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Assessment of Digital Literacy Skills Among Physical and Health Education Students in Secondary Schools in Bayelsa State

Adata Dickson Diepiribo (PhD)
Department of Science Education
Faculty of Education, Niger Delta University, Bayelsa State

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ABSTRACT: *This study assessed digital literacy skills among physical and health education students in secondary schools in Bayelsa State, Nigeria. A "descriptive survey design" was adopted for the study. To direct the study, two research questions were developed along with matching null hypotheses. All PHE students in the 192 secondary schools in Bayelsa state that are owned by the government make up the study population. The research sample consisted of 499 PHE students, 240 of whom were male and 249 of whom were female. The "Digital Literacy Skill Questionnaire (DLSQ)," a structured tool created by researcher and approved by specialists, was used to collect data. The Cronbach Alpha formula was used to determine the instrument's reliability, and a coefficient of 0.84 was found. Mean and standard deviation were used to answer the study questions, and t-test statistics were used to assess the hypotheses. The findings showed that Bayelsa State secondary school PHE students do not use their digital literacy skills to a high degree. It was suggested that PHE students be encouraged to develop their digital abilities by the school administration.*

KEYWORDS: assessment, digital, literacy, skills, PHE students

INTRODUCTION

In an era where digital advancements permeate every facet of society, evaluating digital literacy skills has become pivotal in education. Within the domain of secondary education, specifically in the context of Physical and Health Education (PHE), the assessment of digital literacy skills among students has garnered considerable attention and significance. This area of study delves into adolescents' proficiency in navigating and utilizing digital tools, platforms, and information sources relevant to their educational pursuits in health and physical well-being.Despite the importance of education in real-life situations, research reports from Charles-Owaba (2021), and Omeodu and Charles-Owaba (2021) submitted that lack of digital skills among graduates is a significant reason for unemployment in Nigeria. Charles-Owaba (2021) defined digital literacy skills as effectively using technology to find, evaluate, create, and communicate information. These skills are essential in today's digital age, as technology is

critical in almost every aspect of our lives. Omeodu and Charles-Owaba (2022) identified some of the critical digital literacy skills as:

i. Internet literacy: The ability to navigate the web and use search engines to find information.
ii. Media literacy: The ability to evaluate the credibility and reliability of digital media sources.
iii. Information literacy: The ability to critically evaluate and analyze information for accuracy, bias, and relevance.
iv. Communication skills: The ability to effectively communicate using digital tools such as email, instant messaging, and social media.
v. Cybersecurity: Protecting personal information and devices from online threats.
vi. Digital citizenship: The ability to understand and follow ethical and legal guidelines when using technology.

The contemporary landscape of education intertwines seamlessly with technology, necessitating a comprehensive understanding and adeptness in digital literacy for students to engage, comprehend effectively, and harness information resources. Digital literacy in the context of Physical and Health Education involves critically evaluating health-related digital content, utilizing technological tools for fitness and wellness tracking, and comprehending the ethical implications of online health-related information.

Assessing the digital literacy skills of secondary school students undertaking Physical and Health Education courses is pivotal in comprehending their proficiency in leveraging digital resources to augment their understanding of health concepts, physical fitness regimes, and overall well-being. It scrutinizes their capacity to access and navigate digital platforms and evaluates their competence in discerning credible health information, critically analyzing data, and employing technological tools to promote personal health goals.

The government of Nigeria has come to appreciate the digital economy for what it can do for the country's progress. It has emphasised that the need for inclusion of the components of digital economy in all facets of the nation. On June 12, 2019, the policy was implemented in order to align words and deeds. On October 17, 2019, the Federal Government renamed the "Federal Ministry of Communication" as the "Ministry of Communication and Digital Economy" as a component of its endeavours to execute its novel policy approach of broadening the parameters of the digital economy's environment. This move gave the ministry the authority to oversee all activities pertaining to Nigeria's digital economy. The purpose of the Nigerian Digital Economy Policy and Strategy is to realign the country's economy to capitalise on the plethora of possibilities presented by digital technology.

