AN INVESTIGATION OF DIGITAL LITERACY METRICS IN EKITI STATE SENIOR SECONDARY SCHOOLS

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ABSTRACT

This study investigates digital literacy metrics in Ekiti State senior secondary schools. This study adopted a survey methodology using questionnaire. Two (2) research questions were formulated to probe the issues addressed in this study. A total respondent of six hundred and sixty-one were involved in this research. The results showed that 63.1% of respondents were between the age of 36year and 45year old. Twenty-one-point three percent (21.3%) respondents were between 46year and 45year old. Nine-point two percent (9.2%) were 56year old and above. Six-point four percent (6.4%) were between 25year and 35year old. Also, 6.4% participants were between 25 years to 35-year-old. The variance statistics 1.00 of each item statistics read a value consistent throughout the items. Based on these findings several recommendations were made to enhance digital literacy in Ekiti State senior secondary schools in Ekiti State.

Keywords: Digital literacy, Metrics, Secondary schools, Educational technology

INTRODUCTION

Having digital literacy requires more than just the ability to use software or to operate a digital device. It includes a large variety of complex skills such as cognitive, motoric, sociological and emotional skills that users need to master in order to use digital environments effectively (Yoram, 2012). Currently, as information and communications technology (ICT) has dramatically transformed our society into a virtually digital space in which digital tools and devices are ubiquitous, it is no longer surprising in our daily life to

see people using their electronic devices such as smartphones to acquire new information and knowledge. Because of the rapid development of ICT, the form in which information is delivered to us also has undergone profound changes from paper format to a digital one. The area of foreign language teaching and learning is not an exception. Students these days who are called 'Digital Natives' (Prensky, 2001) have a keen interest in using such digital multimedia devices, and school teachers also recognize the potential of converting and expanding their traditional teaching strategy into the ubiquitous environment where students can constantly be exposed (Burmark, 2004;Li & Yu, 2022).

In fact, young students in the digital era are constantly immersing themselves in up-to-date digital electronic devices such as smartphones (imagine PCs), tablet PCs, e-book readers and many more. As they take a great interest in such tools, school teachers are also encouraged to teach utilizing multimedia in the classroom (Byrnes & Wasik, 2009). The reality of this phenomenon encourages particularly non-digital literate teachers to use the computer and digital-assisted tools and devices as a way of stimulating students' attitudes toward authentic learning activities. For example, many of our teachers today are using PowerPoint Presentations in their classes, and a variety of educational software applications, CDs, DVDs and more are utilized in order to facilitate their lessons. In the age of digital environment, as Tsou & Stearns (2006) stressed, integrating computer technology in a given language teaching and learning is remarkably useful and necessary to preparing students to function in a rapidly-changing world.

Here, in Ekiti State, application of digital literacy or the use of digital technology tools is virtually abstract, hence, the need to awaken our students, teachers and education stakeholders of the state, not only to create awareness, but actively participate in it to develop our youths and adults' the required digital instincts. When you hear the word 'literacy,' you probably think about learning to read and write (Forsling, 2023). However, there is another type of literacy that has emerged with the increased use of technology (Marín & Castaneda, 2023).

RESEARCH QUESTIONS

1. What are the metrics of the digital literacy demography for effective teaching and learning in Ekiti State senior secondary schools?

2. What are the items metrics important for digital literacy in Ekiti State senior secondary schools?

LITERATURE REVIEW

According to Baharuddin (2016), phenomena of digital literacy in modern era must be promoted for students of all ages. Thus, several aspects related to digital literacy need to be stressed for the consciousness of the digital literacy on the part of students and teachers.

Knowledge performance is one of the points that must be strengthened in the 21st century. There is a new relation between knowledge and apprenticeship (de Fátima Goulão & Fombona, 2012). In this field, the application of digital literacy is extremely important to make easy the access to knowledge. In an advance century which consists of a variety of technologies made, we become aware that the knowledge acquired today is easy to be exceeded. The new age group has a different perspective about how to find and access information and they have different perspectives towards research. They need help for information literacy (Çakmak, Özel & Yılmaz, 2013). As teachers, there is need to understand how to fit in students in learning materials so that they will meet their qualification requirements (Hall, Nix & Baker, 2013). So, the teachers' roles gain another dimension. This is why distance learning, together with online teaching, based on these digital tools and pedagogical relations, has a determinant role as for an initial formation, as for a formation along life.

