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EVALUATION OF THE IMPLEMENTATION OF VOCATIONAL AND TECHNICAL EDUCATION PROGRAMMES IN PUBLIC SECONDARY SCHOOL (A CASE STUDY OF TECHNICAL COLLEGE) EDO STATE

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Abstract

This study evaluated the implementation of Vocational and Technical Education (VTE) programmes in public senior secondary schools in Egor Local Government Area, Edo State, Nigeria. Specifically, the study determined the adequacy of resources available for programme implementation and assessed students' perceptions of the effectiveness of VTE programmes in developing practical skills. The study was anchored on the Context, Input, Process and Product (CIPP) Evaluation Model and adopted a descriptive survey research design. The population comprised 5,270 students from 12 public senior secondary schools, from which a sample of 200 students was selected from four schools using simple random and systematic sampling techniques. Data were collected using a researcher-developed instrument titled Vocational and Technical Education Programme Implementation Questionnaire (VTEPIQ). The instrument was validated by experts in Measurement and Evaluation, while Cronbach's alpha analysis yielded a reliability coefficient of 0.77. Data were analysed using frequency counts, percentages, mean scores and standard deviations. Findings revealed that resource adequacy was marginal, with a grand mean of 2.51. Qualified teachers and instructional materials were perceived as relatively adequate, while workshops, equipment, tools and funding were considered inadequate. Respondents also perceived VTE programmes as effective in developing practical skills, with a grand mean of approximately 2.96. The study concluded that although VTE programmes were positively perceived in terms of practical skills development, resource limitations remain a challenge. It recommended improved funding, functional workshops, modern equipment and continuous teacher development.

Keywords: Evaluation, Implementation, Vocational Education, Technical Education, Practical Skills

Introduction

Technical and Vocational Education and Training (TVET) is one of the relevant institutions that has a huge role in equipping individuals with occupational knowledge, skills and competencies for productive employment and self-reliance, for the ever changing demands of the labour market. Technology and the fast pace of change in the industrial environment and workplace needs call for educational programmes that involve theory and learning experiences. This has led to the growing significance of TVET as a critical element in educational development plans for workforce readiness, entrepreneurship and sustainable economic development. TVET is acknowledged by the United Nations Educational, Scientific and Cultural Organization (UNESCO 2022) as a key process of creating meaningful job skills and meeting the evolving economic and technology needs. To put these objectives into practice will, however, greatly rely on the effective application of programmes - notably access to suitable educational material and opportunities for students to acquire practical skills.

In the African sector, problems associated with the lack of resources, the quality of teaching and practical training are still cancelling out the application of vocational/technical education programmes. South Africa experienced challenges in the delivery of vocational education such as teachers' professional preparation and institutional support (Zinn et al., 2019). Likewise (Arrey-Ndip, 2024) revealed that the programmes of vocational education in Cameroon were hindered by inadequate funding, outdated equipment and insufficient training materials. The study by (Boateng et al., 2023) in Ghana indicated that access to practical training in agriculture was hindered by poor facilities and theory-based teaching approaches. In addition, (Ngware et al., 2024) found better skills development outcomes for learners in better equipped Kenyan TVET institutions than those with poorly equipped institutions. Altogether these results indicate that the effectiveness of the vocational education can be related not only to the goals of the curriculum but also to the quality of the instructional resources, and the opportunities for hands-on training. They also call attention to an analysis of these ailments in the Nigerian educative system.

Vocational and Technical Education is understood in Nigeria to be a valuable part of secondary education, especially for students to gain further and additional education leading to employment and entrepreneurial activities. The National Policy on Education (Federal Republic of Nigeria [FRN]) 2013, calls for learning of technical knowledge and crafts skills as an objective of vocational education. Vocational and Technical Subjects at the Senior Secondary school level, are subjects that offer opportunities for students to hone their practical skills in addition to their academic skills. In addition, the Nigerian Educational Research and Development Council (NERDC, 2025) in its updated curriculum for senior secondary education further imbibes the acquisition of vocational skills by mandating a trade subject as part of the core curriculum. Trade areas approved are installation and maintenance of solar PVs, fashion design and making of garments, livestock farming, beauty and cosmetology, computer and GSM repair and horticulture and crop production. The importance given to practical skills in the secondary education system is reflected in these provisions. However, for the success of these programmes, sufficient qualified teachers, instructional materials, working equipment and suitable facilities for practical work are needed.

