21st century include effective communication, cooperation, critical thinking, and creativity, which are taught through the use of current subject matters. These skills are also important for gaining knowledge, effectively expressing ideas, and staying updated with information. Trilling and Fadel (2009) created a separate yet intersecting compilation of abilities connected to learning and innovation, digital literacy, as well as career and life in relation to educational institutions. Their '7Cs' skills of 21st century learning' were, however, somewhat hampered by the compulsion to start each skill with the letter 'c':

- Critical thinking and problem solving
- Creativity and innovation
- Collaboration, teamwork and leadership
- Cross-cultural understanding
- Communications, information and media literacy
- Computing and ICT literacy
- Career and learning self-reliance

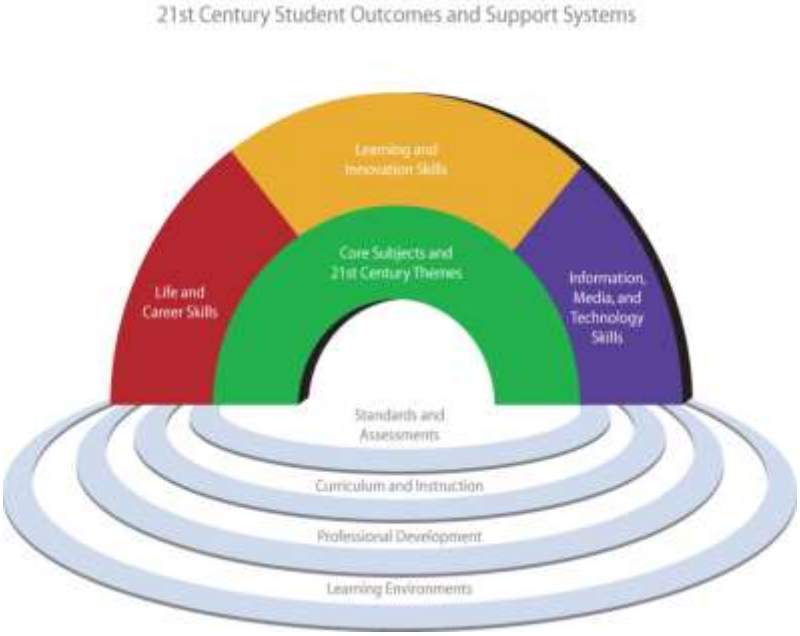

Figure 2.2: P21 Framework Definitions.
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The various skills sets in the 21st century

Skills in the 21st century are categorized into four and under each category we have several skills. The table below shows the categories of 21st century skills and the various skill under each category that are needed to be fully prepared to go through life and survive in this jet age just as stated by the P21 framework.

Table 1: List of the various types of 21st century skills

Life and Career Skills (FLIPS)	Learning and Innovative Skills (4 Cs)	Information, Media Technology Skills (IMT)	Key Subjects 3 RS
1) Flexibility and Adaptability 2) Leadership and Responsibility 3) Initiative and self-Direction 4) Productivity and Accountability 5) Social and Cross-Cultural Skills	1) Critical Thinking and Problem Solving 2) Creativity and Innovative 3) Communication 4) Collaboration	1) Information Literacy 2) Media Literacy 3) ICT Literacy	1) Reading 2) Working 3) Arithmetic

Source: Researchers Design (2023).

METHODOLOGY

The survey research design was used for the study. Ogidi (2018) asserts that survey research design is a type of research design that is concerned with gathering information from respondents concerning a phenomenon of interest. This study was carried out in College of Education Warri, Delta State University Abraka and University of Delta, Abgor, all in Delta State. The population of the study comprised of all the full-time final year undergraduate students of the three schools with a total population of 1,183 (Source: Faculty Officers at the three schools, 2023). The sample size of 299 was drawn from the total population of the study using Taro Yamane statistical method. A stratified random sampling was used to distribute the sample of 299 to the three (3) selected institutions. Structured questionnaire titled "Evaluation of Student-Teachers' Preparation for the Use of Digital Skills Questionnaire (ESTPUDSQ)" was used for data collection. The instrument was divided into two sections (A and B). Section 'A' dealt with the demographic data of the respondents, while section 'B' was used to determine information on variables that was captured in the research questions. The instrument was designed on modified Likert five-point rating scale. The numerical rating of responses in the questionnaire was scaled thus, 5 - Very High Extent (VHE), 4 - High Extent (HE), 3 – Moderate (M), 2 - Low Extent (LE), 1 - Very Low Extent (VLE). The research instruments were validated by text experts. They looked at the appropriateness of items in the instruments in measuring what it was supposed to measure. All their corrections and comments were incorporated to have an improved final draft of the instruments, which made them valid for the study. In order to establish the reliability of the instrument, test-re-test reliability method was used. The data collected for the study were analyzed using mean and standard deviation. The data collected are presented in a tabular form, and analysis was done after each table in accordance to the two research questions of the study. A mean score of 2.50 and above on an item or subscale denotes higher agreement on the assertion while a mean score below 2.50 denotes higher disagreement. Anova statistical tool was used to test the null hypothesis at 0.05 significant level.

