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Institutional Resources Influence on Employability Skills Acquisition among Technology Education Graduates Tertiary Institutions in Nigeria

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Abstract: *This study examined the influence of institutional resources on employability skills acquisition among technology education graduates in Nigerian Tertiary institutions. The study investigated how human resources, financial resources, facilities and equipment resources contributed to the development of employability skills among graduates of technology education programmes. A descriptive survey research design was adopted for the study. The population comprised lecturers and final-year students in selected tertiary institutions offering technology education programmes in Nigeria. A sample of 24000 respondents was selected using purposive sampling techniques. Data were collected using a structured questionnaire based on a 4-point rating scale and analyzed using mean, standard deviation, and Pearson Product Moment Correlation (PPMC). Findings revealed that adequate human resources, financial resources, functional facilities and equipment significantly enhance employability skills acquisition among technology education graduates. The correlation analysis showed strong positive relationships between institutional factors and employability skills acquisition. The study concluded that institutional resources are critical determinants of graduates' technical competence, digital literacy, entrepreneurial ability, communication skills, and workforce readiness. The study recommended increased government funding, curriculum modernization, improved school-industry collaboration, provision of modern facilities, and capacity-building programmes for lecturers and instructors.*

Keywords: Employability Skills, Human Resources, Institutional resources, Nigeria, Technology Education

Introduction

All over the world, technology education is acknowledged as one of the most effective tools for social, economic, industrial and work development and preparation. Technology education programmes in Nigeria are supposed to provide students with a host of practical skills, technical knowledge, digital competency, entrepreneurial skills, and problem-solving skills needed for today's work place. The growing unemployment among graduates, and employers' dissatisfaction with the competence of graduates, however, have created concerns on the effectiveness of technology education programmes in producing employable graduates (Ogunleye & Musa, 2021).

People, who are able to communicate, use information and communications technology, are creative, collaborative and innovative, and have entrepreneurial skills are needed in the modern workplace. The Organisation for Economic Co-operation and Development (OECD, 2020) has reported that the rapid pace of change in labour market expectations, driven by globalization, digital transformation and the Fourth Industrial Revolution (4IR), has led to an increased emphasis on employability skills within tertiary education. However, many technology education graduates in Nigeria are still lacking in these skills because of some challenges in the institutions like insufficient funding, obsolete facilities, curriculum that is out of date, lack of partnership among institutions and industries, and the instructional delivery system are ineffective (Adeola & Olufemi, 2023).

Institutional Factors are the human, financial, material, managerial and organizational resources found within educational institutions that affect teaching, learning and skills acquisition outcomes. The human resources (HR), which includes qualified lecturers, instructors and technical staff, are very critical in mentoring students and enable practical learning (Adebayo & Nwachukwu, 2022). The importance of financial resources is also critical as this can be used to finance infrastructure, equipment, curriculum implementation and staff development programmes. Likewise, in technology education, facilities and equipment (e.g., workshops, labs, digital tools, and simulation technologies) are required to teach and learn technology skills. In addition, curriculum relevance is crucial in facilitating alignment of educational content with the demands of the labour market and technological development. Nwachukwu and Aina (2021) posited that the failure to equip students with skills relevant to their industry is a major factor contributing to graduates' unemployment; the fact that the curriculum is not relevant to the industry is a major reason why the graduates are not being employed in the industry. Collaboration with industry is also significant since it enables the student to experience the workplace through internship, industrial training and collaborative projects

between school and industry related to theory and practice (Okolie et al., 2019). Furthermore, good school management systems offer leadership, resource coordination, quality assurance and strategic planning that is essential for enhancing the performance and employability of the graduates.

Despite the various reforms in educational institutions and government interventions, many Nigerian tertiary institutions still experience institutional resource deficiencies that still hinder graduates to acquire employability skills. This led to the need to explore to the extent the institutional factors contribute to the acquisition of employability skills of the technology education graduates in Nigeria. This study hence investigated the relationship between institutional factors and the acquisition of employability skills among the technology education graduates in Nigeria.

Statement of the Problem

The growing rate of unemployment and underemployment experienced by the graduates of technology education programmes in Nigeria has become a cause for concern on the quality and relevance of tertiary education to equip students for the labour market. While technology education focuses on skills that enable students to be productive and self-reliant in industry, students still do not have the competencies needed for successful work.

Despite government interventions on these institution developments, several institutional problems like poor funding, outdated facilities and equipment, curriculum out datedness, lack of qualified lecturers, poor linkage between tertiary institutions and industries as well as poor school management systems continue to affect the Nigerian tertiary institutions in their acquisition of employability skills. Employers often report that graduates lack the technical skills, communication skills, digital skills, ability to work in a team, creativity and entrepreneurial skills essential to the workplace today.