Empirical studies have revealed the implementation challenges of vocational and technical education programmes in learning schools in Nigeria in spite of this provision. Elom and Okolie (2014) traced the major constraints in teaching and learning of Basic Technology in public secondary schools of Ebonyi State to inadequate workshop equipments, inadequate instructional aids, lack of adequate funding and poor teaching methodology. Likewise, Awe and Utoware (2021) reported lack of qualified subject specialists, inadequate financial support and lack of adequate physical facilities in public secondary schools of Lagos State. The identified information means that there are issues in terms of the lack of educational resources which are considered to be important when providing Vocational Subjects. The effectiveness of the programme implementation, however, cannot be judged by looking at the availability of resources alone, and has to consider if students have acquired the practical skill which is expected from the training.

Past investigations have found issues with instructional facilities and practical learning conditions in Secondary Schools in Edo State. For example, (Uwameiye, 2015) revealed that lack of apparatus, lack of good laboratory condition and instructional problems influenced the home economic Learning Environment as it occurs in the public secondary schools. Likewise, (Oviawe, 2016) also pointed out that inadequate availability of information and communication technology (ICT), as well as teachers' inadequate preparation, impede the implementation of electronic learning approaches in the learning of Technical Drawing in all Edo State model secondary schools. Specifically, Ogbangwor (2021) examined the effect of school facilities on teacher and students' performance in the teaching and learning of vocational and technical education in public secondary schools in Egor Local Government Area in Benin State. The study identified the challenges being faced by educational facilities as poor maintenance, inadequate facility and overcrowding. While these results provide important evidence about the resources and conditions in the study area they cannot determine the overall sufficiency about the various resources used for programme implementation and they are not an immediate measure of the extent students develop practical competence.

A review of literature reveals that studies have analyzed the instructional facilities, educational resources and challenges affecting vocational/technical education in Nigeria/ Edo State respectively but the literature reviewed lacked integrated evidence on the extent of adequacy of implementation resources and the effect of the contents on developing the vocational/technical practical skills of the students in public senior secondary schools in Egor Local Government Area. While much existing research has focused on specific aspects of how a programme was delivered, for example instructional facilities and teaching conditions, there has been a lack of research that has looked at a program in terms of its provision of adequate resources and in relation to students' hands-on skill development within the context of the same study. Therefore, it is necessary to determine the level of the human, material and financial resources available for the implementation of VTE and the effectiveness of the programmes in imparting hands-on skills to the learners. It is important to fill this gap to pinpoint implementation issues and offer evidence for supporting the enhancement of educational provision. Thus, this study aims at the outcome of assessing the level of implementation of vocational and technical education programmes in public senior secondary schools of the Egor Local Government Area, Edo State with a particular focus on the availability of resources to support the programme as well as the effectiveness of such education in developing the practical skills of the students. The results are hoped to fill with useful information that will be of interest to educational administrators, educational decision makers, and other interested parties involved in enhancing the vocational and technical education delivery.

Statement of Problem

Vocational and Technical Education (VTE) programme in public secondary schools in Nigeria is expected to impart practically-based skills, occupational competencies and entrepreneurial skills for further training, employment and self-reliance. The aims of this can only be accomplished with proper teaching and learning facilities, trained personnel and functioning workshops to enable students from actively engage in practical learning activities. However, some questions remain over: the level of resources available for effective programme implementation in public secondary schools and whether the programmes are actually effective in the development of practical skills.

To date, empirical studies have found some challenges to the implementation of vocational and technical education programme in Nigeria. (Elom and Okolie, 2014) recognized the challenges of teaching and learning of Basic Technology in public secondary schools and these challenges are stated to include inadequate workshop tools and materials, lack of adequate funds, and lack of effective teaching methods. Also, (Awe and Utoware, 2021) identified problems of lack of functional facilities, inadequate qualified teacher and lack of financial resources for the provision of quality vocational education in Public Secondary Schools in Lagos state. Uwameiye (2015) identified inadequate equipment, poorly maintained laboratory and instructional challenges as instances that impacted learning conditions during practical learning in Home Economics in Edo State. These shortages may limit students' ability to work with equipment and to perform occupational tasks and acquire skills that are expected to be acquired through occupational education. Thus if vocational subjects are present in the school curriculum this does not indicate that skills development is effective in practice.

