



Teaching Methods Required by Woodwork Teachers for improving Students Practical Skills in Technical Colleges in Lagos and Ogun States, Nigeria

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Abstract. The study investigated teaching methods required by woodwork teachers for improving students' practical skills in technical colleges in Lagos and Ogun States. Three research questions guided the study and three null hypotheses were formulated and tested at .05 level of significance. The study adopted a survey research design. The population of the study is 68 woodwork teachers of 28 females and 40 males. The instrument used was a structured questionnaire and was validated by three experts in the Department of Industrial Technical Education, University of Benin, Benin City. The internal consistency of the instrument was determined using Cronbach's Alpha statistical tool and yielded a reliability coefficient of 0.81. The data collected were analyzed using mean ($\bar{x}$) and standard deviation (SD) to answer the research questions while independent t-test was used to test the analyzed hypotheses at 0.05 level of significance. The findings of the study showed that woodwork teachers required effective teaching methods for improving students' practical skills in technical colleges in Lagos and Ogun States. The study revealed that, there is no significant difference between the mean ratings of qualified and non-qualified, male and female woodwork teachers on the required teaching methods for improving students' practical skills in technical colleges. Based on the findings of the study, the researcher recommended that both Lagos and Ogun States governments should make efforts to provide in-service training programmes for woodwork teachers in the form of workshops, seminars, conferences and any other forms of training that will assist in improving their strategies for acquisition of required hands-on skill in technical colleges in Lagos and Ogun States.

Keywords: Teaching methods, Practical skills, and Technical Colleges.

1. Introduction

Vocational skills refer to an occupation or job which an individual gets involved in leading to recognition as an expert through experience which can be acquired through formal and non-formal education. In the formal setting, skills can be acquired through schools, such as the Technical Colleges, Polytechnics and Universities, while in non-formal setting skills are acquired through means such as vocational trade centres and apprenticeship schemes (Osuyi & Owenvbiugie, 2015). The use of vocational skills as a veritable tool for job, wealth creation and a means of survival and the preservation of the human race dates back to the beginning of human society. Skill acquisition has been a major concern of parents, business leaders, and educators in Nigeria regarding the existing skill gap between students of woodwork technology and the industry. Employers of labour have continually expressed their concerns over the dearth of skills among graduates of woodwork technology programme and skills required for employment. Therefore, the woodwork technology teachers who are responsible for the training and preparation of students for skills acquisition have great challenges in the cause of delivering their duties. Today's economy is full of sophistication with a lot of competition among job seekers all over the world and teachers of technical and vocational education must strive hard to ensure that students are given adequate and necessary foundation at the basic level for the purpose of self-reliance and national development (Ferguson, 2007).

According to Federal Republic of Nigeria (FRN, 2013) states that one of the goals of education in Nigeria is the development of appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute

positively to the society. Such knowledge, skills and attitudes are acquired through the training provided in basic, post-basic and career education. Okorie (2011) held that Technical Colleges in Nigeria are established to prepare individuals to acquire practical skills and basic scientific knowledge. However, Technical Colleges are specialized institutions of learning where trade and modular courses are offered in addition to general education and science subjects. It is a post-basic institution established by the Federal and State Governments to complement vocational education programmes at that level. Hence, the graduates of Technical Colleges are expected to be equipped with knowledge, understanding and skills that would make them to be either be employable in the industry or be self-employed (FRN, 2014). Technical Colleges were established with the mandate to improve on the skill acquisition as well as to encourage occupational development (Pugates, 2014). The relevance of practical skills development in contemporary Nigeria society cannot be underemphasized as it creates a workforce empowered with matching skills, knowledge and internationally recognized to gain access to employment and ensure competitiveness in the dynamic global market.

According to Dauda, Bello, Usman and Adewole (2020) teaching of technical competencies inherent in brick/blocklaying and concreting works can only be effective if the teacher in the trade area is knowledgeable in both theoretical and practical aspects of the trade. However, Orebanjo (2010) also reported good human resources particularly well trained, qualified and devoted teachers help students in various aspect of development in practical projects and skills acquisition in woodwork related services. Similarly, there are various methods of teaching technical trade programmes in Technical Colleges; woodwork trade is one of the trade modular programmes in Technical Colleges in Nigeria. Woodwork is the art of producing objects or projects from wood such as doors, windows, roofs, beds, cupboards, chairs and tables. Woodwork includes timber technology, safety rules in the workshops, tools and classification of materials such as nails, adhesives, fittings and their uses, preparation of timber, classification and construction of joints, forestry and products of trees, woodturning, repairs and maintenance of tools and equipment are the practical aspect of woodwork (Aliyu, 2014). The process of working with wood is called woodwork practice. Woodwork has areas of specialization such as; carpentry, joinery, cabinet making, furniture making, upholstery, coffin making among others.

