ASSESSMENT OF ADULT WORKFORCE E-SKILL AND DIGITAL LITERACY LEVEL FOR SUSTAINABLE DEVELOPMENT

Temilola Taiwo APENA
Department of Educational Foundations
Faculty of Education
National Open University of Nigeria, Lagos
t_apena@yahoo.co.uk
08033922807

Abstract

Adults being digital migrants are not mostly conversant with digital materials and contents. So, they need to be integrated into the latest means of livelihood as literacies affect every area of human endeavours. In the modern working world, digital skills are a must and there is a base level of essential digital skills required to land a job in this day and age. Although an adult may not be working in highly sophisticated digitalised industry specifically, digital skills are required for all types of jobs. Many employers will expect candidates to demonstrate essential digital skills, and may even require advanced digital skills for some roles. Against this background, the study assessed adult workforce e-skill and digital literacy level in Kwara state. The study employed a descriptive survey research design, a research question was answered and three hypotheses tested using 832 government workers who were selected through total inclusive accidental sampling technique across government workers in Kwara state. A validated instrument tagged Adult Workforce E-skill and Digital Literacy Questionnaire (AE_DLQ; r=0.94) was used for data collection in the study. Data obtained were analysed using descriptive statistics of simple percentages, mean, standard deviations, and inferential statistics of t-test and ANOVA. The findings revealed that the extent of adult workforce e-skill and digital literacy level in Kwara state was on the low side. Besides, this finding was not gender sensitive ($t_{(1,830)} = 2.09$; $p=0.86>0.05$). However, the study showed significant differences in adult workforce e-skill and digital literacy level based on job type ($F_{(3,831)} =48.89$; $p=0.00$) and highest qualification ($F_{(4,831)} =38.30$; $p=0.00$). The implications for optimum performance at working places were discussed. It was recommended among others that all hands must be on deck to make provisions for all necessary impetus to transform adult workforce with e-skill and digital literacy.

Keywords: Transformative, Adult Learning, e-skill, Digital Literacy, Sustainable Development.

Introduction

In the modern working world, digital skills are a must and there is a base level of essential digital skills required to land a job in this day and age. Although an adult may not be working in highly sophisticated digitalised industry specifically, digital skills are required for all types of jobs, such as in retail, finance, manufacturing, healthcare - virtually every sector. That is why it has never been more important to brush up on adults' digital literacy skills, get the basics skills and enter the workforce with the best foot forward.

Digital skills refer to the skills required to use digital devices, communication applications and networks, to manage and share information, such as a computer programme, smartphone app or spreadsheet. Similarly, digital literacy skills refer to the ability to 'read and write' online, which means knowing how to use digital devices and use them in everyday professional situations. Digital skills have played a key role in the working world, and this has only been heightened with the rising popularity of smartphones and other quickly evolving technologies. However, with technology advancing at such a rapid pace, it can be challenging to keep up with a few instances when the adult work force may need digital skills in their professional career like using a spreadsheet on a computer to input client information; accessing the internet to carry out market research; publishing to social media to promote their work places; messaging colleagues on an online app when working from home; making online transactions using a banking application and talking to clients remotely using online video conferencing tools.

Many employers will expect candidates to demonstrate essential digital skills, and may even require advanced digital skills for some roles, so older generations need to keep pace and compete for the top job positions. Digital skills are guaranteed to improve employability and support long-term career success. Against this background, the study assessed adult workforce digital literacy level.

Transformative learning is an important aspect in moving forward the will of progress regarding sustainable development. The aim involves an education that encourages equipping the people and changing institutions, prepares for the necessary improvement, inculcates resilience and encourages

sustainable actions. Adult learners are matured and experienced people who enrolled for programmes for various reasons. They participate in education programmes in order to gain competence, experience and knowledge. Teaching and learning before 21st century was mainly face to face, events and challenges nowadays necessitates technology augmented pedagogy which affects every aspect of education. Consequently, it means that adult learning needs to be transformed to keep abreast with time thus it is imperative to create interconnectivity between physical reality and virtual reality for successful transformation. Adults being digital migrants often have phobia for technology. Facilitators must encourage them to utilize educational technologies. Hooper and Rieber (1999) in Bedrule-Grigota and Ruzu described five phases of facilitators' use of technology: familiarization, utilization, integration, reorientation and evolution. Technical resources and devices are varieties of educational context that enhances learning process nowadays.

