ASSESSING THE DIGITAL ENTREPRENEURIAL SKILLS NEEDED BY 21ST CENTURY GRADUATES FOR SELF-RELIANCE IN TERTIARY INSTITUTIONS IN SOUTHEAST NIGERIA

Chimezie Ada Ibezim (Uchenu)
chimezieuchenu@gmail.com
Department of Accountancy
Anambra State Polytechnic, Mgbakwu
&
Ifeoma Mirian Molokwu
ifeomamolokwu1@gmail.com
Department of Accountancy
Anambra State Polytechnic, Mgbakwu
&
Ebele Theresa Ufoaroh
ufoarohebele@gmail.com
Department of Cooperative Economics and Management
Anambra State Polytechnic, Mgbakwu

Abstract
As the global economy becomes increasingly digitalized, graduates are expected to possess relevant digital entrepreneurial skills that will enable them to compete effectively in the labour market and become self-reliant. This study investigated the digital entrepreneurial skills required by 21st-century tertiary institution graduates for self-reliance in Southeast Nigeria. One research question and one null hypothesis guided the study. A descriptive survey research design was adopted. The population comprised labourers in selected sectors of the economy. Using stratified and simple random sampling techniques, 280 employees from the manufacturing, banking and finance, education, and telecommunications sectors were selected. Data was collected using a structured questionnaire containing 15 items rated on a four-point scale. Mean and standard deviation were used to answer the research question, while an independent-samples t-test was employed to test the hypothesis at the 0.05 level of significance. The findings revealed that graduates require digital entrepreneurial skills such as data analytics, content marketing, mobile marketing, search engine optimization, and strategic planning to achieve self-reliance. The study further found no significant difference between the mean ratings of public and private employers regarding the digital entrepreneurial skills needed by graduates. It was concluded that the acquisition of digital entrepreneurial skills can enhance graduate employability, promote self-reliance, and reduce unemployment.

Keywords: Digital Entrepreneurial Skills, Digital Economy, Self-Reliance, Employability, Tertiary Institution Graduates.

Introduction

The world, all over have witnessed a monumental digital transformation in the past decade as social media, smart devices, 4G and 5G internets, advanced analytics, cloud, artificial intelligence, among others, have seeped into the very fabric of how organizations conduct their business and drive their outreach. Businesses that have upgraded their system outlook and processes to embrace digital transformation are ready in a pole position, enjoying an advantage over their competitors. While digital transformation was steadily making its way into our personal and professional lives, along came the pandemic and changed the world in more ways than one and spurred on the necessity and importance of digital skills and tools. They emerged as indispensable components of the workplace as businesses and institutions were forced to switch and conduct their activities online, without much preparation.

Digital skills are various skills and abilities that cumulatively enable an individual to communicate effectively, collaborate and solve problems using digital devices, applications, and tools for personal and professional fulfillment (Knobel & Lankshea, 2022). It's possible to comfortably and effectively engage with the online environment using these skills. ITU (2020) defined digital skills as a set of technological abilities that may be fully or partially acquired before entering the workforce. They allow people to create and share digital content, communicate and collaborate, and solve problems for effective and creative self-fulfillment in life, learning, work, and social activities. According to Buckingham (2022) those with digital skills and abilities not only make themselves more employable but future-proof their career by understanding key digital channels. Digital skills are so important in the modern workplace that it's now difficult to figure out the skills that may or may not be required for a job because an increasing number of sub skills are now becoming a part of the digital skills umbrella. For instance, you may feel that researchers, social media managers, public relations experts do not need to know MS Excel. However, it is used in most modern workplaces irrespective of the employee's job profile.

The American Library Association (ALA) defines digital skills as "the ability to use information and communication technologies to find, evaluate, create, and communicate information," requiring both cognitive and technical competencies (Digital and Visual Literacy, 2017). Building on this, digital skills can be understood as a blend of technical know-how and critical thinking abilities that enable individuals to effectively navigate digital environments, solve problems, and communicate information using modern technologies. In this study, the researchers define digital skills as the practical and cognitive competencies that empower graduates to confidently utilize digital tools, platforms, and systems for problem-solving, innovation, and effective participation in the modern workforce and society.