Rahmah (2015) opined that education and digital literacy (technology) are inseparable. Thus, no matter what the digital literacy needs to be exposed to the students, who need to deal with the development of digital technology in the 21st century. In a way to increasing the knowledge performance using digital literacy, skills on digital technology are needed. In the local context Shariman, Razak & Noor (2012)have study on the urban youths on the online activities and writing practices. Nevertheless, the youth in Malaysia applied the skills on using the technology for social activities, gain knowledge and upgraded their writing skills through the social networking sites and entertainment site such as from blogs and personal websites. Furthermore, information literacy and ICT skills are important for students nowadays. Other than that, facts are rising of high changes in knowledge

practice, for example practically in the way academic writing is usually constructed, the use of graphical, image and media to find and share the knowledge. For that reason, digital literacy extends beyond technical competence skills, such as the ability to writing, presenting, and communicate, using a keyboard. Those skills related with the technology need to be delivered to the students from the early age.

Despite that, technology tools, a part of the things which can increase the knowledge performance and develop the conscious application of digital literacy students' educational life. As society going advanced, the demand for digital technologies in the classroom increases rapidly. To meet the changing and demand, iPods, iPads, and the SMART-Boards are needed into some classrooms for a country. Portable electronic touch screen devices such as the iPad and iPod are increasingly a part of technology tools in aspects of current childhood experiences including those of schooling (Laidlaw & O'mara2015). Those tools have changed literacy instructions and the way of students learning. According to Saine (2012), teachers also claim students become more creative in their thinking. Despite that, mobile phone and web 2.0 tools for example blogs and wikis also had been a part of digital technologies. The affordance of touch screen devices recommends young and preliterate children the possibility to independently design, create and produce their own words in ways that are more easily facilitated than with tools such as paper and pencil (Kucirkova, 2013). O'Mara and Laidlaw (2011) stated that for children who have disabilities or learning challenges, digital tools can offer new opportunities and experiences to ease of access and creation of text, particularly those for whom the physical burdens of handwriting present particular struggle.

RESEARCH METHODOLOGY

In this study, the researcher employed descriptive type of survey research. Since thorough examination of the study involved citing relevant authorities, who had contributed to the study of digital literacy from the available existing literature, conducting structured questionnaire to elicit respondents' personal opinions, conducting personal interview on certain respondents and also using hardware and software tools to validate collected data, the research type could be apparently useful.

The participants in the population of this study comprised teachers, students and PTA members. The above research type was used to elicit current conditions of digital literacy and the needs for improvement. Also, examination of application of digital literacy in Ekiti State senior secondary schools covered six hundred and sixty one (661) teachers selected from the secondary schools in the sixteen local government areas (LGAs), made available from the records of the Planning, Research and Statistics (PR& S) unit of Ekiti State Teaching Service Commission.

In this study, the researcher preferred and adopted stratified sampling technique since the population was relatively large. Investigative journalism was included in this study where respondents' views were extended to a few members of the Parent/Teachers' Association of the selected schools.

Validity and Reliability

In this study, all the research instruments employed were valid owing to their level of conduct and results generated were straightforward and useful exposition of facts. The respondents upon whom the survey was conducted were homogeneous based on each stratum. Every respondent comprehended the contents of the questionnaire as well as personal interview conducted on him.

Procedure of Data Collection

A letter of introduction accompanied the questionnaire sent to the authorities of the sample units, seeking their cooperation for data gathering. The questionnaire was used as the research instrument for gathering information in the survey method. This questionnaire consists of two sections (A & B). All the questions were closed ended, using Likert Scale method for the most of them. For instance, Strongly Agree, Agree, Indifferent, Reject, Strongly Reject responses were introduced in the Likert rating and attached to each variable. Respondents were expected to pick one amongst the alternatives.

Data Analyses Techniques

The data analysis was done using descriptive statistics. Descriptive statistics of frequency counts and graphical representation of Pie Charts was used for the analysis of demographic distributions, while mean, variance, standard deviation, standard error mean was used for the research questions. Data were collected from various classes of the organizations' levels, and analysed statistically.

RESULTS

In answering research questions one that seeks to know the metrics of demographics the results are shown in the table 1 that follows.