Wang (2021) opines that transformative learning is a process that challenges learners to discover new knowledge and new ways of doing things and exposes them to happenings around the world, especially on matters that concern them. This can also encourage collaborative learning with other people in far place without coming in contact with them. Wang (2021) in another article opines that application of technology coupled with facilitators germane job will have positive effect on learners performance. Onwuegbuchulam (2021) asserts that transformative learning is the trust of adult learning and that the skill of writing will not be enough to promote sustainable development (Goal 4) to promote quality education.

Digital skill is essential to human survival and relevance in the 21st century. It is needed in the areas of business, health, agriculture, communication, sport and education. It is a kind of skill that is imperative in this century, lack of it is termed as ignorance. Digital skill is related to all areas of human endeavour, such is referred to as literacies. Digital literacy competence requires information and data literacy, communication and collaborations, content creation, safety and problem solving. Middle age adult needs digital environment to learn and continually be up to date with ever changing technology for digital participation and competence needed in the labour market given the fact that they are non-digital natives. William (2018) asserted that making learning digital is a situation in

which education, training, and generally skill acquisition, so development and recognition are being changed by employing the use of digital technologies involving all forms of education.

In the light of this, a conducive workplace environment is needed where learners can learn, be up-to-date with the development in the world, participate and collaborate with their counterpart in their field around the world. It is envisaged that skills in media design, basic technical knowledge, and professional approach to digital and analogue media in teaching, learning and guidance processes will be in great demand in the near future. The middle, older and oldest adults were naturally born into the natural environment but have to migrate to the digital environment that came into being towards the end of 20th century unlike teenagers and youths who are digital natives. The migration becomes imperative for their lifelong learning and sustainable survival.

The environment as an integrated place where digital devices communicate and manage its content and activities, as well as digital platforms. It further explains that the concept is based on digital electronics systems that are integrated and implemented for a global community. Digital platforms expose closed areas so as to accommodate innovations. The major idea does not lie in the expense of technology but in the importance of the subject matter. Digital environment or platforms are areas and avenues where learners need to be immersed, access and protect knowledge, analyse data and solve problems with technology.

Among other things, appropriately qualified personnel possess critical and reflective attitude to exhibit good e-skill and digital learning capabilities are needed. The quality, competence and dedication of personnel determine an establishment's rating. Therefore, the technical know-how of personnel will definitely promote ideal workplace productivity. Workplace must be flexible in terms of staff development and training Development is key, thus workplace must be flexible to development through collaborative research, training and retraining of staff and policies that are progressive in nature.

Allowance and promotion of personel in e-skill and digital learning is geared towards the achievement of Goal 4 of the Sustainable Development Goals which is to 'Provide Quality Education'. Digital learning is essential to lifelong learning because it will solve many of the issues confronting the

adult learners and will likely reduce the stress of combining work with learning, not to mention other domestic, social and religious commitments. It has the capability of solving the problem of incompetence and digital illiteracy. Digital learning is very important in workplaces because excitement of the knowledge of digital skill learnt can encourage adult personnel. Against this background, the study assessed adult workforce e-skill and digital literacy level for sustainable development. This study is significant because it would be beneficial to policy makers, organisation administrators, employers and researchers. It would provide all stakeholders in Nigerian employment industry with empirical information on adult workforce e-skill and digital literacy level. The study would provide valuable assistance to the policymakers and stakeholders in Nigerian employment industry in taking important decisions regarding adult workforce e-skill and digital literacy.

Statement of the Problem

In the modern working world, digital skills are a must and there is a base level of essential digital skills required to land a job in this day and age. Although an adult may not be working in highly sophisticated digitalised industry specifically, digital skills are required for all types of jobs, such as in retail, finance, manufacturing, healthcare - virtually every sector. According to Anderson and Rainie (2018), Digital skills have played a key role in the working world, and this has only been heightened with the rising popularity of smartphones and other quickly evolving technologies. Many employers will expect candidates to demonstrate essential digital skills, and may even require advanced digital skills for some roles, so older generations need to keep pace and compete for the top job positions. Digital Marketing Institute (2023) opined that digital skills are guaranteed to improve employability and support long-term career success. Against this background, the study assessed adult workforce e-skill and digital literacy level in Kwara state.

Objectives of the Study

The objectives of the study are:

1. To determine the adult workforce e-skill and digital literacy level in Kwara state.
2. To ascertain if there exists significant differences in adult workforce e-skill and digital literacy level based on gender, job type and qualification.

Research Question: What is the adult workforce e-skill and digital literacy level in Kwara state?

Hypotheses

The following null hypotheses were postulated and tested at 0.05 level of significance:

$H_0$1: There is no significant difference in adult workforce e-skill and digital literacy level based on gender.