The National Digital Economy Acceleration Plan for a Digital Nigeria has eight pillars that form the foundation of the digital economic policy and strategy framework (NDEPS, 2020). The eight pillars consist of: "Developmental regulation, Digital literacy and skills, Solid infrastructure, Service infrastructure, Digital services development and promotion, Software infrastructure, Digital society and emerging technologies, Indigenous content development and adoption."

According to Karuitha (2020), by 2030, maximising the use of digital skills and technology may contribute $2 trillion to the world's GDP. But according to Zabairu, Oyefolahan, Babakano, Etuk, and Mohammed (2020), a major obstacle to the implementation of digital economy policies is the significant percentage of people who lack basic digital literacy.
The National Digital Economy Policy and Strategy (NDEPS, 2020) outlined the following goals since it identified digital literacy and skills as one of its fundamental pillars:

i. To include digital skills and literacy into the national curriculum at every educational level;
ii. To assist public sector workers in developing their skills and knowledge in creating and using digital tools and apps to enhance the provision of government services;
iii. The establishment of a pool of Nigerians whose digital expertise has been certified by internationally renowned bodies
iv. To bridge the gap that exists between academics and business; and
v. To reduce the people' barrier to using digital technologies;
vi. To include digital literacy and skill development into the curricula of all educational levels
vii. Encourage Nigerians across the nation and in all economic sectors to acquire digital literacy and skills.
viii. Utilise the nation's current network of training facilities, community resource centres, computer-based testing (CBT) centres, and schools to support digital skills training initiatives for women, internally displaced people, and those with physical disabilities.
ix. Encourage the creation and dissemination of electronic learning resources.
x.

Also, NDEPS (2020) claimed that "to drive the digital economy it is important to develop a large pool of digitally literate and digitally skilled citizens." Nigeria Digital Economy Diagnostic Report (2018) submitted that
"*Low enrollment in basic education and poor quality of that education coupled with a lack of digital skills in curricula is segmenting digital skills into a slim share of the population, excluding the poorest from the benefits of the digital world*".
Nigeria Digital Economy Diagnostic Reports (2018) additionally said that a programme for widespread digital literacy has to be supported. The above report on the digital economy implies that there is a need for a comprehensive assessment of digital literacy skills among science students.

Offor (2010) defined gender as the social relationships between men and women. It is unrelated to physiological traits, even if it could be influenced by sex, which is a term used to describe the biological distinctions between them. Gender, according to Ewhrudjakpor (2016), is the term used to describe real or normative culturally structured behaviours associated with specific sexes. Either femininity or masculinity is involved. Many studies have shown that the gender gap is a factor that affects achievement scores in sciences and mathematics. However, no known empirical work has established the influence of gender on digital literacy among PHE students in Nigeria. Hence, this study aims to assess the digital literacy skills among Physical and Health Education students in secondary schools in Bayelsa State along gender lines.

Statement of the Problem

Despite this universally acknowledged role of science to mankind, its graduates are not exempted from the menace of unemployment currently ravaging the globe. In the current age of knowledge-based economies, the attributes of the work environment and labour qualifications required by industry have been constantly evolving. The increased need for people to possess generic skill traits is one of the primary features of the knowledge-based sector (Gibb, 2021).

Workers need to possess general abilities in addition to the technical skills required by their sector. This suggests that the knowledge-based economy of today needs people who can work autonomously, manage their own time, collaborate with others, adjust to change, handle challenging issues, and think creatively and innovatively.

In other to harness the benefits in the digital economy policy launched in Nigeria in 2019 and navigate freely in the knowledge-based economy, reports have shown that there is need for a massive improvement of digital literacy skills. There is a scarcity of research data about the availability and extent of utilization of digital literacy skills among science students in Nigeria. Hence, the purpose of this research is to address such knowledge vacuum.

Purpose of the Study

The study assessed digital literacy skills among Physical and Health Education students in secondary schools in Bayelsa State, Nigeria. The research specifically accomplished the following goals:

i. The extent to which Internet literacy skills are utilized among Physical and Health Education students in secondary school in Bayelsa State.
ii. The extent to which digital communication skills are utilized among Physical and Health Education students in secondary school in Bayelsa State.