RESULTS

Research Question One: *To what extent do student-teachers' possess the knowledge of Digital Skills in higher institutions in Delta State?*

Table 2: Analysis of mean and standard deviation on the extent student-teachers' possess the knowledge of Digital Skills in higher institutions in Delta State

S/N	Items	College of Education, Warri N = 73		Delta State University, Abraka N = 100		University of Delta, Agbor N = 90		Mean Set	Decision
		$(\bar{x}_1)$	SD	$(\bar{x}_2)$	SD	$(\bar{x}_3)$	SD		
1	Digital skills could enable classroom teaching and learning from any location	4.48	.93	4.41	1.02	4.39	.97	4.43	High Extent
2	Digital skills can be used to communicate, collaborate and present contents to a large group or even one-on-one meeting.	4.01	.72	3.92	.75	3.92	.72	3.95	High Extent
3	Digital skills enable a student teacher to create or download useful institutional videos, pictures, slides for teaching and learning.	3.95	.60	3.86	.71	3.89	.69	3.9	High Extent
4	Digital skills enable a student teacher to prepare student's exam, continuous assessment and prepare result sheets.	3.90	.56	3.81	.69	3.83	.65	3.85	High Extent
5	Digital skills enable a student teacher to invite students, colleagues and share resources.	3.95	.68	3.86	.74	3.87	.72	3.89	High Extent
	Aggregate mean/SD Value	**20.29**	**3.49**	**19.86**	**3.91**	**19.9**	**3.75**	**20.02**	**High**
	Average Mean/SD Values	**4.06**	**.70**	**3.97**	**.78**	**3.98**	**.75**	**4.00**	**Extent**

From Table 2 result above, it was showed the extent at which student-teachers' possess the knowledge of Digital Skills in higher institutions in Delta State. In addition, items 1-5 had an average mean values and standard deviation values of 4.06 (.70), 3.97(.78) and 3.98 (.75) which were above the criterion mean score of 2.50. Therefore, the mean set value of College of Education, Warri, Delta State University, Abraka and University of Delta, Agbor, showed average mean value of 4.00 which indicated high extent rate of responses from the respondents. These average mean values were achieved through the respondents of item statements on how digital skills could enable classroom teaching and learning from any location, digital skills can be used to communicate, collaborate and present contents to a large group or even one-on-one meeting, digital skills enable a student teacher to create or download useful institutional videos, pictures, slides for teaching and learning, digital skills enable a student teacher to prepare student's exam, continuous assessment and prepare result sheets and digital skills enable a student teacher to invite students, colleagues and share resources.

Research Question 2: *To what extent are student-teachers' prepared to use digital skills in higher institution?*

Table 3: Analysis of mean and standard deviation on the extent student-teachers' are prepared to use digital skills in higher institutions in Delta State

S/N	Items	College of Education, Warri N = 73		Delta State University, Abraka N = 100		University of Delta, Agbor N = 90		Mean Set	Decision
		$(\bar{x}_1)$	SD	$(\bar{x}_2)$	SD	$(\bar{x}_3)$	SD		
6	I can use interactive e-books, videos, pictures for teaching and learning.	1.59	1.10	1.52	1.02	1.46	.98	1.52	Low Extent
7	I can freely create and share an assignment or examination for students using digital skills	2.11	.64	2.08	.64	2.04	.63	2.08	Low Extent
8	I can download learning materials using digital skills	4.26	.96	4.19	.99	4.23	.96	4.23	High Extent
9	I can invite students to e-learning platforms using a code, message or email	3.97	.90	4.01	.97	4.06	.94	4.01	High Extent
10	I can use the search engine such as yahoo, google, to access teaching and learning contents.	3.05	.47	3.06	.55	3.03	.54	3.05	High Extent
	Aggregate mean/SD Value	**14.93**	**4.07**	**14.86**	**4.17**	**14.82**	**4.05**	**14.89**	
	Average Mean/SD Values	**2.99**	**.81**	**2.97**	**.83**	**2.96**	**.81**	**2.98**	**Moderate**