The training of woodwork teachers is aimed, at imparting them with adequate knowledge and skills to guide and direct the learning activities in a woodwork trade area or subject. The woodwork teacher is equipped with technical skills, pedagogical knowledge and methodology of teaching technical subjects. However, due to the high expectations in the training of technical and vocational education students towards employment after graduation, there is also the need for competent and highly equipped technical teachers who possess practical skills and methodology for transferring such skills to the student at various stages (Maclean & Kerre, 2009). The main goal of teaching technical and vocational education and training (TVET) in Nigeria technical colleges are to prepare students for the world of work through the acquisition of theoretical and practical skills (FRN, 2014). However, the current teaching approaches adopted by most teachers are focused on rote learning and “memorization/regurgitation of facts” which have dominated the system of technical and vocational education in Nigeria (Oduolowu, 2017).

Teaching methods could be regarded as the process and procedures adopted by teachers to guide and prepare students through organized and planned learning activities for the purpose of accomplishing educational goals. In the same vein, Alseldiqi and Mishra (2010) postulated that, the teaching and learning processes in technical and vocational institutions is conducted using traditional way without injecting new approaches by the teacher which is actually depriving students of learning the right skills needed for self-employment. Therefore, for proper practical performance in woodwork trades, appropriate teaching strategies must be applied by teachers for teaching both the theory and practical aspects of woodwork trades. Teachers also need relevant woodwork tools and equipment for imparting practical skills to the students under their control. In the context of this paper, a woodwork teacher is one who gives instructions, communicate knowledge, skills and attitude in woodwork trades to students.

Qualified teachers of woodwork trades are individuals who have requisite teaching qualifications. A qualified teacher can be defined as one who holds a teaching certificate and/or licensed by Teachers Registration Council of Nigeria (TRCN) to teach. Such qualifications as, Nigerian Certificate of Education NCE (Technical), Bachelor of Science Education B.Sc (Ed), M.Ed, PGDE (Technical) and Ph.D in Education, while unqualified and non-professionals teachers of woodwork trades are persons who have no teaching qualifications such as National Diploma (ND), Higher National Diploma (HND) or Bachelor of

Science B.Sc and PhDs in other fields outside Education.

Experienced teachers or teaching experience is the time spent by a teacher in the teaching profession. A person with considerable experience can gain a reputation as an expert. Therefore, woodwork teachers that have served for ten years and above with regard to this paper are regarded as experienced teachers, while others with less than ten years are regarded as less experienced teachers.

Gender on the other hand, refers to the economic socio-political and cultural attributes and opportunities associated with male and female. The influence of gender in teaching and learning of woodwork trade for students' practical skills has been a major concern to educational researchers for long, yet no consistent result has emerged. However, male teachers seem to be more favourable in practical skills acquisition than their female counterparts.

According to Okoro in Auta (2015) teaching method in vocational technical education include demonstration, field trips and project-based method. Other teaching methods are Computer Assisted Instruction and Artificial Intelligence (AI). However, Nwachukwu (2011) describe the art of demonstration as a process of graphic explanation of selected ideas, facts relationship or phenomenon. The author explained the instances of proper timing (that is, when to present demonstration).

Another training strategy found effective in vocational and technical education is field trip. According to Olaitan, Nwachukwu, Igbo, Onyenachi and Ekong in Oseni (2022) asserted that field trip training model exposes the learner to practical experience in their occupations using different locations and experiences. Field trips help students appreciate the relevance and importance of what they learnt in the classroom. Field trip as a teaching method mainly focuses on firsthand information objects, places, people or process, to enrich, extend, validate or vitalize information from printed materials and other sources, or to try to uncover entirely new data (Nwachukwu, 2011). Thus, it is imperative to determine the teaching methods, required by woodwork teachers for improving students' practical skills in technical colleges in Lagos and Ogun States.

1.1 Statement of the Problem

The performance of technical college students in woodwork technology practice in Nigeria might be faced with some challenges like lack of improved

practical skills among the woodwork technology teachers, inappropriate teaching methods for conducting practical projects, non-qualified woodwork teachers among others. Technical Colleges produce craftsmen who constitute the lower manpower needed in the country's industries. However, observation has shown or revealed that graduates of technical colleges in Nigeria are not readily employed due to dearth of practical skills among the students. This could be as a result of inappropriate teaching methods used by teachers for conducting practical lessons or workshop practices. Also, it is perceived that the poor performance of woodwork technology students in National Business and Technical Examination Board (NABTEB) Examination in practical examination was not encouraging especially in Lagos and Ogun States. Abdullahi (2010) attributed students' lack of practical skills necessary to develop and manage their career lives to the growing gap that exist between students, school and the real world of work. It is therefore, noteworthy that improved practical skills and appropriate use of teaching methods by woodwork teachers could contribute to effective performance of woodwork students in practical skills in technical colleges in Lagos and Ogun States.

