

# TVET PROGRAMS IN NIGERIA: AN ASSESSMENT OF THE TECHNICAL SKILLS OF STUDENTS IN THE TECHNICAL COLLEGES IN RIVER STATE, NIGERIA

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## Abstract

*The Technical Vocational Education and Training (TVET) system is crucial in producing highly skilled labor to meet industry demands. To successfully equip students with technical skills that would enable them to meet the current work demands and professional expectations, an empirical study is required to assess the technical competence of students enrolled in TVET programs. Indeed, little is known about the technical skills of students in technical colleges. The present study evaluated students' technical skills at government technical colleges in River State, Nigeria. Two hundred fifty-five students were purposively pooled from the government technical college located in different parts of River State (Eleogu, Tombin, Ahoada, and Port Harcourt) participated in the study. They completed a questionnaire measuring technical skills in six dimensions. The result revealed a high technical competence outcome for material and application (75.5%), work planning (71%), practical knowledge (66.7%), and theoretical knowledge (59.4%). Also, the findings indicated low technical skills for equipment maintenance (15.6%) and workshop management (18.1%). The result has implications for the sustainability and development of TVET in Nigeria.*

**Keywords:** *TVET, technical skills, student, technical colleges*

## INTRODUCTION

The forces of globalization and the quick technological advancements we are seeing in contemporary society are creating significant changes in how we work and live. Notably, urban and rural communities are already noticing the changing nature of the present time. Thus, they must keep pace with these societal changes to live fulfilling, productive lives. Education is crucial to human development, which is why it is essential. Like other nations worldwide, Nigeria acknowledges that education is the main factor influencing national growth (Romina, 2013). The primary strategy for fostering individual and national socio-economic empowerment, as well as eradicating poverty, continues to be education (Ubogu & Veronica, 2018). Education enables people to assert their rights and recognize their social, political, and economic potential (Aja-Okorie, 2013). It represents the most crucial industry for human development and empowerment (Afolayan, 2015) and creates a skilled workforce for the country's development (Aluede et al., 2020). It catalyzes social change and a speed bump for social and economic advancement (Afolayan, 2015; Oladunni et al., 2018).

In general, education is viewed as something that facilitates learning, which can be defined as the acquisition of the knowledge, skills, values, morals, beliefs, and habits necessary for individual development and societal adjustment. Education equips one with the fundamental competencies and practical know-how essential to lead a more fulfilling life (Bello & Othman, 2020). Nevertheless, technologically enhanced education in Nigeria's higher education institutions has been hampered by the country's glacial pace of development (Chaka & Govender, 2014). Therefore, Nigeria's educational institutions must catch up to the most recent developments in educational practices seen in developed economies (Anasi, 2012). For instance, there has been a noticeable mismatch in Nigeria's educational ecosystem between the skills imparted by the national education system and those demanded by the workplace. This mismatch has been exacerbated in recent years with the integration of new technologies in almost every sphere of professional activity. Narrowing the gap between education and the world of work is thus a priority for most governments because of the potential economic and social benefits derived from increasing the proportion of the population engaged in productive livelihoods.

The Nigerian government has taken several necessary steps toward developing the country. One of these is the establishment of programs in Nigeria that provide training in technical and vocational fields. There is no denying the significance of technical and vocational education and training (TVET) to the growth of a nation, particularly in these times of deteriorating economic conditions, widespread unemployment, and the insignificance of particular academic subjects in relation to the requirements of society (Akanbi, 2017). In recent years, technical and vocational education and training (TVET) has gained popularity and is now widely regarded as the engine behind sustainable national development. (Arthur-Mensah & Alagaraja, 2013; Igberaharha, 2021; Ngor & Tambari, 2017; Osidipe, 2018; Paryono, 2017; Postiglione & Tang, 2019; Raimi & Akhuemonkhan, 2014; Roslan et al., 2020; Siddiky & Uh, 2020; TamBari, 2019).

Education that primarily prepares a person for employment in a specialized field is called vocational-technical education (Odu, 2011). For vocational education to be effective in preparing students for entry into the workforce, it must be reactive and proactive in meeting the demands of the working world both now and in the foreseeable future. The quickening pace of science, technology, and employment structure across national, regional, and global contexts has brought the consequences of the increasing importance of 21st-century skill mastery such as critical thinking and problem-solving, creativity and innovation, communication, and collaboration. TVET, also known as technical vocational education and training, is a specialized form of education, training, or retraining designed to provide individuals with the skills they need to adapt to the workplace environment. Its primary purpose is cultivating the attitudes, skills, abilities, and knowledge necessary to provide an individual with a sustainable livelihood. Therefore, TVET describes the training, skills, capabilities, and understanding that students need to acquire to be well-adapted to the world of work and compete globally (Oviawe & Ehirheme, 2020).

A growing consensus is that TVET programs enhance nations' socio-economic and technological development (Chinyere et al., 2015). In particular, employability skills are the most crucial skill that characterizes the contemporary world of work, in addition to technical expertise, to be competitive for jobs in the global industrial market and to keep their current positions (Ismail & Mohammed, 2015). The persistent problems associated with unemployment have been linked to insufficient requisite skills training and knowledge acquisition by students, many of whom later find themselves unemployed due to a lack of adequate employable skills (Osidipe, 2017). Thus, TVET programs aim to produce skilled workers who can compete successfully and advance in a constantly shifting environment. This ultimately helps a nation's economy (Okoye & Chijioke, 2013).