Moreover, the availability of insufficient instructional materials and the lack of a good integration of digital technologies in teaching and learning have restricted students' opportunities to have industrial and practical experiences. The institutional shortcomings if sustained can potentially continue to churn out graduate workforce not geared towards employability, innovativeness and technological development. Hence, this study aimed at finding out the relationship between factors in institutions and the acquisition of employability skills of technology education graduates in Nigeria.

Aim and Objectives of the Study

The aim of this study was to examine institutional factors and employability skills acquisition among technology education graduates in Nigeria. Specifically, the study sought to:

1. Determine the influence of human resources on employability skills acquisition among technology education graduates.
2. Examine the influence of financial resources on employability skills acquisition.
3. Assess the influence of facilities and equipment on employability skills acquisition.
4. Determine the relationship between institutional factors and employability skills acquisition among technology education graduates.

Research Questions

1. What influence do human resources have on employability skills acquisition among technology education graduates in Nigeria?
2. How do financial resources influence employability skills acquisition among technology education graduates in Nigeria?
3. What influence do facilities and equipment have on employability skills acquisition among technology education graduates in Nigeria?
4. What relationship exists between institutional factors and employability skills acquisition among technology education graduates in Nigeria?

Hypothesis

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

1. There is no significant relationship between institutional factors and employability skills acquisition among technology education graduates in Nigeria.

Literature Review

Concept of Employability Skills

Employability skills are the competencies, knowledge, attitudes, and personal attributes that enable graduates to secure employment, perform effectively, and adapt to changing labour market demands. These skills include technical competence, communication, teamwork, creativity, critical thinking, leadership, digital literacy, innovation, adaptability, and entrepreneurial abilities. Yorke (2006) defined employability skills as the achievements and attributes that increase graduates' chances of gaining employment and succeeding in their occupations.

Globalization, technological advancement, and the Fourth Industrial Revolution (4IR) have transformed workplace expectations, increasing the demand for graduates with practical, digital, and problem-solving skills (OECD, 2020). Okolie et al. (2019) found that technical competence, communication skills, teamwork, digital literacy, and entrepreneurial abilities significantly influence graduates' employability in Nigeria. Similarly, Eze and Okeke (2022) reported that employers highly value innovation, adaptability, and practical competence among technology education graduates. Adeola and Olufemi (2023) further observed that

institutional support and integration of digital technologies enhance employability skills acquisition.

Human Resources and Employability Skills Acquisition

Human resources in education include lecturers, instructors, technical personnel, and mentors responsible for instructional delivery and practical training. Their competence directly influences students' learning outcomes and employability skills acquisition. Adebayo and Nwachukwu (2022) noted that qualified lecturers enhance students' practical competence through effective teaching, mentorship, and supervision.

Ogunleye and Musa (2021) observed that shortages of qualified personnel negatively affect students' technical competence and workforce preparedness. Empirical studies by Okafor and Ezeani (2020) showed that competent lecturers improve students' technical skills, communication abilities, and creativity. Yusuf and Ibrahim (2021) also reported a strong relationship between lecturers' instructional competence and students' acquisition of technical, digital, and entrepreneurial skills. Adekunle et al. (2022) further revealed that mentorship enhances students' leadership abilities and workplace adaptability.

Financial Resources and Skills Development

Financial resources refer to funds allocated for infrastructure, instructional materials, workshops, laboratories, equipment, and practical training. Adequate funding is necessary for effective technology education because practical-oriented programmes require substantial investment in facilities and technological infrastructure.

Yakubu (2020) observed that inadequate funding negatively affects curriculum implementation, practical training, and workforce preparation in Nigerian tertiary institutions. Similarly, Adeola and Musa (2023) maintained that adequate funding enhances curriculum delivery and practical competence. Bello and Ahmed (2021) found that institutions with sufficient funding demonstrated better instructional quality and higher employability outcomes among graduates. Eze et al. (2022) also reported that financial resources significantly influence the availability of workshops, ICT facilities, and laboratories needed for effective practical training.

Facilities and Equipment and Practical Skills Acquisition

Facilities and equipment include workshops, laboratories, ICT facilities, machines, tools, and simulation technologies required for practical training in technology education. Adequate facilities provide opportunities for hands-on learning, experimentation, and technical competence development.

Ogunleye and Musa (2021) noted that obsolete facilities and inadequate equipment negatively affect students' practical exposure and workforce readiness. Ajayi and Salami (2020) found that students exposed to modern workshops and equipment developed better technical and problem-solving skills. Okoro and Chukwu (2021) further revealed that ICT facilities improve students' digital literacy and technological adaptability. Musa et al. (2022) also reported that poor laboratory facilities negatively affect employability readiness, while Adewale and Yusuf (2023) found that simulation technologies and virtual laboratories improve creativity and workplace preparedness.