Research Questions

To direct the study, the following research questions were posed:

1. To what extent is Internet literacy skills utilized among Physical and Health Education students in secondary school in Bayelsa State?
2. To what extent is digital communication skills utilized among Physical and Health Education students in secondary school in Bayelsa State?

Hypotheses

H_{O1}: There is no significant difference between the mean ratings on the responses of male and female Physical and Health Education students in secondary school on the extent to which internet literacy skills is utilized in Bayelsa State.

$H0_2$: There is no significant difference between the mean ratings on the responses of male and female Physical and Health Education students in secondary school on the extent to which digital communication skills are utilized in Bayelsa State.

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METHODOLOGY

In this research, a "descriptive survey approach" was used. Lawrant (2018) defines a descriptive survey research design as one that processes information derived from a modest number of persons or objects that are believed to represent the whole group in order to examine that person or thing. This study's design is acceptable since data was collected from SS3 students, a sample of the general public who are acquainted with the concepts related to the study's goal of generalising the findings for the whole community. The population consisted of all 2579 students enrolled in Physical and Health Education programmes in 193 secondary schools spread throughout 8 educational zones in Bayelsa State (Bayelsa Ministry of Education, 2023). A sample of 499 students comprising of 240 males and 259 females served as the research's sample. Simple random sampling techniques by balloting was used to sample 3 schools each from the three senatorial districts in Bayelsa State, making it a total of 9 schools. Since they are the oldest students in the system and as so capable of answering the questionnaire, SS3 students were specifically chosen. All the 499 SS3 students from the 9 schools formed the sample of the study. Data was obtained using an instrument titled "Digital Literacy Skill Questionnaire (DLSQ)" developed by the researchers. The items in the DLSQ are classified into 3 sub-sections namely, "A, B and C". Section A measured the demographic information of the respondents, while section B and C measured the variables, level of internet Literacy and communication skills respectively. The section B and C were structured in a four-point rating scale which the respondents are required to respond to by indicating one option ranging from "Very High Extent (VHE), High Extent (HE), Low Extent (LE) to Very Low Extent (LE)" which is rated as "4, 3, 2 and 1" respectively. By giving the instrument to measurement and assessment specialists, the face and content validity of the instrument was defined. Their recommendations, comments, and revisions were taken into account for the final edition. Operationally, to test for reliability of the instrument used, pilot survey was carried out on 20 students randomly selected from two schools outside the area under study. The instrument's reliability coefficient was defined using the Cronbach Alpha reliability formula. This was used to assess the instrument's internal consistency. Also, the choice of Cronbach Alpha formula was based on the fact that the instrument was polychotomously scored (i.e no right or wrong answer) and the reliability method will enable the researcher to administer the instruments once, saving cost and time. The aggregate reliability coefficient for the instruments was reported as 0.89. One-on-one mode of instrument administration will be adopted in the study. The researcher personally visited the sampled schools and administer the tools. The students were briefed on the modalities and the reasons behind the administration of the instrument. This method ensured 100% return rate. The research questions were answered using Mean and standard deviation while T-test statistics was used to test the hypotheses at 0.05 significance level. The decision rule for answering the research questions was arrived at by finding the average of the 4-point scale, thus; $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$ thus, an item was considered high extent if its mean score was 2.50 or higher, and low extent if it had a mean score of less than that. In terms of the hypotheses, the null hypothesis was rejected if the estimated t-value was higher than the critical t-value. Otherwise, the null hypothesis was accepted.

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ANALYSIS AND RESULTS

Research Questions

Research Question 1

To what extent is Internet literacy skills utilized among Physical and Health Education students secondary school in Bayelsa State?