$H_0$2: There is no significant difference in adult workforce e-skill and digital literacy level based on job type.

$H_0$3: There is no significant difference in adult workforce e-skill and digital literacy level based on qualification.

Methodology

Research Design

To have an in-depth understanding of the e-skill and digital literacy level of the adult workforce in Kwara state, this work employed a descriptive survey design to survey four civil service sectors namely; medical, teaching, secretariat and others in Kwara state. The survey's main focus was to find out the e-skill and digital literacy level of workers in these sectors. The targeted population of this study comprised all government workforces in Kwara state,about 40347 as stated by Bamidele, Adegoroye and Salahu (2023). Total inclusive convenient or accidental sampling technique was used to select 832 government workers in their working places across Kwara state.

An instrument tagged Adult Workforce E-skill and Digital Literacy Questionnaire (A_WE_DLQ) which was adapted from the publication of Jimoyiannis (2015) was used to elicit information from the participants on issues that have to do with their level of proficiency in using E-skill and Digital apparatus in the discharge of their civic responsibilities at their places of work. This is a 15-item instrument designed to collect information from the participating workers. The instrument was made up of two sections. Sections A dealt with the background information of the respondents like their gender, job type, highest educational qualification; section B consisted items in relation to issues that have to do with their level of proficiency in using E-skill and Digital apparatus in the discharge of their civic responsibilities at their places of work. The items were rated on a four-point likert scale

of Very High Extent (VHE), High Extent (HE), Low Extent (LE), and Very Low Extent (VLE). An initial pool of twenty (23) items were developed in the instrument. The items were subjected to face and content validity, in which experts in adult education and educational evaluation validated the items. Fifteen (15) items survived the scrutiny. Comments about wordings and arrangement of items made were incorporated into the final edition of the instrument. The instrument was therefore pilot tested in Oyo state. The instrument's reliability was calculated using Cronbach Alpha Coefficient and yielded a reliability index of 0.94.

The researcher with some trained research assistants directly administered the questionnaire to the participants at their places of work across Kwara State.

To make meaningful deductions, the data collected were statistically analyzed using descriptive statistics, which involve simple frequency count, simple percentage, mean and standard deviation to produce answer to the research question and inferential statistics of t-test and Analysis of Variance (ANOVA) to test the hypotheses at 0.05 level of significance.

Analysis and Results

The tables below show the analysis of data and results of the study.

Table 1: Socio-demographic Attributes of the Respondents

		Freq.	%
Workers' Gender	Male	439	52.8
	Female	393	47.2
	Total	832	100.0
Workers Highest Qualification	SSCE	75	9.0
	NCE/OND	479	57.6
	HND/Bachelor Degree	212	25.5
	Masters	51	6.1
	Ph. D	15	1.8
	Total	832	100.0
Workers' Job Type	Medical Sector	150	18.0
	Teaching Sector	490	58.9
	Secretariat Workers	168	20.2
	Others	24	2.9
	Total	832	100.0

Table 1 shows the socio-demographic attributes of the respondents.

Answering the Research Question

Research Question: What is the adult workforce e-skill and digital literacy level in Kwara state?

Table 2: Descriptive Statistics of adult workforce e-skill and digital literacy level in Kwara state.

		Freq.	%	Mean	SD	Decision
I am very good at using e-skill and digital literacy for Inquiry and reflection	VLE	244	29.3	2.12	0.93	**Low Extent**
	LE	314	37.7			
	HE	205	24.6			
	VHE	69	8.3			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Critical thinking and evaluation	VLE	225	27.0	2.16	0.92	**Low Extent**
	LE	319	38.3			
	HE	218	26.2			
	VHE	70	8.4			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Autonomous and self-directed activities	VLE	388	46.6	1.79	0.97	**Low Extent**
	LE	333	40.0			
	HE	6	.7			
	VHE	105	12.6			
I am very good at using e-skill and digital literacy for Social understanding of digital media and resources	VLE	105	12.6	2.35	0.70	**Low Extent**
	LE	333	40.0			
	HE	388	46.6			
	VHE	6	.7			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for E-safety	LE	330	39.7	2.73	0.67	**High Extent**
	HE	396	47.6			
	VHE	106	12.7			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Ethical skills	VLE	204	24.5	2.20	0.91	**Low Extent**
	LE	333	40.0			
	HE	220	26.4			
	VHE	75	9.0			
	Total	832	100.0			