Summary of Literature Review

The reviewed literature established that employability skills are essential competencies required for workplace success and sustainable national development. The review further showed that institutional factors such as human resources, financial resources, facilities and equipment, curriculum relevance, and school-industry linkages significantly influence employability skills acquisition among technology education graduates in Nigeria. Effective lecturers, adequate funding, modern facilities, relevant curricula, and strong industry collaboration were identified as critical determinants of graduates' practical competence, workforce readiness, and employability outcomes.

Methodology

The study adopted a descriptive survey research design. The population comprised lecturers and final-year students in selected tertiary institutions offering technology education programmes in Nigeria. A sample of 2400 respondents was selected using purposive sampling techniques. Data were collected using a structured questionnaire based on a 4-point rating scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. The instrument was validated by experts in technology education and measurement and evaluation. Data were analyzed using mean and standard deviation to answer research questions, while Pearson Product Moment Correlation (PPMC) was used to test hypotheses at the 0.05 significance level. A criterion mean of 2.50 was used for decision-making.

Results

Research Question 1

What influence do human resources have on employability skills acquisition among technology education graduates in Nigeria?

Table 1: Mean Analysis on the Influence of Human Resources on Employability Skills Acquisition

S/N	Item Descriptions	N	Mean	SD	Remark
1	Qualified lecturers improve students' practical and technical competence in technology education.	2400	3.02	.81	Agree
2	Lecturers' industrial experience enhances graduates' employability skills acquisition.	2400	2.94	.76	Agree
3	Effective supervision and mentorship by instructors improve students' workplace readiness.	2400	2.88	.79	Agree

4	Continuous professional development of lecturers enhances instructional quality and skills acquisition.	2400	2.91	.74	Agree
5	Availability of competent technical instructors promotes innovation and problem-solving skills among graduates.	2400	2.86	.82	Agree
	Grand Mean	**2400**	**2.92**	**.78**	**Agree**

The result in Table 1 revealed a grand mean of 2.92, which is above the criterion mean of 2.50, indicating that respondents agreed that human resources significantly influence employability skills acquisition among technology education graduates in Nigeria. The findings imply that qualified lecturers, industrial experience, mentorship, and professional development improve students' practical competence, innovation, and workplace readiness.

Research Question 2

How do financial resources influence employability skills acquisition among technology education graduates in Nigeria?

Table 2: Mean Analysis on the Influence of Financial Resources on Employability Skills Acquisition

S/N	Item Descriptions	N	Mean	SD	Remark
6	Adequate funding improves practical training and workshop activities in technology education.	2400	2.95	.77	Agree
7	Financial resources enhance the availability of instructional materials and ICT facilities.	2400	3.01	.80	Agree
8	Sufficient funding promotes effective curriculum implementation in technology education programmes.	2400	2.87	.75	Agree
9	Adequate financial support improves students' practical competence and employability skills.	2400	2.93	.79	Agree
10	Funding of technology education programmes enhances access to modern technologies and equipment.	2400	3.04	.81	Agree
	Grand Mean	**2400**	**2.96**	**.78**	**Agree**

The result in Table 2 showed a grand mean of 2.96, which is above the criterion mean of 2.50. This indicates that respondents agreed that financial resources significantly influence employability skills acquisition among technology education graduates. Adequate funding was perceived to improve practical training, curriculum implementation, access to instructional materials, and acquisition of modern technological skills.

Research Question 3

What influence do facilities and equipment have on employability skills acquisition among technology education graduates in Nigeria?

Table 3: Mean Analysis on the Influence of Facilities and Equipment on Employability Skills Acquisition

S/N	Item Descriptions	N	Mean	SD	Remark
11	Functional workshops and laboratories improve students' practical competence in technology education.	2400	3.05	.83	Agree
12	Availability of modern machines and tools enhances graduates' technical skills acquisition.	2400	2.98	.78	Agree
13	ICT facilities improve digital literacy and workplace readiness among graduates.	2400	2.90	.75	Agree
14	Simulation technologies and virtual laboratories enhance students' innovation and creativity.	2400	2.87	.80	Agree
15	Adequate facilities and equipment improve graduates' employability and workforce preparedness.	2400	3.02	.79	Agree
	Grand Mean	**2400**	**2.96**	**.79**	**Agree**

The result in Table 3 revealed a grand mean of 2.96, indicating respondents' agreement that facilities and equipment significantly influence employability skills acquisition among technology education graduates in Nigeria. The findings imply that modern workshops, laboratories, ICT facilities, and simulation technologies improve students' technical competence, innovation, digital literacy, and workforce preparedness.