Entrepreneurial skills, on the other hand, refer to the abilities required to identify opportunities, create value, and successfully initiate and manage business ventures. These include skills such as creativity, innovation, risk-taking, decision-making, leadership, and resource management. In today's dynamic and competitive environment, entrepreneurial skills complement digital skills by enabling individuals not only to seek employment but also to create employment opportunities for themselves and others. For tertiary institution graduates, the integration of entrepreneurial skills with digital competencies enhances self-reliance, adaptability, and the capacity to thrive in both formal employment and self-employment contexts Recently, the nation's tertiary institution of learning graduates has been challenged with the inability to get

jobs in corporate industries and companies in the world. The industries mostly complained of inadequate skills required especially in the current cutting-edge technology, having low or no digital skills (Uchenu, Okeke and Ifi,2019). Many authors and researchers have related this problem to the quality of training received by these graduates while in school, which lacks digital skills required to meet the demands of the business world. The Twenty first century students and graduates must be taught different skills from those of 20th century to meet the present-day service demand and be self-reliant.

The innovation and advancement in technology have made some of the courses in the various curriculum changes. Okojie (2013) observed that some of the courses available in Nigerian higher institutions nowadays are far removed from the needs of the society and this is partly responsible for the mass unemployment of Nigerian graduates. This is in consonance with the trend of thought of Aluko (2014), that Nigeria is bedeviled with severe problem of graduate unemployment brought about by mismatch between graduate training and the world of work. The skills to be taught in this century should reflect the specific demands placed on today's graduates by the complex, competitive, knowledge-based, information-age, technology-driven economy and society (The Glossary of Education Reform, 2016). Any disconnection between the producers and employers of tertiary institution graduates, and planners, will certainly produce maladjusted economy and wastages of human resources.

Further observations revealed that employment opportunities are not majorly a function of the employment system and its requirement but also of the quantitative structural digital skill linkages (Idaka, 2013). The reason why graduates find it difficult to secure adequate job or be self-reliant after graduation has been traced to the inadequate curricula their institutions have adopted, resulting in the irrelevance of graduates to societal needs and their mismatch/incompetence to existing jobs (Rajake 2016, Aluko 2014). This has been so because most graduates do not possess appropriate job competencies and skills required by the available opportunities while some do not bring out their personality traits to their job search behaviors through the adoption of creative and innovative strategies that could promote job security or creation. Due to this, the attitude of graduates has been identified as a major setback.

In this digital age, digital transformations have made many formerly scarce resources abundant, while the key constraints on economic and business development have become the skills, knowledge, and talent embodied in individual workers. In fact, employers have opted for few highly skilled staffing, due to the current economic situation, which implies demand for quality graduates rather than quantity. This translates to the demand for higher qualifications, better skills and cognitive experience of many years. This shift by employers has in turn created a serious roadblock for entry of fresh graduates into a decent work environment. As a result, graduates could no longer expect to remain in a single profession; they have to be more flexible and better prepared for lifelong learning. They need to be more innovative and creative to be "employable and self-reliant"

Self-reliance is the ability to do things and make decisions by yourself without involving anyone. It allows freedom for people to express their concerns and to organize and participate in the decisions that affect them. It has an equal opportunity for all. Barbara (2017) noted that graduates need full range of digital skills to participate fully in today's work environment. DMI (2022) listed the following skills as digital skills that can make graduates instantly employable and self-reliant: search engine marketing, data analytics content, mobile marketing, web design, and coding and project management. However, this study centered on Data Analytics, search engines and mobile marketing.

Statement of Problem

Digital entrepreneurial skills have become indispensable in the contemporary labour market due to rapid technological advancement and the emergence of the digital economy. Employers increasingly demand graduates who possess competencies in data analytics, digital marketing, online communication, search engine optimization, and other technology-driven skills. However, many graduates of tertiary institutions in Nigeria continue to experience unemployment and underemployment because they lack the practical digital entrepreneurial competencies required by modern workplaces and self-employment ventures. Despite curriculum reforms and the introduction of skill-based courses, concerns persist regarding the extent to which graduates acquire relevant digital entrepreneurial skills before graduation. Consequently, there is a need to identify the specific digital entrepreneurial skills required by 21st-century graduates for self-reliance. This study therefore investigated the digital entrepreneurial skills required by tertiary institution graduates for self-reliance in Southeast Nigeria.