The issues of inadequate and poor condition of educational facilities have also been noted in the Edo State, Egor Local Government Area where the study was conducted. A study by Ogbangwor (2021) on the challenges of vocational and technical education in public secondary schools in the area revealed the challenges of poor maintenance, poor facilities and overcrowding on teaching and learning. Despite evidence presented in this research about difficulties in the implementation of this programme in terms of resources, the study failed to assess all the resources needed for programme implementation comprehensively and the study was also conducted without assessing the effectiveness of vocational and technical education programmes in developing students' practical skills. Likewise, various studies have analyzed instructional materials and environment of teaching and learning in various educational environment without properly looking at the two aspects simultaneously in the public secondary schools of Egor LGA.

Hence, the limitation of context specific evidence on the availability of the resources necessary for implementing vocational and technical education programmes in public senior secondary schools in Egor Local Government Area and the effectiveness with which public senior secondary schools in this

area develop students' practical skills is the central problem of the study. In the absence of this evidence, it might be hard for educational administrators and policy makers to spot gaps in resources and pinpoint the areas in need of improvement in real life training. Hence, this study aimed at assessing the integration of the programme of vocational and technical education in public Senior Secondary schools in the Egor Local Government Area of Edo State in terms of available resources and the extent of effectiveness in developing students' skills practically.

Purpose of the study

1. Determine the adequacy of resources available for the implementation of vocational and technical education programmes in the senior secondary schools, Egor LGA, Edo state.
2. Assess the effectiveness of vocational and technical education programmes in developing students' practical skills in the senior secondary schools, Egor LGA, Edo state.

Research Questions

The study will be guided by the following research questions:

1 What is the level of adequacy of resources available for the implementation of vocational and technical education programmes in the senior secondary schools, Egor LGA, Edo state?
2 What is the level of effectiveness of vocational and technical education programmes in developing students' practical skills in the senior secondary schools, Egor LGA, Edo state?

Theoretical Framework

The foundational theoretical framework for this research is the Context, Input, Process and Product (CIPP) Evaluation Model developed by Daniel L. Stufflebeam in 1971, as outlined in Educational Evaluation and Decision Making, due to its systematic methodology for assessing the execution and efficacy of educational initiatives like vocational and technical education programs. The approach was developed to enhance educational evaluation methods by transcending the conventional focus on outcomes and investigating the elements that affect program efficacy. Stufflebeam established the CIPP model as an all-encompassing evaluation framework that aids in decision-making by evaluating a program's goals, resources, execution methods, and results.

The CIPP model elucidates that a comprehensive assessment of any educational initiative must take into account four principal dimensions: context, input, process, and product. Context assessment emphasises recognising the requirements, challenges, and goals that warrant the initiation of a program. In the context of vocational and technical education, this entails analysing the objectives of technical education initiatives, including the cultivation of employable skills, fostering self-sufficiency, and addressing labour market needs. Input assessment scrutinises the resources and methodologies necessary for program execution, encompassing the presence of competent educators, teaching materials, training sessions, apparatus, and financial support. Process evaluation examines the execution of the program in real-world settings, encompassing curriculum implementation, pedagogical approaches, hands-on training exercises, and oversight. Product assessment emphasises the results attained, including students' development of technical abilities, competencies, and preparedness for the workforce.

The significance of the CIPP assessment model in this research lies in its provision of a thorough framework for assessing the degree to which vocational and technical education programs at a technical institution are executed in alignment with their intended goals. The current research aims to assess program execution, and the model assists in identifying the availability of essential resources, the efficacy of the implementation procedures, and the attainment of anticipated results for students' practical skill development. Consequently, the CIPP model is suitable for directing the assessment of vocational and technical education programs as it takes into account both the factors facilitating program implementation and the outcomes generated by the program.

Methodology

The study adopted a descriptive survey research design to evaluate the implementation of vocational and technical education programmes in public senior secondary schools in Egor Local Government Area, Edo State, Nigeria. The design was considered appropriate because it enabled the researcher to

collect information from students regarding the adequacy of available instructional resources and their perceptions of the effectiveness of vocational and technical education programmes in developing practical skills. The target population comprised 5,270 students from 12 public senior secondary schools in Egor Local Government Area, Edo State, as reported by the Edo State Ministry of Education, Planning, Research and Statistics Department (2025/2026 academic session). A sample of 200 students was selected from four public senior secondary schools, namely Asoro Secondary School, Egoro Secondary School, Evbareke Secondary School and Uselu Secondary School. The four schools, which had a combined student population of 2,664, were selected from the 12 public senior secondary schools using simple random sampling. Systematic sampling was employed to select the student respondents from the selected schools.