Research Question 4

What relationship exists between institutional factors and employability skills acquisition among technology education graduates in Nigeria?

Table 4: Pearson Product Moment Correlation (PPMC) Analysis on the Relationship between Institutional Factors and Employability Skills Acquisition

Variables	N	r-value	p-value	Decision
Human Resources and Employability Skills Acquisition	2400	.78	.000	Significant
Financial Resources and Employability Skills Acquisition	2400	.81	.000	Significant
Facilities/Equipment and Employability Skills Acquisition	2400	.76	.000	Significant

The Pearson Product Moment Correlation (PPMC) analysis in Table 4 revealed strong positive relationships between institutional factors and employability skills acquisition among technology education graduates in Nigeria. Human resources recorded an r-value of .78, financial resources recorded the highest relationship with an r-value of .81, while facilities and equipment recorded an r-value of .76. Since all p-values (.000) are less than the .05 level of significance, the relationships are statistically significant. The findings therefore indicate that institutional factors such as qualified human resources, adequate funding, and functional facilities significantly enhance employability skills acquisition, workforce readiness, and graduates' productivity in Nigeria.

Discussion of Findings

The findings of this study revealed that human resources significantly influence employability skills acquisition among technology education graduates in Nigeria. The finding is consistent with Adebayo and Nwachukwu (2022), who noted that qualified lecturers enhance students' practical competence through effective teaching, mentorship, and supervision. The result also agrees with the empirical findings of Okafor and Ezeani (2020), who reported that competent lecturers improve students' technical skills, communication abilities, creativity, and innovation capacity. The implication of these findings is that human resources remain indispensable in repositioning technology education towards producing employable graduates capable of meeting the demands of the modern labour market.

The finding that financial resources significantly influence employability skills acquisition among technology education graduates. The finding corroborates with that of Yakubu (2020), who observed that inadequate funding negatively affects curriculum implementation, practical training, and workforce preparation in Nigerian tertiary institutions. Bello and Ahmed (2021) also found that institutions with sufficient funding demonstrated better instructional quality, improved facilities, and higher employability outcomes among graduates. The implication of these findings is that adequate funding is fundamental to the achievement of technology education goals and employability skills development. Poor funding often leads to obsolete facilities, inadequate instructional materials, ineffective practical exposure, and low workforce preparedness among graduates.

The findings that facilities and equipment significantly influence employability skills acquisition among technology education graduates in Nigeria. The finding agrees with Ogunleye and Musa (2021), who noted that obsolete facilities and inadequate equipment negatively affect students' practical exposure and workforce readiness. Musa et al. (2022) also reported that poor laboratory facilities negatively affect employability readiness, while Adewale and Yusuf (2023) found that simulation technologies and virtual laboratories improve students' creativity, innovation, and workplace preparedness. The implication of these findings is that modern facilities and equipment are indispensable for effective skills acquisition and workforce development in technology education. Functional workshops, laboratories, ICT tools, and simulation technologies expose students to real-life industrial processes and enhance their practical competence.

The Pearson Product Moment Correlation (PPMC) analysis revealed strong positive relationships between institutional factors and employability skills acquisition among technology education graduates in Nigeria. Since all p-values (.000) were less than the .05 level of significance, the relationships were statistically significant. These findings align with previous studies which emphasized that effective institutional support systems improve students' practical competence, innovation, digital literacy, and employability outcomes. Overall, the findings of this study demonstrate that institutional factors such as human resources, financial resources, facilities, and equipment are critical determinants of employability skills acquisition among technology education graduates in Nigeria. The study therefore underscores the urgent need for government, educational administrators, and stakeholders to strengthen institutional capacity through adequate funding, recruitment and training of qualified personnel, provision of modern facilities, and effective instructional delivery in order to produce 21st-century skilled graduates capable of contributing to sustainable national development.

Conclusion

The study concluded that institutional factors such as human resources, financial resources, facilities and equipment, curriculum relevance, and school-industry collaboration significantly influence employability skills acquisition among technology education graduates in Nigeria. Adequate institutional support enhances graduates' technical competence, digital literacy, communication abilities, innovation, and workforce readiness necessary for national development.

Recommendations

1. Government should increase funding for technology education programmes in tertiary institutions.

2. Institutions should modernize curricula to align with industry needs and emerging technologies.
3. School administrators should strengthen school-industry partnerships for internships and industrial training.
4. Modern workshops, laboratories, and digital learning facilities should be provided and maintained.
5. Continuous professional development programmes should be organized for lecturers and instructors.

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