Purpose of the study

The main purpose of the study was to determine the digital skills required by 21st tertiary institution graduates for self-reliance in Southeast Nigeria. Specifically, the study sought to:

Assess the digital entrepreneurial skills required by graduates of tertiary institutions to achieve self-reliance in the 21st-century economy in South-East Nigeria.

Research question

What are the digital skills required of 21st century tertiary institutions graduate for Self-reliance in South-East Nigeria?

Research Hypotheses

There is no significant difference between the mean response of Public and Private employers of labour on the digital skills required of 21st century tertiary institutions graduate for Self-reliance in South-East Nigeria

Methods

A descriptive survey research design was adopted for this study. The population consisted of graduate employers across Public and Private sectors of the economy in South-East Nigeria. Using stratified and simple random sampling techniques, the population was narrowed to employers in the manufacturing, banking and finance, education, and telecommunications sectors. These sectors were selected because they are among the fastest growing in recent times and are known to actively recruit graduates from tertiary institutions. From each sector, 70 respondents were randomly selected, resulting in a total sample size of 280 participants.

Data were collected using a self-designed instrument titled “Digital Skills neededed by Tertiary Institution Graduates Questionnaire” (DSNTIGQ). The instrument comprised two sections: Section A contained items designed to identify the type of employment institutions (public or private), while Section B consisted of 15 items measuring employers’ perceptions of the digital skills needed by graduates, in line with the study’s objectives and research questions. The instrument was validated by experts in the relevant field to ensure its appropriateness and clarity

in the field. A pilot study was conducted to establish the reliability of the research instrument. The reliability of the instrument was determined using Cronbach's Alpha reliability coefficient, which yielded a coefficient value of 0.78, indicating that the instrument was reliable for data collection. Each item in the questionnaire was assigned four response options: Highly Needed (HN) – 4 points, Moderately Needed (MN) – 3 points, Slightly Needed (SN) – 2 points, and Not Needed (NN) – 1 point.

The data collected were analyzed using mean and standard deviation. The mean was used to answer the research questions, while the standard deviation was employed to determine the degree of dispersion or closeness of respondents' opinions to the mean.

A decision rule was established whereby any item with a mean score of 2.50 and above was regarded as "Needed" and accepted, whereas any item with a mean score below 2.50 was regarded as "Not Needed" and rejected.

The null hypotheses formulated for the study were tested using the t-test statistics at the 0.05 level of significance. A null hypothesis was not rejected when the calculated p-value was greater than 0.05, indicating no significant difference between the mean responses of the groups. Conversely, the null hypothesis was rejected when the calculated p-value was less than or equal to 0.05, indicating a significant difference between the mean responses of the groups.

Results

Research Question: What are the digital skills needed of 21st century graduates of tertiary institutions for Self-Reliance in South-East, Nigeria.

Table 1: Digital Skills needed by graduates of tertiary institutions in South-East, Nigeria.

S/N	ITEM STATEMENTS	$\bar{X}$	SD	Remark
1	Ability to understand and use social media effectively	3.76	0.51	HN
2	Ability to post a tweet or Facebook update	3.55	0.50	HN
3	Ability to understand the dynamic relationship between brand influences	3.60	0.50	HN
4	Ability to reach out to customers in ways that will drive traffic to their website for potential conversion.	3.21	0.58	MN
5	Ability to provide good customer services through social media	3.21	0.58	MN
6	Ability to increase the visibility of a company website on search engine	3.16	0.46	MN
7	Ability to capture previous organization search traffic results	3.28	0.55	MN
8	Ability to make educated and data driven decisions	3.29	0.56	MN
9	Ability to drive brand awareness	3.30	0.46	MN
10	Ability to use search engines	3.76	0.51	MN
11	Ability to communicate and hold online meetings	3.42	0.50	MN
12	Ability to find content Online	3.55	0.51	MN
13	Ability to handle Money online	3.10	0.7	MN
14	Ability to use Data Analytics	3.60	0.50	MN
15	Ability to use Email marketing strategy	3.29	0.56	MN
	Weighted mean	3.32	0.58	MN

The table above showed the responses of employers in tertiary institutions in South-East Nigerian on the digital skills needed by 21st century tertiary institution graduates for Self-reliance. The result revealed that all the skills items outlined are needed by graduates for self-reliance with a weighted mean of 3.32. However, ability to use search engines, ability to find content online and ability to use data Analytics were highly needed with mean ratings of 3.76,3.55 and 3.60 respectively. The close range of the standard deviations shows that the respondents were not very far from each other in their responses.