Table 1. Respondents' demographics

AGE	PERCENTAGE	GENDER	PERCENTAGE	QUALIFICATION	PERCENTAGE	MARITAL STATUS	PERCENTAGE
36-45	63.1%	MALE	56%	NCE	2.3%	SINGLE	21%
46-45	21.3%	FEMALE	56%	B.ED/B.SC/HND	87.4%	MARRIED	79%
56YEAR OLD AND ABOVE	9.2%			M.ED/M.SC/MBA	8.9%		
25-35	6.4%			PHD	1.4%		

The results showed that 63.1% of respondents were between the age of 36year and 45year old. Twenty-one-point three percent (21.3%) respondents were between 46year and 45year old. Nine-point two percent (9.2%) were 56year old and above. Six-point four percent (6.4%) were between 25year and 35year old. Also, 6.4% participants were between 25 years to 35-year-old.

In answering research question two that seeks to know the item metrics of digital literacy in Ekiti State secondary schools the table 2 shows the results as follows.

Table 2 The digital literacy metrics in Ekiti State secondary schools

	N	Minimum	Maximum	Mean		Std Dev	Variance
	Statistics	Statistics	Statistics	Statistics	Std Error	Statistics	Statistics
Zscore: Application of digital literacy in education has direct relationship with effective teaching and learning in Ekiti State senior secondary schools.	661	-.23269	4.29107	0E-7	.03889549	1.00000000	1.000
Zscore: Ekiti State's education stakeholders (government, teachers, students and parents) should take full advantage of	661	-.74953	1.33215	0E-7	.03889549	1.00000000	1.000

THE OPPORTUNITIES OFFERED BY DIGITAL TECHNOLOGY IN ORDER TO RAISE ATTAINMENT, AMBITION AND OPPORTUNITIES FOR ALL.

ZSCORE: PROFESSIONAL DEVELOPMENT OF TEACHERS AND TRAINERS, ANOTHER KEY INDICATOR, IS MOSTLY ACHIEVED THROUGH BLENDED OR E-LEARNING COURSES IN WHICH NEW METHODOLOGICAL SKILLS ARE ACQUIRED AND THEN APPLIED IN THE WORKPLACE.

661	-1.17651	.84868	0E-7	.03889549	1.00000000	1.000

ZSCORE: THE

ONLY WAY TO MAXIMIZE THE IMPACT OF ICTs ON THE SCHOOL SYSTEM IS FOR OUR EDUCATIONAL AND POLITICAL LEADERS TO BE BOTH VISIONARIES AND MANAGERS OF INNOVATION SIMULTANEOUSLY, MOTIVATE AND ORGANIZE COOPERATION FOR THE IMPLEMENTATION AND EVALUATION.	661	-1.57911	.63231	0E-7	.03889549	1.00000000	1.000
ZSCORE: THE CHALLENGES EKITI STATE IS CURRENTLY FACING AS A RESULT OF ABANDONED DIGITAL LITERACY PROJECT HAVE TO BE OVERCOME TO UNLOCK THE FULL	661	-2.20050	.45375	0E-7	.03889549	1.00000000	1.000

| POTENTIAL OF DIGITAL LEARNING AND TEACHING IN ALL OUR SENIOR SECONDARY SCHOOLS.

ZSCORE: EKITI STATE GOVERNMENT SHOULD ENCOURAGE LOCAL GOVERNMENTS IN THE STATE TO POSITION DIGITAL LITERACY/ICT AS THE DRIVING FORCE FOR EDUCATIONAL DEVELOPMENT AS WELL AS ACHIEVE A UNIFIED ICT DEPLOYMENT PLAN AND STRATEGY IN ENTIRE LGAS OF THE STATE. | 661 | -1.46437 | .68186 | 0E-7 | .03889549 | 1.00000000 | 1.000 |

With the overall objectives of the study in mind, one can summarize that application of digital literacy is important for effective teaching and learning in Ekiti State senior secondary schools with each item's variance within the range of 1.000 (see table 2).Also, the demographics results were well distributed and applicable to issues pertinent to digital

literacy (see table 2). For instance, gender wise the percentage results were equal at 56% for both male and female respondents.

Digital learning is a change behavior or performance which is as a result of experience and practice, and which makes individual students face later situations differently. Digital literacy improves a teacher's personality, lesson plan, qualification, teaching aids, proficiency in the subject taught, his interpersonal relationship with colleagues, fluency, grip of the class, materials used and level of improvisation, sequence of instructions, conducive environment, amongst others.

Students' consciousness (a product of application of digital literacy in teaching and learning environment) can be created when digital literacy is applied in teaching and learning environment. There is the need to identify and introduce to students' suitable digital literacy tools to practice and not only to gain correct information but to develop their knowledge performance on using digital literacy as a medium of learning.