Accordingly, Ogbunaya and Udoudo (2015) emphasized the TVET programs in Nigeria as a ubiquitous pathway to human and social development, including sustainable national security, reflecting its potential for poverty reduction, job generation, and technological and economic development transformation. Indeed, numerous authors have underscored the relationship between TVET and economic empowerment (Achigbe, 2016; Hartl, 2009; Hoeckel, 2014; Nwachukwu, 2014; Ogbuanya & Izuoba, 2015; Okoye & Eze, 2010; Opoko et al., 2018; Pongo & Obinnim, 2015; Searles, 2010; Yi et al., 2015). Notably, the TVET program is distinct from other academic fields because it equips students with varying apprenticeships (Danyaro, 2018). Consequently, there is a growing concern about the lack of data on students' technical skills in Nigeria's tertiary education. Hence, the present paper aims to assess the technical skills of undergraduates.

Technical skills describe specialized knowledge and expertise required to perform specific tasks and use specific tools and programs in real-world situations. Technical skills reflect personal knowledge and skills or technical know-how necessary for successful job performance. Notably, competency in the technical domain encompasses an individual's ability to use, apply and demonstrate a group of related awareness, skills, knowledge, and attitudes to effectively accomplish tasks, which are measured through the required standards. This is because technical skills will affect the individual's job responsibility and ability to perform the job (Ismail & Hassan, 2019). Students lacking basic technical skills are more likely to be negatively impacted in the workplace (Dasmani, 2011).

On the other hand, a skilled and knowledgeable student will more likely inculcate competent and contemporary knowledge in the learning process and foster learning achievement (Van Uden et al., 2014). Indeed, teachers' competency and institutional capabilities affect students' technical skills. For instance, knowledgeable, skilled, and competent vocational and technical instructors are more disposed to transfer basic technical knowledge, principles, and skills to the students (Kilbrink & Bjurulf, 2013). Accordingly, Ibrahim et al. (2014) identified vocational instructors as an essential determinant of student satisfaction in skills training institutions.

Several problems plaguing Nigeria's TVET education system include a shortage of proper TVET facilities, insufficient funding, ineffective teaching methods, and unreliable methods of gauging TVET students' proficiency. (Chinyere et al., 2015). Similarly, some authors noted that there is limited understanding of the program's potential impact (Rathidevi & Sudhakaran, 2019), the sway of parents (Hina Ayub, 2017), including parental education level, role models, and personal interest (Yaakob et al., 2020) contributes to the challenges in the program. Recent research has suggested that one of the biggest threats to Nigeria's TVET program is the country's recruitment of poorly trained teachers. (Okolie et al., 2021). Since technical competence generally involves knowledge and skill (Ningtiyas & Jailani, 2018), a teacher's technical proficiency could account for the student's development of essential technical skills.

Nigeria needs a highly skilled workforce to support its development and reduce unemployment. There are insinuations suggesting that graduates of the TVE program have yet to achieve the standard desired by industries, either in terms of job quality or preparation. Notably, with the dynamically changing job market and progressive technological change, employees are expected to possess basic technical skills. Given this, the assessment of the technical skills of students becomes essential. Also, for Nigeria to be recognized as an economically developed country shortly, there is a need to have efficient data relating to technical skills in the vocational and technical institutions. The government needs to increase its workforce and combat unemployment by nurturing technically skilled individuals in the vocational system. Students must be able to cope with contemporary society's changing nature and demands. Above all, the TVET programs have to have the capability of impacting the technical skills required by all industries. Thus, a study was needed to identify the extent of technical skills students possess in River State's technical colleges. The main objective of this present study is to assess students' technical skills. Specifically, the study attempted to evaluate the level of technical skills of students in government technical colleges in River State, Nigeria.

**Method**

The participants for the study included 255 male and female students attending the four major technical colleges in River State, Nigeria. (e.g., Government technical college, Eleogu, Tombia, Ahoada, and Portharcourt). One hundred and seventy-five (63.4%) were male students, and eighty (36.6%) were female students. Purposive sampling was done to select students from different TVET-related programs: ICT (n = 23), mechanical (n = 31), electronics (n = 36), mechatronics (n = 18), electrical (n = 37), welding (n = 25), video publishing (n = 12), civil (n = 27), manufacturing (n = 16), plastic technology (n = 12), and ceramic technology (n = 18). The respondents rated their perceived technical skills with a 16-item Linkert form scale scored in 5-point ratings ranging from 1 (not likable at all) to 5 (very likable). The scale was validated following a pilot study, and a Cronbach alpha .78 reliability coefficient was obtained. A higher score indicates a high technical competence.