Table 4.1: Mean and Standard Deviation of Responses on Research Question 1

S/N	ITEMS	X_1	$S.D_1$	REMARK	X_2	$S.D_2$	REMARK
1	I can utilise electronic devices including "desktop computers, laptops, mobile phones, and tablets", when I'm online	1.71	0.84	L.E	1.23	0.62	L.E
2	I know the purpose of a search engine	2.41	1.15	L.E	2.36	1.15	L.E
3	I am able to participate in internet forums and communities	2.36	1.15	L.E	3.32	1.18	L.E
4	I love phishing"	3.19	0.74	L.E	2.41	1.10	L.E
5	I am able to locate and assess information online.	3.31	0.50	L.E	2.07	1.16	L.E
6	I possess critical thinking skills	3.32	0.58		2.13	1.12	
	GRAND MEAN	2.72	0.83		2.09	1.04	

Female N =259 **Male N =240**

*LE= Low Extent, HE= High Extent Source: Fieldwork (**2023)**

Results presented in Table 4.2 above indicated that the extent to which Internet literacy skills utilized among Physical and Health Education students in secondary schools in Bayelsa State. The mean of item 1, 2 and 3 was lower than the criterion mean of 2.5 for both group of respondents, which implies low extent. Item 4, 5 and 6 had mean value greater than the criterion mean of 2.50 for the female Physical and Health Education students students, which implies high extent of utilization. The grand mean of 2.72 and 2.09, indicated that the extent to which Internet literacy skills is utilized among Physical and Health Education students in secondary school is high for females and low for male students.
STOP

Research Question 2

To what extent is Communication technology skills utilized among Physical and Health Education students in secondary school in Bayelsa State?

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Table 4.2: Mean and Standard Deviation on Responses on Research Question 2

	Female N =259				Male N =240		
S/N	**ITEMS**	**X_1**	**S.D_1**	**REMARK**	**X_2**	**S.D_2**	**REMARK**
7	I have clear and concise writing in communication	1.47	0.59	L.E	1.78	0.85	L.E
8	I can analyze facts objectively and communicate leave	1.49	0.66	L.E	2.35	1.15	L.E
9	I can engage in online communities	1.53	O.54	L.E	2.38	1.15	L.E
10	I network with other colleagues via computers	1.79	0.73	LE	3.19	0.74	HE
11	I can find and evaluate online information	1.64	0.76	LE	3.30	0.50	HE
12	I can adapt your communication style to different audiences	1.52	0.78	L.E	3.32	0.58	HE
	GRAND MEAN	1.57	0.68		2.71	0.83	

Source: Fieldwork (2023)

Results presented in Table 4.3 above indicated that the extent to which Communication technology skills utilized among Physical and Health Education students in secondary schools in Bayelsa State. The mean of item 7, 8 and 9 was lower than the criterion mean of 2.5 for both group of respondents, which implies low extent. Item 10, 11 and 12 had mean value greater than the criterion mean of 2.50 for the male Physical and Health Education students, which implies high extent of utilization. The grand mean of 1.57 and 2.71, indicated that the extent to which Communication technology skills utilized among Physical and Health Education students secondary school in Bayelsa State is high for males and low for female students.

Hypotheses

H_{O1}: "There is no significant difference between the mean responses of male and female Physical and Health Education students in secondary schools on the extent to which internet literacy skills is utilized in Bayelsa State."

Table 4.5: t-test analysis on hypothesis 1

Category	**N**	**Mean**	**St.D**	df	p	**t**	Sig. (2-tailed)	**Decision**
Females'	259	2.720	.825	497	0.05	7.529	0.00	Accept Ho_1
Males'	240	2.086	1.049					

Source: Fieldwork (2023)

The computed t-value at 497 degree of freedom and 0.05 level of significance is 7.529 based on Table 3 above. The null hypothesis is rejected since the computed t-value of 7.529 is higher than the crucial table value of 1.96. In other words, "there is a significant difference between the mean ratings on the responses of male and female Physical and Health Education students in secondary school on the extent to which internet literacy skills is utilized in Bayelsa State."

$H0_2$: "There is no significant difference between the mean responses of male and female Physical and Health Education students in secondary school on the extent to which communication technology skills are utilized in Bayelsa State."

Table 4.6: t-test analysis on hypothesis 2

Category	N	Mean	St.D	d_f	P	t	Sig. (2-tailed)	Decision
Females'	259	1.573	.681	497	0.05	16.778	0.000	Accept Ho_2
Males'	240	2.710	.831					

Source: Fieldwork (2023)

The computed t-value at 497 degree of freedom and 0.05 level of significance is 16.77 based on Table 4 above. The null hypothesis is rejected since the computed t-value of 16.77 is higher than the crucial table value of 1.96. In other words, "there is a significant difference between the mean ratings on the responses of male and female Physical and Health Education students in secondary school on the extent to which communication skills are utilized in Bayalsa State."

