

Strategies for effective Teaching and Learning Practical Skills in Technical and Vocational Education Programmes of Universities in South East, Nigeria

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Abstract

The study investigated strategies for effective teaching and learning of practical skills in Technical Vocational Education Programmes in Universities in the South East Nigeria. Four research questions were answered and three null hypotheses were tested at 0.05 level of significance. The population for the study was 370 lecturers in Technical Vocational Education Departments in the study area. The study adopted descriptive survey design. The entire population was used because of the manageable size of the population. Instrument for data collection was a questionnaire, duly validated by experts and the reliability tested, using Cronbach alpha method, which yielded a coefficient index of 0.79. The researchers and six assistants administered and retrieved the questionnaire. One hundred percent return rate was achieved. Mean was used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The Analyzed data identified seven pedagogical strategies, seven school administrative technique, seven physical materials strategies and six qualities of human resources strategies required for improving teaching and learning of practical skills in technical vocational education programme. However, there was no significant difference in the mean response of male and female lecturers of Technical Vocational Education on the techniques for improving teaching and learning of practical skills in technical vocational education programmes. It was recommended among others, that adequate number of qualified and skilled technical teachers with the right attitude should be employed in teaching the programme.

Keywords: Technical, Vocational, Teaching, Learning, Strategies and Practical skills.

Introduction

Economic growth and development are not possible through capital investment alone. Nations who invest in education can draw upon a mix of skilled workers, technicians, technologists and engineers, and research scientists to support and sustain their socio-economic development efforts. Vocational training is one strategy to build human assets and capabilities, especially for the youths. Technical and vocational education and training (TVET) is a key instrument of any public policy aimed at socio-economic development, employment generation and poverty alleviation.

Technical and vocational education (TVE) has been recognized the world over for preparing its recipients for skillful performance on practical tasks and empowerment. It involves the acquisition of practical skills and competencies that can help people to function productively in industrial and commercial occupations (Wapmuk, 2011).

Technical Vocation Education is the functional education that provides people with skills, knowledge and attitudes for effective employment in specific occupation. According to United Nations Educational, Scientific and Cultural Organization (UNESCO, 2005), TVE is a comprehensive term refereeing to those

aspects of the educational process involving, in addition to general education, the study of technologies and related science, the acquisition of knowledge, practical skills and attitudes relating to occupations in various sectors of economic and social life. TVE is further understood as an integral part of general education; a means of preparing for occupational fields and for effective participation in the world of work; an aspect of lifelong learning and preparation for responsible citizenship; an instrument for promoting environmental sound and suitable development; and a method of alleviating poverty. The objectives of TVE as stated by the Federal Republic of Nigeria (FRN, 2013) in her national policy on education are to: provide trained manpower in applied science, technology and commerce particularly at sub-professional level, provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development, produce people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man, give an introduction to professional studies in engineering and other technologies, give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant; and finally enable young men and women have an intelligent understanding of the increasing complexity of technology.

From the above laudable objectives it can be asserted therefore that of TVE enables people to become active citizens who contribute positively to the well-being, economic growth and technological development of the society. However, it implies that the rationale for training students in these trades is to impart or rather for the acquisition of knowledge, attitudes and practical skills that are marketable and lucrative for a sustainable development. Therefore, to impart these qualities in any individual, effective teaching strategy or techniques must be employed during the teaching and learning process. Teaching in general context has often been referred to as an occupation, enterprise and an act of explaining, reading and writing (Suleiman & Nuhu, 2009). Though, this basic definition of teaching also

applies to the regular classroom setting in technical and vocational education programme.

In the teaching of practical skills, there are various teaching methods and techniques available to be adopted, just as in all other fields and to all teachers; the most appropriate teaching methods to adopt in teaching technical and vocational skills should be that which can motivate the students and sustain their interest in the course of instruction (Yinusa, 2014). Furthermore, in terms of practical skills acquisition, it is very appropriate to adopt a teaching method that can bring out the manufacturing process and exploration of materials into the classroom situation (Yinusa, 2014).