Table 2: Summary of t- test of the difference between the mean responses of public and private employers of labour on digital skills needed by 21st century tertiary institution graduates in South-East, Nigeria.

N=280

Type of Institution	**N**	$\overline{X}$	**SD**	**α**	**Df**	**t-cal**	**p-val**	**Remark**
Public Employers of labour	140	3.33	0.23					
				0.05	80	0.252	0.802	Not sig
Private employers of labour	140	3.31	0.34					

The data in Table 2 revealed that there are 140 Public employers of labour and 140 Private employers of labour. The responses of both public and private employers of labour showed that Digital skills are needed by tertiary Institution Graduates for self- reliance ($\overline{X}$ =3.31 SD= 0.34). Their responses are close to the mean as the standard deviations are very low. The table revealed that there was no significant difference between the mean responses of public and private employers of labour on digital skills needed by tertiary institution in South-East, Nigeria. (0.252, P=0.05).

Therefore, the null hypothesis was not rejected. This implied that public and private employers of labour do not differ in their response regarding the digital skills needed by graduates of tertiary institutions in Southeast Nigeria. Though there was a slight difference between their mean responses with public employers of labour having higher mean responses, but the difference was not statistically significant (mean difference =0.02)

Discussion of findings

The study revealed that 21st century graduates highly needed the ability to use search engines, ability to find contents online and ability to analyze data (data analytics).The study revealed that 21st century tertiary institution graduates needs ability to understand and use social media effectively, ability to post a tweet or Facebook update, understand dynamics relationship between brand and reach out to customers in ways that will drive traffic to their website for potential conversions. These findings showed no difference in the skills graduates need to work either in the manufacturing sector, banking and finance, education or telecommunication sectors. The findings support Abiodun (2010) who views that employability of graduates from the employers' point of view on the propensity of graduates to exhibit attributes which will be necessary for future effective functioning of their organizations. Lending credence to this is Pitan and Adedeji (2012) who assert that employers want graduates who can use their abilities and skills to evolve the organization, participate in innovative teamwork, do critical thinking on issues that will add value to the organization.

Also, the study showed that the ability to provide good customer services through social media increase the visibility of a company's website, make educated and data driven decisions, drive brand awareness online, communicate, hold meetings online and use email marketing strategy are moderately needed by 21st century graduates of tertiary institutions in decent work environment for self-reliance in South-East, Nigeria. This is in line with the findings of Adebakin, Ajadi, and Subair (2015) who noted that teaching such life skills can be added into every aspect of the university curricular with appropriate teaching skills that encourage interactive learning, knowledge application to real life problems, peer tutoring and the likes.

Furthermore, the study revealed that there was no significant difference between the mean responses of public and private employers of labour on the digital skills needed by 21st century tertiary institution graduates in South-East Nigeria this finding is in line the with finding of `Pitan and Adedeji (2012) and Adebakin (2014).

Conclusion

The employment crisis in Nigeria is largely attributed to the disconnect between the education system and the demands of the job market. This mismatch stems from several factors, including inadequate collaboration among key stakeholders such as manpower and employment Tent planners, tertiary institutions (as producers of manpower), and employers. These stakeholders collectively form a critical tripod necessary for achieving effective school-to-work alignment. Without proper coordination among them, graduates may continue to lack the relevant skills required for gainful employment. Therefore, bridging this gap is essential for improving graduate employability and addressing unemployment challenges in the country.