I am very good at using e-skill and digital literacy for Digital citizenship	VLE	108	13.0	2.34	0.70	**Low Extent**
	LE	331	39.8			
	HE	393	47.2			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Identify, access, manage, and transform information	VLE	182	21.9	2.22	0.90	**Low Extent**
	LE	362	43.5			
	HE	208	25.0			
	VHE	80	9.6			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Use and evaluate on-line public services and applications	VLE	392	47.1	1.79	0.97	**Low Extent**
	LE	332	39.9			
	HE	2	.2			
	VHE	106	12.7			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Internet skills	VLE	394	47.4	1.78	0.97	**Low Extent**
	LE	331	39.8			
	VHE	107	12.9			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Knowledge generation and construction	VLE	107	12.9	2.35	0.70	**Low Extent**
	LE	331	39.8			
	HE	394	47.4			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Social networking	VLE	371	44.6	1.82	0.96	**Low Extent**
	LE	337	40.5			
	HE	27	3.2			
	VHE	97	11.7			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Sharing and transforming media	VLE	345	41.5	1.87	0.96	**Low Extent**
	LE	341	41.0			
	HE	52	6.3			
	VHE	94	11.3			
	Total	832	100.0			
I am very good at using e-skill and digital literacy for Creating new concepts, ideas and knowledge	VLE	496	59.6	1.53	0.76	**Low Extent**
	LE	269	32.3			
	HE	33	4.0			
	VHE	34	4.1			
	Total	832	100.0			
	VLE	548	65.9	1.40	0.63	

Results in tables 3 and 4 show that there was no statistically significant difference ($t_{(1,830)} = 2.09$) in adult workforce e-skill and digital literacy level in Kwara state based on gender ($p = 0.86 > 0.05$). The mean and standard deviation values also show no statistically significant difference in adult workforce e-skill and digital literacy level in Kwara state based on gender. Therefore, we accept the null hypothesis that says that there is no gender significant difference in adult workforce e-skill and digital literacy level.

$H_0$2: There is no significant difference in adult workforce e-skill and digital literacy level based on job type.

Table 5: Descriptive Statistics of adult workforce e-skill and digital literacy level based on job type.

	N	Mean	Std. Deviation	Std. Error
Medical Sector	150	33.1467	3.15034	.25722
Teaching Sector	490	36.4204	3.22927	.14588
Secretariat Workers	168	36.7202	2.70932	.20903
Others	24	37.3750	3.58514	.73181
Total	832	35.9183	3.38725	.11743

Table 6: ANOVA of adult workforce e-skill and digital literacy level based on job type.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1434.797	3	478.266	48.892	.000
Within Groups	8099.645	828	9.782		
Total	9534.442	831			

Results in tables 5 and 6 show that there was statistically significant difference ($F_{(3,831)} = 48.89$) in adult workforce e-skill and digital literacy level based on job type ($p = 0.00 < 0.05$). The mean and standard deviation values also show statistically significant difference in adult workforce e-skill and digital literacy level based on job type. Therefore, we do not accept the null hypothesis that says that there is no significant difference in adult workforce e-skill and digital literacy level based on job type.

$H_0$3: There is no significant difference in adult workforce e-skill and digital literacy level based on qualification.

Table 7: Descriptive Statistics of adult workforce e-skill and digital literacy level based on qualification.

	N	Mean	Std. Deviation	Std. Error
SSCE	75	32.2400	2.77946	.32094
NCE/OND	479	35.7620	3.32446	.15190
HND/Bachelor Degree	212	37.2925	2.71896	.18674
Masters	51	36.6078	2.87109	.40203
Ph. D	15	37.5333	3.94365	1.01825
Total	**832**	**35.9183**	**3.38725**	**.11743**

Table 8: ANOVA of adult workforce e-skill and digital literacy level based on qualification.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1490.136	4	372.534	38.299	.000
Within Groups	8044.307	827	9.727		
Total	**9534.442**	**831**			

Results in tables 7 and 8 show that there was statistically significant difference ($F_{(4,831)} = 38.30$) in adult workforce e-skill and digital literacy level based on qualification ($p = 0.00 < 0.05$). The mean and standard deviation values also show statistically significant difference in adult workforce e-skill and digital literacy level based on qualification. Therefore, we do not accept the null hypothesis that says that there is no significant difference in adult workforce e-skill and digital literacy level based on qualification.

Discussion of Findings

The discussion in this study was done according to the findings of this study. Findings from table two showed that the adult workforce e-skill and digital literacy level in Kwara state was on the low side. Besides, there were significant gender, job type and educational level differences in the mean response of adult workforce e-skill and digital literacy level in Kwara state.