'Moving Beyond Google' a powerful tool, is that which students with digital literacy skills will be able to use with computer/ICT-based gadgets and the Internet to find answers to not only simple questions, but also incredibly complex problems. Also, digital skills are essential for learning, life and work as learners live in a world that is changing at a rapid pace.

Ekiti State's education stakeholders (government, teachers, students and parents) should take full advantage of the opportunities offered by digital technology in order to raise attainment, ambition and opportunities for all. Learning effectively in the digital environment requires students to generate and share original thinking and perspective development via the social construction of knowledge and understanding as reflected through a dynamic portfolio.

Digital literacy affords students to demonstrate the ability to efficiently and effectively navigate the digital technologies required to accomplish specific goals and tasks and enhances employment opportunities because it is a gate skill, demanded by many employers when they first evaluate a job application, recruitment and selection.

Digital literacy is essential for citizens to be digitally literate in order to be successful contributors to their community and society, individually responsible for how they use

technology to interact with the world around them and generate new information digitally by adapting, applying, designing, inventing, or authoring information.

Professional development of teachers and trainers which is another key indicator is mostly achieved through blended or e-learning courses in which new methodological skills are acquired and then applied in the workplace. Also, digital literacy assumes that the more digitally literate our teachers are, the more they will employ digital skills in the classroom, which will in turn foster a strong sense of digital citizenship in our students.

The challenges Ekiti State is currently facing as a result of abandoned digital literacy project have to be overcome to unlock the full potential of digital learning and teaching in the State's senior secondary schools being the only way to maximize the impact of ICTs on the school system and for leaders to be both visionaries and managers of innovation simultaneously, motivate and organize cooperation for the implementation and evaluation of computer-supported educational models.

Successfully implemented digital reforms require leaders to participate as active learners in dynamic changing environments by having a major impact on the success, coherence and sustainability of the change process. Also, Ekiti State Government should encourage local governments in the state to position digital literacy/ICT as the driving force for educational development as well as achieve a unified ICT deployment plan and strategy in entire LGAs of the state.

The literature review points to promising evidence that the effective use of digital tools and resources in schools can help to improve some outcomes for lower attaining learners and contribute to reducing gaps in subject attainment. There is also evidence that digital approaches can help learners with additional support needs to improve their skills and competencies in literacy and numeracy. Also, effective use of digital technologies can support senior secondary age students to develop key skills that are valued by employers and contribute to successful transitions into employment, including skills in collaboration, critical thinking and leadership and that digital resources can play a positive role in improving learners' knowledge and understanding of career pathways and the world of work. Another promising evidence is that using digital tools can help improve direct

communication between schools and parents, particularly those parents that teachers tend not to see face-to-face, making it beneficial for learners, parents, and schools.

CONCLUSIONS

Digital literacy is here to stay and every stakeholder in the education field is expected to master it to sustain in the knowledge society and fast pace of the world of work. The teacher 's role too has changed to that of a facilitator of learning. Self-learning is fast becoming inevitable. Educational institutions are equipping themselves to match the fast-changing pattern of education system. They are becoming technology savvy. Parents too need to provide all the technological support towards their wards in order to enable them to learn by using online learning resources from the places of their convenience.

Based on the three points of framework stated in chapter two of this study, digital literacy is preferred to use for students to apply in the real life for knowledge seeking purpose. Some ideas for classroom activities are possible since it can be a good impact for the students and a good technologies tool provided. The online surfing, social media might increase the knowledge practice and build a good strength in terms of communication, delivering a good information and practicing a real information seeking method without boring.

From the internet-based task, students can be more active because of the video, animation and sound provided. For example, students can learn the correct pronunciation and learn a new language through online. Moreover, Digital technology also provides good search engines which student can explore, like Google translator, wikis, online dictionaries and more. However, to fully utilize the digital literacy, the student must master the technology skills.

Students must put an effort to explore the digital content sites to gain information for a specific purpose, know the right way to use the technology, such as skills of writing, knowing a little bit about the interface search engine, ways to use the systems and using the social media. Thus, this study has highlighted the on-going and growing concern for students to be aware about the digital literacy which can lessen one's burden for knowledge seeking approach and the new technologies learning method.

Nigeria's digital divide refers to the inequality of Nigerian individuals, groups, or organizations to Information and communications technology (ICT) infrastructure or the internet for municipal use within the Nigerian community. Education, lack of electrical infrastructure, income, and urban drift, and a variety of other social and political factors contribute to Nigeria's growing digital divide.