An effective teaching strategy is believed to be a source of critical thinking or inspirational disposition on the part of the students (Johannesse, 2012as cited in Yinusa, 2014). That is, teaching strategies utilized by teachers in technical and vocational education programme must also improve in line with the changing needs of the contemporary society (Okoye, 2010). The technical and vocational skills teacher is expected to possess adequate and sufficient practical experience necessary for imparting the skills to the learners through the use of appropriate teaching methods. In the opinion of Olaitan, Ali, Eyo, & Sowarde (2000), Practical skills on the other hand is seen as a well-established habit of performing task in a manner acceptable by workers in the profession. In the view of Osinem and Nwoji (2005), Practical skills referred to the ability of a person to perform an act expertly. Continuing the author stated that, it is therefore expertness, practices ability or proficiency displayed in the performance of the task. In the context of this study, skills are those abilities and resources that are required by teachers for effective teaching and learning of practical skills in Technical Vocational Education Programmes in Universities in the South East Nigeria.

In Nigeria, the national policy on education (2004) places considerable emphasis on vocational and technical education, practical skills acquisition and lifelong learning. It emphasizes on the study of technologies and related science, and the acquisition of practical skills, attitudes and knowledge relating to occupation in various sectors of the economic and social life. That is why Ubong & Oguzor

(2007) maintained that teachers and schools teaching technical courses should emphasize on the practical aspects of the different specialties for the technical and vocational education. The implication of this is that technical and vocational education gives attention to the material and human resources development. For the objectives of technical and vocational education to be achieved, it becomes necessary that prevocational education be properly taught and its interest sustained in students. Hence, the need for effective teaching and learning practical skills in technical vocational education programmes in South East universities, Nigeria.

Statement of the Problem

No nation can compete effectively in the emerging global marketplace with poorly educated and unskilled workers. However, Technical vocational education is a skill oriented programme whose graduates are expected to be self-employed or set – up their businesses after graduation but rather than being self-employed or set up businesses in the area they were trained many have turned to what is popularly known today as “Jobless in themselves” while others become hawkers in cities.

However, it has been observed that the objectives have not been achieved over the years. This is because the graduates of vocational technical education still roam the street joblessly. Unemployment among youths appears to be shooting up the sky (Victor, 2006) and this may be due to little or no skill acquired by the students during training in technical colleges. Therefore, the importance of a survey on identification of good strategies for effective teaching and learning practical skills in technical vocational education programmes in South East universities, Nigeria cannot be over emphasized.

Purpose of the Study

The general purpose of this study was to determine strategies for effective teaching and learning practical skills in technical vocational education programmes of universities in South East, Nigeria. Specifically, the objectives of the study were to determine:

1. pedagogical strategies for effective teaching and learning practical skills in

technical vocational education programmes

2. school administrative strategies for effective teaching and learning practical skills in technical vocational education programmes
3. physical materials required for improving practical skills in technical vocational education programmes.
4. quality of human resources required for improving practical skills in technical vocational education programmes.

Research Questions

The following questions guided the study;

1. What are the pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes?
2. What are the school administrative strategies for effective teaching and learning practical skills in technical vocational education programmes?
3. What are the physical materials required for improving practical skills in technical vocational education programmes?
4. What are the quality of human resources required for improving practical skills in technical vocational education programmes

Hypotheses

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

1. There is no significant difference in the mean response of male and female lecturers of Technical Vocational Education on the pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes
2. There is no significant difference in the mean response of male and female lecturers of Technical Vocational Education on the school administrative strategies for effective teaching and learning practical skills in technical vocational education programmes

3. There is no significant difference in the mean response of male and female lecturers of Technical Vocational Education on the physical materials required for improving practical skills in technical vocational education programmes.

Methodology

The study adopted descriptive survey research design. This design was considered suitable because the opinion of a representative sample of respondents was sought using questionnaire and the finding was generalized on the entire population. The population for the study consisted of all the lecturers of technical vocational education programmes of universities in South East, Nigeria, numbering about 370 lecturers; there was no sampling because of the manageable size of the population. The instrument for data collection was questionnaire titled: Effective Teaching and Learning Practical Skills in Technical Vocational Education Programmes (ETLPSTVET). The questionnaire was developed from literature by the researchers and

used for data collection. The instrument was a four point response scale of strongly agreed (SA), Agreed (A), Disagreed (D) and Strongly disagreed (SD) with corresponding values of 4, 3, 2, and 1 respectively.