DISCUSSION OF FINDINGS

In response to the first study question, we found that Internet literacy skills is utilized among Physical and Health Education students in secondary school in Bayelsa State is low. Also, The results showed that there is no discernible difference in the mean scores of male and female Physical and Health Education students in secondary school on the extent to which internet literacy skills is utilized in Bayelsa State. This supports Kulkarni (2021) who assessed the digital literacy skills among secondary school children in Abuja and reported that the extent of awareness was low. also, the study supports Abazie (2021) who assessed the "level of digital literacy and use of ICT resources by secondary school teachers in Awka South, Anambra State."

Findings from study question 2, indicated that the degree to which digital communication skills is utilized among Physical and Health Education students in secondary school in Bayelsa State is low. Also, the results showed that there isn't a substantial significant difference between the mean ratings on the responses of male and female Physical and Health Education students in secondary school on the extent to which communication skills are utilized in Bayelsa State. This backs up the findings of Brume-Ezewu (2019), who looked at digital literacy and ICT as a means of facilitating effective teaching in Nigerian educational institutions and found that students lacked these abilities.

CONCLUSION

The study has established that the extent to which internet literacy and digital communication skills is utilized among Physical and Health Education students in secondary school students in Bayelsa State is low. The study also affirmed that the extent to which internet literacy and digital communication skills is utilized among Physical and Health Education students in secondary school in Bayelsa State does not differ with gender.

Recommendation

The results of this study led to the formulation of the following recommendations:

1. Nigeria Communication Commission (NCC) and other stakeholders should continue to train Physical and Health Education students on how to improve literacy skills.
2. Nigeria Communication Commission (NCC) and other parties involved should train students on digital communication skills to achieve the goal of 95% digital literacy within the next 10 years.

REFERENCES

Abazie, D. (2021). Prospects of ICT for Digital Growth and National Development in Nigeria. *International Multi-Disciplinary Journal,* Ethiopia. 13(9), 192-203.

Charles–Owaba, T. (2021). Mobile app-based pedagogy in mathematics education: a viable panacea to a sustainable digital economy policy. *Journal of Mathematical Science and Computational mathematics (JMSCM),* 2(3), 41-54.

Charles–Owaba, T. (2022) Enhancing the future of students in Mathematics for a sustainable digital literacy policy. *Journal of oil and gas,* 20 (3), 40 – 48.

Federal Republic of Nigeria (2019). National Digital Economy Policy and Strategy (2020-2030).

Federal Republic of Nigeria. (2014). *National Policy on Education,* NERDC.

Kariutha, J. (2020). Mobility at Work: A Topology of Mobile Communities of Practice and Contexture Ambidexterity. *Journal of Strategic Information Systems,* 13(4), 223-236

Korikiye, M. W., (2017). Impact Assessment of the state of emergency policy on education and the provision of Qualitative education in Bayelsa state, Nigeria. (2012 – 2015). *Journal of research in Education and society*. 9 (1), 14 – 34.

Lawrant, A. O. (2018). *Methodology of Science Teaching.* Juland Education Publishers, Lagos.

Nigeria Digital Economy Diagnostic Report (2019).

Omeodu, M. D. & Charles–Owaba, T. (2021). Mobile App and mathematics education; awareness and barriers. *Journal of Assertiveness in science and mathematics Education*, 11(2), 90-98.

Research ICT Africa (RIA, 2019). Africa-Household and Individual ICT Access and Usage Survey (2017-2018.

World Bank Group (2019).

World Economic Forum (2016). *Global Information Technology Report*.

Zubairu, H. A., Oyefolahan, I. O., Babakano, F. J., Etuk, S. O. & Mohammed, I. (2020). Assessing the E-Readiness of Nigeria for Digital Economy. *American Journal of Computer Science and Information Technology*, 8(2), 1-6.