Data were collected using a researcher-developed questionnaire titled *Vocational and Technical Education Programme Implementation Questionnaire (VTEPIQ)*. The instrument was designed in accordance with the objectives and research questions of the study. It comprised sections covering respondents' demographic information, the adequacy of resources available for programme implementation and the perceived effectiveness of vocational and technical education programmes in developing students' practical skills. The questionnaire items were structured using a four-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD), with corresponding scores of 4, 3, 2 and 1, respectively. The instrument was subjected to face and content validation by experts in Measurement and Evaluation to establish the clarity, relevance and appropriateness of the questionnaire items in relation to the study objectives. The internal consistency of the instrument was assessed using Cronbach's alpha reliability analysis, which yielded a coefficient of 0.77, indicating acceptable internal consistency.

Data collected were analysed using descriptive statistics, including frequencies, percentages and mean scores, to answer the research questions. The analysis focused on determining the adequacy of available resources and assessing students' perceptions of the effectiveness of vocational and technical education programmes in developing practical skills.

Results

A total of 200 questionnaires were administered to students in the selected public senior secondary schools in Egor Local Government Area, Edo State. The response frequencies supplied for the research questions indicate 183 responses, representing a provisional response rate of 91.5%. The data were analysed using descriptive statistics. Frequency counts and percentages were used to describe the demographic characteristics of the respondents, while mean scores and standard deviations were used to answer the research questions.

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of students in Edo State

Variable Name	Group	Frequency	Percentage (%)
Sex	Male	82	45.1
	Female	100	54.90
	Total	**182**	**100.0**

Source: Field Survey, 2026

The result of the respondents' demographic characteristics based on sex revealed that out of the 182 respondents who participated in the study, 82 (45.1%) were male, while 100 (54.9%) were female. This indicates that female respondents constituted the majority of the participants, although the distribution shows a relatively balanced representation of both sexes.

Research Question One: What is the level of adequacy of resources available for the implementation of vocational and technical education programmes in public senior secondary schools in Egor Local Government Area, Edo State?

Table 2: Mean Scores and Standard Deviations on the Adequacy of Resources for Implementing Vocational and Technical Education Programmes

Variable	SA (%)	A (%)	D (%)	SD (%)	Mean	Std. Dev.
The vocational and technical education programme has adequate instructional materials for effective teaching and learning.	42 (23.0)	61 (33.3)	52 (28.4)	28 (15.3)	2.64	0.99
The workshops and laboratories available for vocational and technical education are adequate for practical training.	31 (16.9)	54 (29.5)	63 (34.4)	35 (19.1)	2.44	1.01
The equipment and tools provided for vocational and technical education are adequate for students' practical activities.	27 (14.8)	49 (26.8)	67 (36.6)	40 (21.9)	2.34	1.00
The school has adequate qualified teachers for effective implementation of vocational and technical education programmes.	55 (30.1)	72 (39.3)	38 (20.8)	18 (9.8)	2.90	0.92
The funding provided for vocational and technical education programmes is adequate to support programme activities.	22 (12.0)	43 (23.5)	69 (37.7)	49 (26.8)	2.21	0.97
Total					**2.51**	**0.98**

The result of Table 2 revealed that resources available for the implementation of vocational and technical education programmes were moderately adequate, with an overall mean score of 2.51 and a standard deviation of 0.98. Respondents indicated that instructional materials were moderately adequate (Mean = 2.64, SD = 0.99), while qualified teachers were relatively adequate (Mean = 2.90, SD = 0.92). However, workshops and laboratories (Mean = 2.44, SD = 1.01), equipment and tools (Mean = 2.34, SD = 1.00), and funding (Mean = 2.21, SD = 0.97) were perceived as inadequate. The finding suggests that although some resources are available, challenges relating to practical facilities, equipment and funding may hinder effective implementation of vocational and technical education programmes.

Research Question Two: What is the level of perceived effectiveness of vocational and technical education programmes in developing students' practical skills in public senior secondary schools in Egor Local Government Area, Edo State?