The instrument was face – validated by three experts: Two from Department of Vocational Education from Agricultural and Home Science Department- Michael Okpara University of Agriculture, Umudike and one from Measurement and Evaluation Department- Michael Okpara University of Agriculture, Umudike. Their corrections and suggestions were utilized to improve the initial copies of the questionnaire to produce the final copies. Cronbach Alpha reliability method was adopted to determine the internal consistency of the questionnaire items. A Cronbach Alpha coefficient of 0.79 was obtained and the collected data was analyzed using mean for research questions and t-test was used for the test of hypotheses. Any mean response of 2.50 and above was considered positive or required while any mean response below 2.50 was considered negative, more so the hypothesis will be tested at 0.05 level of significant.

Result

Table 1: Mean Ratings of Lecturers on the Pedagogical Strategies for Effective Teaching and Learning Practical Skills in Technical Vocational Education Programmes

S/N	Teaching methodology strategies	Mean	SD	P-value	Decision
1	Monitoring and giving of practical exercises to student in other to check their level of knowledge should be encouraged.	3.81	.39	.73	Agreed, NS
2	Problem solving skills should be developed in students as a methodology in teaching technical vocational education programmes	3.44	.55	.66	Agreed, NS
3	Cordial relationship should be established between teachers and students of technical vocational education programmes	3.72	.72	.39	Agreed, NS
4	Assessment of practical should be based on 40% and 60% theory in technical vocational education programmes	3.00	.94	.92	Agreed, NS
5	Students' problems should be identified at the end of every lesson	3.32	.46	.84	Agreed, NS
6	Different teaching methods such as discussion method should be used.	2.98	.64	.90	Agreed, NS
7	Participation should be encouraged among student in project work in technical vocational education programmes	3.04	.72	.39	Agreed, NS

S= Significant, NS= Not Significant and $P \geq 0.05$

The Data presented in Table 1 show the mean rating of lecturers on the 7 items had

their ranged from 2.98 – 3.81 were all above the cut-off value of 2.50 on a 4-point rating scale. These however indicated agreement. Therefore, the mean of 2.98 – 3.81 show that the

lecturers of technical vocational education are in agreement with the identified pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes. The standard deviation of all the 7 items ranged from .39 to .94, which showed that the respondents were not too far from the mean and from the opinion of one another in their responses on the identified pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes.

The p-values on all the items were all greater than the alpha-value of 0.05. With this, the null hypothesis of no significant different was not rejected for the seven items. Which means there is no significant difference in the mean response of male and female lecturers of Technical Vocational Education on the pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes

Table 2: Mean Ratings of Lecturers on the School Administrative Strategies required for Effective Teaching and Learning Practical Skills in Technical Vocational Education Programmes

S/N	School administrators Techniques	Mean	SD	P-value	Decisions
1	Giving awards to best technical vocational education students	2.99	.40	.71	Agreed, NS
2	Regular hosting Attendance to technical vocational education shows	2.68	1.36	.42	Agreed, NS
3	Give attention to technical vocational education students' Challenges or problems confronting them	2.96	1.45	.83	Agreed, NS
4	Regular supervision of technical vocational education work in schools	2.96	.92	.72	Agreed, NS
5	Maintaining official relationship between the teachers and students for effective technical vocational education practical	3.36	.80	.84	Agreed, NS
6	Involving the parents' teachers Association in major practical decisions	3.48	.54	.76	Agreed, NS
7	Providing adequate technical vocational education instructors to support teachers for students' practical	2.82	.78	.69	Agreed, NS

S= Significant, NS= Not Significant and P≥ 0.05

The Data presented in Table 2 show the mean rating of lecturers on the 7 items had their ranged from 2.68 – 3.40 were all above the cut-off value of 2.50 on a 4-point rating scale. These however indicated agreement. Therefore, the mean of 2.68 – 3.48 showed that the lecturers of technical vocational education are in agreement with the identified school administrative strategies required for effective teaching and learning practical skills in technical vocational education programmes. The standard deviation of all the 7 items ranged from .40 to 1.45, which showed that the

opinions of the respondents were not too far from the mean and from one another in their responses on the school administrative strategies required for effective teaching and learning practical skills in technical vocational education programmes.