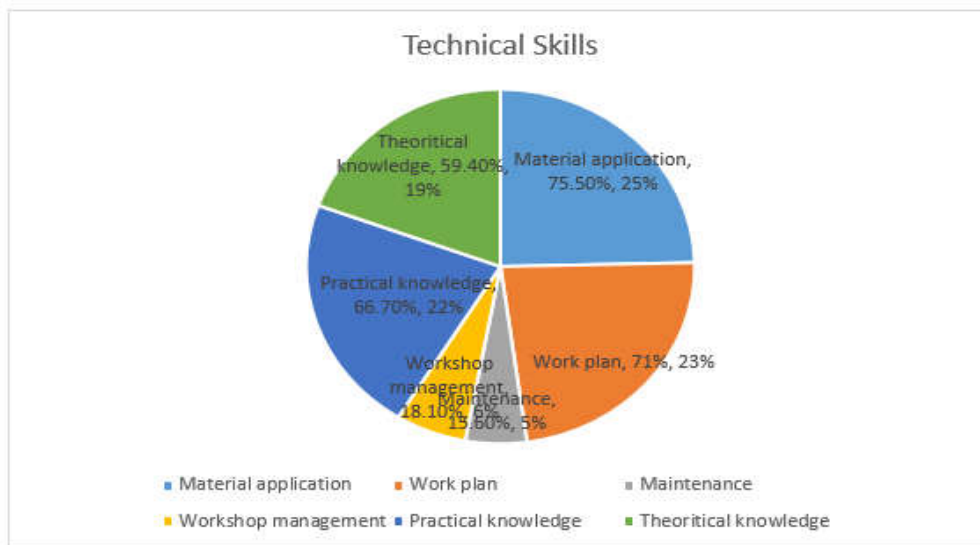
**Result**

The study adopted a descriptive approach. The data from 255 respondents were analyzed using the statistical package for social sciences (SPSS, Version 23). The percentage scores of the technical skills based on material application, work planning, maintenance, student workshop management, practical pedagogy, and theoretical instructional strategy are analyzed in table 1 below.

**Table 1:** shows the percentage score of the respondents on technical skills

Technical skills	%
Material and application	75.5%
Work planning	71%
Maintenance	15.6%
Workshop management	18.1%
Practical knowledge	66.7%
Theoretical knowledge	59.4%

The table above shows the percentage data of the respondent's scores on technical competence based on six dimensions. The result revealed a high technical skill outcome for material and application (75.5%), work planning (71%), practical knowledge (66.7%), and theoretical knowledge (59.4%). Also, the findings indicated a low technical skill for maintenance (15.6%) and workshop management (18.1%).



Graph representation of the technical skills of the students

**Discussion**

The current study assessed the technical skills of students attending government technical colleges in River State, Nigeria, based on six skill models. Two hundred and fifty-five technical and vocational students responded to the study questionnaire. The percentage score outcome revealed that most of the respondents show technical competence in a material application (75.5%), practical knowledge (66.7%), work plan (71%), and theoretical knowledge (59.4%). However, low technical competency was observed in maintenance (15.6%) and workshop management (18.1%). This finding indicates that many students in the TVET programs are adept at applying the material effectively, communicating practical teaching, outlining a work schedule, and engaging in practice based on theory. The main goal of TVET programs is to provide vocational students with practical knowledge. The emphasis placed on the utility of TVET programs may be the most likely cause of this result. In other words, focusing more on the program's practical components means less time is spent on other crucial aspects of learning. For instance, poor workshop skills and maintenance indicate a significant gap in the sustainability of TVET programs. Indeed, student handling, equipment maintenance, and workshop management are crucial TVET skills.

Results of the study show that students acquire skills from education and training at government technical colleges in River State, Nigeria. Besides developing technical skills, students also had the opportunity to gain employability skills. Out of six technical skills assessed, only two skills, namely, workshop management and maintenance skills, were poor in the students. At the same time, other skills such as material application, practical knowledge, work plan, and theoretical knowledge skills were found to be highly possessed by the students. Consequently, it can be deduced from the findings that the technical training colleges in River State have equipped their students with adequate technical skills to enter the world of work. Nevertheless, there still is room for improvement for the technical training colleges in improving the effort to impact maintenance attitude and enhance workshop management skills.

**Practical implication**

The present result offered insight into the technical skills acquisition of students of government technical colleges in River State, Nigeria. Thus, the result can provide valuable data for developing and sustaining Technical and Vocation Education (TVE) in Nigeria.

**Conclusion**

This study assesses technical students' technical skills in River State, Nigeria. The study revealed more specialized skills in material application, work planning, and practical and theoretical knowledge. Conversely, observing the respondents' maintenance and workshop management skills indicated low technical skills. Thus, the result highlights the prevailing focus of many vocational institutions: the practice mode that comes in the instructor's conception of TVET when evaluating their competencies. Although the dimensions studied are not holistic relative to TVET programs in Nigeria, this indicates a limitation of the present study. However, the revelation of technical skills in most dimensions describes a positive progression in developing TVET programs in Nigeria. Unfortunately, the observation of technical incompetence in equipment maintenance and student workshop management reflects a significant constraint on the sustainability of TVET programs. The study recommends integrating students' workshop behavior and equipment maintenance culture into vocational training. This will ensure an overall student's competency in TVET.

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