The findings support the view of Tegegne et al. (2023) who discovered low level of digital literacy among health professionals, with nearly half (48.2%) having poor digital literacy levels. It is also in line with the view of Subaveerapandiyan, Priyanka and Egwulebo (2022) who concluded that majority of people are good at basic level of digital literacy skills but at the same time have less knowledge of advanced literacy skills.

However, this findings is at variance with those of who found that the respondents are highly literate in digital devices they rated themselves high the basic computer skills, digital information resources skills, and internet skills.

Conclusion

Based on the findings of this study, it was concluded that e-skill and digital literacy skills are imperative for staff productivity and organizational development. It is increasingly becoming an essential life competence and lack of these skills will amount low productivity and limitation to exploration, participation and relevance. The state needs to improve on what obtains in the area of staff development and training, particularly in e-skill and digital literacy, as this will likely boost personnel productivity.

Recommendation

Based on the findings of this study, the following recommendations were made:

- The state should embark on various staff training and development programmes in e-skill and digital literacy;
- Civil servants should be mandated to acquire digital skill within a period of time.
- Government should equip all parastatals and its staff members with necessary digital technology. Digital equipment should be in good supply with regular maintenance culture to sustain transformation

References

Akorful, V. & Abaidoo, N. (Dec. 2014). The role of e-learning, the advantages and Research disadvantages of its adoption in higher education International Journal of Education and Vol. 2 No. 12 https://www.ijern.com/journal/2014/December-2014/34.pdf

Anderson, J. & Rainie, L. (July, 2018). The positives of digital life. Pew Research Center https://www.pewresearch.org/internet/2018/07/03/the-positives-of-digital-life/

Bedrule-Grigota, M. V. &Ruzu, M. (CIEA, 2014). Considerations about e-learning tools for adult education Procedia - Social and Behavioral Sciences 142 (2014) 749 – 754 file:///C:/Users/user/Documents/Adult%20Learning%202.pdf

Bamidele, A. H., Adegoroye, A. A. & Salahu, M. (Jun, 2023). Challenges of National Minimum Wage Implementation in Nigeria: The Kwara State Civil Service Experience. Research Gate https://www.researchgate.net/publication/371811041_Challenges_of_National_Minimum_Wage_Implementation_in_Nigeria_The_Kwara_State_Civil_Service_Experience.

Digital Marketing Institute (Mar, 2023). 10 Digital Skills That Can Make Students Instantly Employable in 2023 https://digitalmarketinginstitute.com/blog/10-digital-skills-that-can-make-students- instantly-employable.

Jimoyiannis A. (2015). Digital Literacy and Adult Learners. In M. J. Spector (ed.), The SAGE Encyclopedia of Educational Technology (pp. 213-216). Thousand Oaks, California SAGE Publications.

Nwegbu, M. U., Osadebe, N. E. &Asadu, B. U. (2011). The impact of digital divide on e-learning in Nigeria Journal of Applied Information Science and Technology 5.1 https://jaistonline.org/NwaegbuOsadebeAsadu_2k11.pdf.

Onwuegbuchulam, SPC (2021). Towards a theory of education for social change IntechOpen https://www.intechopen.com/chapters/79370.

Subaveerapandiyan, A., Priyanka, S. &Egwulebo, J. E. (Sept, 2022). Digital literacy skills among African library and information science professionals- An exploratory study DOI.10.1108/GKMC-06-2022-0138https://www.researchgate.net/publication/363415846_Digital_literacy_skills_among_African_library_and_information_science_professionals_-_an_exploratory_study.

Tegegne, M. D., Tilahun, B., Mamuye, A., Kerie, H., Nurhussien, F., Zemen, E., Mebratu, A., Sisay, G., Getachew, R., Gebeyehu, H., Seyoum, A., Tesfaye, S., Yilma, T. M. (2023). Digital literacy level and associated factors among health professionals in a referral and teaching hospital: An implication for future digital health systems implementation. Front PublicHealth. 2023 Apr

11;11:1130894. doi: 10.3389/fpubh.2023.1130894. PMID: 37113180; PMCID: PMC10126829. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10126829/Wang, V. (2021). Transformative learning, epistemology and technology in adult education Sage Publications https://journals.sagepub.com/doi/abs/10.1177/1477971420918602.

Wang, V. (2021). Adult education with technology for transformative learning IGI Global. https://www.igi-global.com/chapter/adult-education-with-technology-for-transformative- learning/279755.

Wikipedia (n.d). Digital environment. https://en.wikipedia.org/wiki/Digital_environments.