The p-values on all the items were all greater than the alpha-value of 0.05. With this result, the null hypothesis for the items was accepted. This means that there is no significant difference in the mean response of lecturers of technical vocational education on the school administrative techniques required for effective teaching and learning practical skills in technical vocational education programmes.

Table 3: Mean Ratings of Lecturers on the Physical Materials Strategies required for improving Practical Skills in Technical Vocational Education Programmes

S/N	School administrators Techniques	Mean	SD	P-value	Decision
1	Having accurate information about the condition of the school facilities and the scale of funds needed for technical vocational education programmes	2.98	.40	.70	Agreed, NS
2	Adequate provisions of facilities for the teaching of vocational education programmes by private organizations or NGOs.	2.67	1.36	.41	Agreed, NS
3	Keeping the condition of the technical vocational education programmes practical building stock and resources under regular review	2.96	1.45	.83	Agreed, NS
4	Regular supply of computer text by local and state government for effective teaching of technical vocational education.	2.95	.92	.71	Agreed, NS
5	Involving the technical vocational education programmes practical facilities users in the management of the school plant	3.36	.80	.84	Agreed, NS
6	Programmed maintenance of technical vocational education programmes practical elements according to their different servicing, life cycles and environmental standards	3.48	.54	.76	Agreed, NS
7	Periodic improvements of the technical vocational education programmes practical building fabric to meet new health and safety requirements, improve energy efficiency, reduce fire risks, develop the environmental quality, etc	2.82	.78	.69	Agreed, NS

S= Significant, NS= Not Significant and $P \geq 0.05$

The Data presented in Table 3 show the mean rating of lecturers on the 7 items had their ranged from 2.68 – 3.40 were all above the cut-off value of 2.50 on a 4-point rating scale. These however indicated agreement. Therefore, the mean of 2.67 – 3.48 showed that the lecturers of technical vocational education are in agreement with the identified physical materials strategies required for improving practical skills in technical vocational education programmes. The standard deviation of all the 7 items ranged from .40 to 1.45, which showed

that the respondents were not too far from the mean and the opinion of one another in their responses on the lecturers of technical vocational education are in agreement with the identified physical materials strategies required for improving practical skills in technical vocational education programmes.

The p-values on all the items were all greater than the alpha-value of 0.05. With this result, the null hypothesis was not rejected. This means that there is no significant difference in the mean response of lecturers of technical vocational education on the physical materials strategies required for improving practical skills in technical vocational education programmes.

Table 4: Mean Ratings of Lecturers on the Quality of Human Resources Strategies required for improving Practical Skills in Technical Vocational Education Programmes

S/N	Governmental strategies	Mean	S	Decision
1	Adequate recruitment of technical vocational education teachers and Instructors	3.46	.56	Agreed
2	Appropriate channel of communication should be established between the teacher, students and their superiors	3.32	.61	Agreed
3	Scholarship programmes for training technical vocational education teachers should be established	3.47	.70	Agreed
4	Records of academic qualifications of teachers' should be kept properly for employment purposes	3.68	.47	Agreed
5	Staff developmental activities and programs should be planned and followed up.	3.29	.64	Agreed
6	Expert as practical resource teachers should be employed in the technical vocational education departments.	3.50	.66	Agreed

The Data presented in Table 4 show the mean rating of lecturers on the 6 items had their ranged from 3.29 – 3.68 were all above the cut-off value of 2.50 on a 4-point rating scale. These however indicated agreement. Therefore, the mean of 2.68 – 3.48 show that the lecturers of technical vocational education are in agreement with the identified human resources strategies required for effective teaching and learning practical skills in technical vocational education programmes. The standard deviation of all the 7 items ranged from .47 to .70, which showed that the respondents were not too far from the mean and the opinion of one another in their responses on the human resources strategies required for effective teaching and learning practical skills in technical vocational education programmes.

Discussion of Findings

The result in Table 1 showed the pedagogical strategies for effective teaching and learning practical skills in technical vocational education programmes, which the lecturers are in agreement with. The pedagogical strategies included among others; monitoring and giving of practical exercises to student in other to check their level of knowledge should be encouraged, problem solving skills should be developed in students as a methodology in teaching technical vocational education programmes, cordial relationship should be established between teachers and students of technical vocational education programmes, assessment of practical should be based on 40% and 60% theory in technical vocational education programmes and different teaching methods such as discussion method should be used. This finding is supported by the view of Etuk (2006) who remarked that cordial relationship should be established between teachers and students of technical vocational education programmes and students should be encouraged among student in project work in technical vocational education programmes. More so, the findings concurred with the result of Offorma (2007) who maintained that relating classroom activities to learner's life experiences, use of reinforcement, team teaching and active participation of the learners are strategies can motivate students' interest and hence make teaching effective.