Table 3: Mean Scores and Standard Deviations on Students' Perceptions of Programme Effectiveness in Developing Practical Skills

Variable	SA (%)	A (%)	D (%)	SD (%)	Mean	Std. Dev.
Vocational and technical education programmes improve students' ability to perform practical tasks related to their areas of study.	72 (39.3)	68 (37.2)	31 (16.9)	12 (6.6)	3.09	0.91
The programme enables students to acquire skills required for employment and self-reliance.	65 (35.5)	70 (38.3)	34 (18.6)	14 (7.7)	3.01	0.93
Students are given sufficient opportunities to practise technical skills during vocational and technical education lessons.	48 (26.2)	61 (33.3)	50 (27.3)	24 (13.1)	2.73	1.00
The programme improves students' confidence in applying technical knowledge to solve practical problems.	59 (32.2)	73 (39.9)	36 (19.7)	15 (8.2)	2.96	0.92

Students who participate in vocational and technical education programmes demonstrate improved occupational skills.	63 (34.4)	69 (37.7)	35 (19.1)	16 (8.7)	2.98	0.95
Total					**2.95**	**0.94**

The result of Table 3 revealed that respondents agreed that vocational and technical education programmes were effective in developing students' practical skills. Specifically, respondents agreed that the programmes improved students' ability to perform practical tasks (Mean = 3.09, SD = 0.91), enhanced skills required for employment and self-reliance (Mean = 3.01, SD = 0.93), provided opportunities for practical skill practice (Mean = 2.73, SD = 1.00), improved confidence in applying technical knowledge (Mean = 2.96, SD = 0.92), and enhanced occupational skills (Mean = 2.98, SD = 0.95). The overall mean score of 2.95 and standard deviation of 0.94 indicate that vocational and technical education programmes were effective in developing students' practical competencies.

Discussion of Findings

The findings revealed that the adequacy of resources for implementing Vocational and Technical Education (VTE) programmes in public senior secondary schools in Egor Local Government Area, Edo State, recorded a grand mean of 2.51, slightly above the criterion mean of 2.50. This indicates marginal perceived resource adequacy. Specifically, qualified teachers (M = 2.90) and instructional materials (M = 2.64) were considered relatively adequate, while workshops and laboratories (M = 2.44), equipment and tools (M = 2.34), and funding (M = 2.21) were perceived as inadequate. The item-level standard deviations, ranging from approximately 0.95 to 1.00, indicated some variation in respondents' opinions. These findings are consistent with (Awe and Utoware, 2021) and (Okolie et al., 2019), who identified inadequate facilities, equipment and funding as challenges affecting vocational education in Nigeria. The findings suggest that improving workshop facilities, equipment and financial support is necessary to strengthen practical training opportunities in the study area.

Furthermore, the findings revealed that respondents generally perceived VTE programmes as effective in developing students' practical skills, with a grand mean of approximately 2.96, exceeding the criterion mean of 2.50. Students positively rated their ability to perform practical tasks (M = 3.09), acquire employment-related skills (M = 3.02) and develop occupational competencies (M = 2.98). However, opportunities for practical training recorded the lowest mean (M = 2.73), suggesting a need for greater hands-on learning experiences. This finding agrees with (Okolie et al., 2020), who emphasised the importance of appropriate teaching strategies in developing vocational and employability skills. The findings suggest that although students perceive the programmes positively, improving access to practical training facilities could further enhance their learning experiences. However, these results reflect students' perceptions rather than independently measured improvements in practical skills.

Conclusion

The study evaluated the implementation of vocational and technical education programmes in public secondary schools in Egor Local Government Area of Edo State. The study established that while some resources, particularly qualified teachers and instructional materials, were available for programme implementation, challenges still existed in areas such as workshops, equipment and funding. The study also revealed that vocational and technical education programmes were effective in developing students' practical skills, improving their ability to perform technical tasks, acquire occupational skills and prepare for employment and self-reliance. However, strengthening resource provision and improving implementation conditions remain necessary to maximise the benefits of vocational and technical education programmes.

Recommendations

Based on the findings, the study recommends the following

1. The government should provide adequate funding for vocational and technical education programmes to support the procurement, maintenance and replacement of tools, equipment and instructional materials.

2. The Ministry of Education and relevant authorities should improve vocational education facilities by providing functional workshops and laboratories to enhance students' practical learning experiences.
3. Schools should ensure continuous professional development programmes for vocational and technical education teachers to improve their technical skills and teaching effectiveness.
4. Secondary schools should strengthen collaboration with industries and relevant organisations to provide students with practical exposure and workplace-related experiences.
5. School administrators should ensure effective monitoring and utilisation of available resources to improve the quality and implementation of vocational and technical education programmes.

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