Recommendations

1. The Nigerian government should intensify efforts in manpower planning and ensure the effective implementation of employment-oriented policies and programmes.
2. There should be continuous review of tertiary institution curricula to align them with current labour market demands, particularly in response to digitalization and globalization.
3. Employability initiatives should be strategy-driven rather than ad hoc or project-based, as this approach will yield more sustainable outcomes.
4. Digital skills should be systematically integrated into teaching and learning across departments and faculties to ensure continuity and relevance, regardless of personnel changes.
5. Employers should establish structured feedback mechanisms with educational institutions to communicate industry needs, thereby informing curriculum development and training processes.
6. A coordinated framework should be developed to harmonize the activities of all stakeholders, leveraging existing institutions to facilitate collaboration.

If effectively implemented, these measures will significantly reduce unemployment and bridge the skill mismatch between graduates and the labour market.

References

Abiodun, S. O. (2010), Analysis of Mismatch Between Demand and Supply of Skills and University Graduate Unemployment in Nigeria. Unpublished M.Ed Dissertation, Lagos State University.

Adebakin, A. B. (2014). Assessment of University Graduates' Employability and Productivity in Public and Private Organizations in Lagos State. Unpublished M.A (Ed) thesis, Department of Educational Management, Obafemi

Adebankun,A.B, Ajadi,O.T & Subar (2015). Required and Possessed University Graduate Employability Skills Percepts Nigerian Employer. World Journal of Education. 5(2),112-122. DoI 10:5430/wje. v5n2p115

Aluko,Y.A. (2014). Employers' perceptions of the Employability Skills of New Graduates in Nigeria Journal of Educational Review 7(4), 548-55 Awolowo University, Ile-Ife.

America Library Association (ALA), (2017) Digital literacy. Retrieved from http//; lieracy.ala.org/digital literacy.

Barbara, K. (2017). Teaching 21st Century Skills for 21st Century Success Requires: An Ecosystem Approach [Blog post]. Digital Literacy (2017). Welcome to ALA's Literacy Clearinghouse. Retrieved from https://literacy.ala.org/digital-literacy/

Buckingham, (2022) Experience digital media and Journalism. US-China Education Review, A (1), 90-98

Gregor, J. & Valeri, D. (2015). ICT Tools for the Development of Entrepreneurial Competencies. In Managing Intellectual Capital and Innovation for Sustainable and Inclusive and Management, Knowledge and Learning: Joint International Conference; pp. 2123 —2129.

Idaka, I. (2013), Re-Engineering University Education for Employability in Nigeria. Journal of Education and Practice. Vol.4, No.11. pp. 43-46.

ILO (2020), Skills for Improved Productivity Employment Growth and Development (fifth item on the agenda). Report V: ILO conference, 97th session. ILO: Geneva.

ITU (2020) Digital Skills Insight Quantitative and qualitative research: further reflections on their integration. In Mixing methods: Qualitative and quantitative research (pp. 57-78).

Knobel, M. & Lankshea,C. (2022) New Literacies: Everyday Practices and Social Learning. Maiden head: Open University Press.

Okojie, J. (2013). Quality assurance and the challenges of mandate delivery in Nigeria universities. Lagos State university 18th Convocation Lecture, February19.2013.

Olaniyi, O. N. (2015). Business Education and Challenges of Globalization and Modern Technology. Journal of Educational Development, (JONED), 2(1), 87-96.

Pitan, O. S., & Adedeji, S. O. (2012). Skills Mismatch among University Graduates in the Nigeria Labor Market.

Rajapakse, R. P. C. R. (2016). Importance of soft skills in improving employability of graduates of National Universities in Sri Lanka–a literature search. EPRA International Journal of Research & Development (IJRD), 1(9), 100-103.

Saisu, O. U. (2021). Business Education and Future Directions: A keynote address delivered at the 33rd Annual National conference of the Association of Business Educators of Nigeria (ABEN), Kogi.

The Glossary of Education Reform (2016). Great Schools Partnership; Licensed Under a Creative Commons Attribution Non-Commercial Shared Alike 4.0, International License. Retrieved from http://edglossary.org/21st-century-skills.

Uchenu,C.A,Okeke,C.I. & Ifi,C.C. (2019). Improving Business Education Programmes through effective school-industry collaboration for Nation building. Nigerian Journal of Business Education. (5)2 150-162