The data presented in Table 2 showed the school administrative strategies for effective teaching and learning practical skills in technical vocational education programmes. The school administrative strategies included among others; giving awards to best technical vocational education students, scholarship programmes for training technical vocational education teacher should be established, involving the parents' teachers association in major practical decisions, providing adequate technical vocational education instructors to support teachers for students' practical and regular supervision of technical vocational education work in schools. This finding is in line with Etuk (2006) who also stated that school administrators namely principals and vice principals equip teachers with sound computing skills that will enable them to prepares students successfully for today information and knowledge driven economy and emphasis should be placed on recruitment of qualified technical vocational education teachers who are able to not only demonstrate sound technical vocational skills but are also able to use different teaching methods, carryout effective evaluation of learners through the use of continuous assessment means and use of group projects. Furthermore, the result is also in line with the finding of Eimuhi (2015) who opined that the school administrative should maintains a school tone and culture that create the climate of practical activities, coordinates curriculum implementation of practical work in the public schools, daily encouragement and support of staff/teachers.

The result in Table 3 showed the physical materials required for improving practical skills in technical vocational education programmes. The physical materials required included among others; having accurate information about the condition of the school facilities and the scale of funds needed for technical vocational education programmes, adequate provisions of facilities for the teaching of vocational education programmes by private organizations or NGOs, keeping the condition of the technical vocational education programmes, practical building stock and resources under regular review, programmed maintenance of technical vocational education programmes practical elements according to their different servicing, life cycles and environmental standards and

periodic improvements of the technical vocational education programmes practical building fabric to meet new health and safety requirements, improve energy efficiency, reduce fire risks, develop the environmental quality etc. The findings also agreed with the views of De Katele and Cherif (2004) who agrees that regular supply of technical vocational materials by local and state government for effective teaching of technical vocational education and involving the technical vocational education programmes practical facilities users in the management of the school plant helps in enhancing teaching and learning in schools. More so, the findings concurred with the result of Okoye (2010) who noted that for effective teaching and learning, there should be adequate support of all subjects curriculum implementation, keeping the condition of the technical vocational education programmes plants under regular review, facilitating home-school alignment and providing adequate input in the relevant teaching contexts of students.

The result in Table 4 showed the quality of human resources required for improving practical skills in technical vocational education programmes. The quality of human resources required included among others; adequate recruitment of technical vocational education teachers and Instructors, appropriate channel of communication should be established between the teacher, students and their superiors, scholarship programmes for training technical vocational education teachers should be established, Staff developmental activities and programs should be planned and followed up and expert as practical resource teachers should be employed in the technical vocational education departments. This finding is in line with Gary (2011) who asserts that the availability of quality human resources such as staffing, personnel management is necessary because of global competition, technological advancement, economic challenges and fast changing world of work and adequate teaching and learning. More so, the result also merged with the finding of Anka (2009) who stated in a media interview that for effective teachings in vocational and technical education, there should be necessary ingredients such as right teachers with the right attitudes and the right

qualification, adequate pedagogical strategies and teaching the right subjects.

Conclusion

Technical and vocational education has been recognized around the world as a tool for preparing its citizens for skillful performance in practical tasks and empowerment. For this to be achieved, effective teaching strategies should be employed. Also, both human and material resources must be quality and adequate and for effective skill training. Hence, the need for adequate strategies required for effective teaching and learning of practical skills in technical and vocational education programme in schools was discussed.

Recommendations

1. Adequate number of qualified and skilled technical teachers with the right attitude should be employed in teaching the programme.
2. Regularly embarking of the lecturers on excursion with students which will enhance their practical skills acquisition in technical and vocational education.
3. Apprenticeship system should be encouraged to give students firsthand practical experience.
4. Skills acquisition programme should be conducted for learners in technical and vocational institution by technical and vocational educationists.

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