Result from Table 3 above showed the extent at which student-teachers' are prepared to use digital skills in higher institutions in Delta State in items 6-10 with an average mean values and standard deviation values of 2.99 (.81), 2.97(.83) and 2.96 (.81) which were above the criterion mean score of 2.50. Therefore, the mean set value of College of Education, Warri, Delta State University, Abraka and University of Delta, Agbor showed average mean value of 2.98 which indicated moderate extent rate of responses from the respondents. These average mean values were achieved through the respondents on how student-teachers can use interactive e-books, videos, pictures for teaching and learning, student-teachers can freely create and share an assignment or examination for students using digital skills, student-teachers can download learning materials using digital skills, student-teachers can invite students to e-learning platforms using a code, message or email and student-teachers can use the search engine such as yahoo, Google, to access teaching and learning contents.

Hypothesis: There is no significant difference on the student-teachers' preparation for the use of digital skills in College of Education, Warri, Delta State University, Abraka, University of Delta, Agbor.

Table 4: ANOVA on the extent of student-teachers' preparation and use of digital skills in higher institutions in Delta State

ANOVA

Variable Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.714	2	12.357	10.922	.000
Within Groups	294.153	260	1.131		
Total	318.867	262			

Table 4.6 showed that the Anova value of F-cal. was 10.922, while Sig. value was .000 < 0.05 α level at 2 degree of freedom. This means that hypothesis 2 was therefore rejected and upholds that there is significant difference on the student-teachers' preparation and use of digital skills in College of Education, Warri, Delta State University, Abraka, University of Delta, Agbor.

DISCUSSION

Based on the findings, the result in research question one showed high extent values at which student-teachers' possess the knowledge of Digital Skills in higher institutions in Delta State while hypothesis one result showed that there is a significant difference on the extent student-teachers' possess the knowledge of Digital skills in College of Education, Warri, Delta State University, Abraka, and University of Delta, Agbor. This finding is consistent with the views of Okonkwo (2016) whose findings revealed a statistically significant positive correlation between student-teachers' digital skills and their academic performance ($\beta = 0.526$, $p < 0.001$

Based on the findings, the result in research question two showed moderate values on the extent student-teachers 'are prepared to use digital skills in higher institutions in Delta State and hypothesis two result also showed that there is significant difference on the student-teachers' preparation and use of digital skills in College of Education, Warri, Delta State University, Abraka, and University of Delta, Agbor. This finding is consistent with that of Adekunle (2016) which averred that a significant proportion of student-teachers demonstrated a moderate level of preparedness in using digital skills for institutional purposes. Female student-teachers showed a slightly higher level of preparedness compared to their male counterparts. Additionally, student-teachers from the Information Technology department exhibited the highest level of digital skills preparedness.

CONCLUSION

Evaluating student-teachers' preparation for the use of digital skills in higher institutions is crucial for ensuring effective integration of technology in education. This assessment helps identify strengths and areas needing improvement, guiding the development of targeted training programmes.

RECOMMENDATIONS

The study recommended the following:

1. To enhance the extent to which student-teachers' possess digital skills in higher institution, it is imperative for teacher institution programs to integrate digital skills systematically and comprehensively into their curricula. This can be achieved through the following steps: Curriculum revision and design, cross-disciplinary approach, hands-on training and collaboration with technology experts.
2. Higher institution should prioritize the integration of comprehensive digital skill training within teacher institution programs. This training should encompass both fundamental digital literacy and advanced technological competencies that are relevant to modern institutional practices.
3. The National Commission for Colleges of Education (NCCE) which regulates the colleges of education should create more opportunities for the acquisition and use of digital skills in College of Education, Warri. Because it is clear that the universities are more grounded in digital skills compared to the college of education in the state.

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