Efforts are currently being made to reduce the digital divide in Nigeria including collaboration between government agencies and technology corporations like Microsoft and Intel, using libraries as E-learning (theory) facilities, and proposing governmental policies such as salary enhancement and social security.

Therefore, the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action, and to reflect upon this process is called digital literacy.

RECOMMENDATIONS

Sequel to the above, application of digital literacy should be proposed priority and plan for action to:

1. Support senior leader collaboration and networking in identifying what approaches to the use of digital technology work and how to achieve change.

2. Ensure that innovative schools collaborate and share their practice for the benefit of the wider community.

3. Identify an appropriate approach to sharing research on digital technology in learning in a way that is most accessible to senior leaders and practitioners.

4. Ensure that our vision for digital technology use is adequately captured and reflected in school improvement guidance and the approach to school inspections in Ekiti State.

5. Collaborate with partners, including Ministry of Education and corporate services, to develop standards and guidance around learner access to digital technology in schools.

6. Facilitate the sharing across education authorities of approaches to school infrastructure that put users at the heart of the design.

7. Continue investment in high-speed broadband through the Ekiti Wide Area Network (EWAN).

8. Consider future arrangements for Integrated Digital Media Channels (IDMC), ensuring the tools and services remain relevant and useful and continue to meet the requirements of the education system.

9. Continue to provide a route to market for schools and education authorities for the procurement of digital devices.

10. Explore the potential for other framework agreements that provide access to, for example, digital resources, services and support.

11. Work with stakeholders to establish channels through which partnerships can enhance the provision of access to digital technology.

12. Work with stakeholders to review the aspects of Curriculum for Excellence relating to the use of digital technology, considering their place within the curriculum structure and ensuring that they are relevant, ambitious and forward-looking.

13. Work with State Quality Assurance (SQA) and other key partners such as MTN Schools, NITDA and so on to support, develop and embed approaches to assessment that make full use of digital technology.

14. Explore ways in which digital technology can support the individual needs and capabilities of learners, and provide feedback to practitioners that is specific to the individual learner.

15. Make available digital infrastructure in all senior secondary schools in the state, cultivate proper maintenance culture and organize periodic training and retraining for digitally literate teachers for personal development and skills update.

16. Open a dialogue with all faculties of education of the Ekiti State owned tertiary institutions to agree on an approach for embedding digital learning and teaching and make it a 4-unit core course for any teacher trainee.

17. Work with key partners to ensure a range of professional learning opportunities are available to teachers at all stages to equip them with the skills and confidence to use technology effectively, in line with the education curriculum Standards for Career Long Professional Learning.

18. Liaise with relevant stakeholders to promote greater use of national online learning spaces and professional learning communities to support teacher networking and dialogue and also ensure there are stronger links with relevant national and global networks to improve the two-way sharing of information, advice and dialogue between educators on a global scale.

These strategies for digital learning and teaching are the overarching driver for change attitude for digital literacy in Ekiti State's senior secondary schools. Such change can only be achieved where all of those with an interest in the future of Ekiti education work together, irrespective of their socio-political affiliation, economic status and religious bigotry. By so doing, the Ekiti State Government and its partners will develop action plans detailing the activities that will be delivered. Those partners will include organizations that represent and work with a range of stakeholders from across the education community.

Finally, this study stimulates progress or success when the following are signaling:

i. Networking and collaboration underpinning teacher professional learning with evidence of digital technology supporting approaches to learning and teaching;

ii. A growing body of research and evidence from within Ekiti context that is accessed by education leaders and teachers to inform planning and practice;

iii. An improvement in infrastructure and access to the most relevant digital technology in senior secondary schools in the State.

In its entirety, the researcher would be interested seeing Ekiti State's senior secondary schools to be places where:

i. All learners have equitable access to fast broadband and digital technology in the school.

ii. Teachers have the knowledge and confidence to apply and justify their own professional approaches to digital learning and teaching.

iii. The curriculum will constantly evolve.

iv. Assessment strategies will embed digital practices.

v. School structures and organization ensure the best outcomes from the application of digital technology.

vi. Research and evidence underpin decisions around approaches to digital learning and teaching.

vii. Education leaders and teachers make decisions around the use of digital technology that best reflects their own local contexts and needs.

viii. There is a clear method to measure the impact of our changes.

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