1.2 Purpose of the Study

The main purpose of the study was to determine the teaching methods required by woodwork teachers for improving students' practical skills in technical colleges in Lagos and Ogun States. Specifically, the study assessed the following:

- Demonstration teaching method for students' practical skills in woodwork trades in technical colleges.
- Field Trip method of teaching strategy for improved students' practical skills in woodwork trades in technical colleges.
- Project Based method of teaching practical skills for improved students' practical skills in woodwork trades in technical colleges.

1.3 Research Questions

The following research questions guided the study:

- Does demonstration teaching method improve students' practical skills in woodwork trades in technical colleges?
- How does field trip teaching method improve students' practical skills in woodwork trades in technical colleges?

- Does project based teaching method improve students' practical skills in woodwork trades in technical colleges?

1.4 Hypotheses

The following null hypotheses were formulated and tested at .05 level of significance.

- There is no significant difference in the mean ratings of (qualified and unqualified) woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.
- Significant difference does not exist in the mean ratings of experienced and less experienced woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.
- There is no significant difference in the mean ratings of male and female woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.

2. Research Methodology

The descriptive survey design was adopted for the study. A structured questionnaire was used for the

collection of data. The response option of the questionnaire were based on a 4-point rating scale of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree = 2, Strongly Disagree (SD) = 1. The population of the study comprised both qualified and unqualified, experienced and less experienced, male and female teachers of woodwork teaching in the technical colleges in Lagos and Ogun States. A total of 68 teachers of woodwork trades were used for the study. The instrument was validated by three experts in the Department of Industrial Technical Education, Faculty of Education, University of Benin, Benin City. The reliability of the instrument was ascertained using Cronbach Alpha Statistical method and yielded a reliability coefficient of 0.81 which was considered reliable for the study. Copies of the instrument were thereafter administered on the respondents and data collected were analyzed using Mean ($\bar{x}$) and Standard Deviation (SD) to answer the research questions while t-test statistics was used to test the null hypotheses at .05 level of significance. The decision rule was based on any calculated item with a Mean ($\bar{x}$) response equal or above 2.50 is considered as agreed while any calculated item with a mean ($\bar{x}$) response of less than 2.50 was regarded as disagreed. For hypotheses testing, the probability value (p) was used, if the p-value was less than or equal to .05, the null hypothesis was rejected, but if p-value was greater than .05 the null hypothesis was retained.

3. Presentation of Results

Research Question 1: Does demonstration teaching method improve students' practical skills in woodwork trades in technical colleges?

Table 1: Mean and standard deviation on demonstration method improves students' practical skills in woodwork trades in Technical Colleges.

S/N	Item Statements	Mean ($\bar{x}$)	Standard	Remark Deviation (SD)
1.	Using student-centred teaching style for teaching woodwork trade	3.41	0.55	Agree
2.	Teacher should first demonstrate the lesson in the presence of their students	3.51	0.80	Agree
3.	Allowing each student to demonstrate what has been learnt after each lesson	3.07	0.79	Agree
4.	The equipment and materials to be used must be organized at the place where demonstration is to take place.	3.36	0.82	Agree
5.	Using intelligent students to teach other students some woodwork concept.	3.08	0.55	Agree
6.	The topic chosen should fit and arouse the interest of the learner.	4.42	0.48	Agree
7.	Planning details demonstration on paper	3.61	0.74	Agree
8.	Outline the demonstration procedures, introduction, body and summary.	3.07	0.53	Agree
9.	Use key words that is necessary to get the lesson across to the learner in your practical model visual.	3.48	0.67	Agree
10.	Allowing each student to demonstrate what has been learnt after the lesson.	2.70	0.66	Agree
11.	A title should suggest the demonstration subject without telling the whole story.	2.73	0.48	Agree
12.	A neat well-groomed appearance is important.	2.61	0.50	Agree
13.	Arrange equipment and supplies neatly in order of how you would use them and practice the visual model severally prior to demonstration.	2.61	0.50	Agree
14.	Always measure with measuring tape the dimensions in front of your students.	3.58	0.55	Agree
15.	Give room for question and suggestions from the class.	3.49	0.48	Agree
Grand Mean		3.16	0.65	Agree

Table 1 above reveals the extent to which demonstration teaching method improves students' practical skills in technical colleges in Lagos and Ogun States. The respondents rated items 1 to 15 as agreed with a mean rating from 2.51 to 3.61 while the standard deviation also ranges from 0.48 to 0.82. The grand mean indicates a mean of 3.16 which is greater than the benchmark mean of 2.50. Thus, it can be seen that the respondents agreed that demonstration teaching method improves students' practical skills in technical colleges in Lagos and Ogun States.

Research Question 2: How does field trip teaching method improve students' practical skills in woodwork trades in technical colleges?

Table 2: Mean and standard deviation on the field trip teaching method improve students' practical skills in woodwork trades in technical colleges.

S/N	Item Statements	Mean ($\bar{x}$)	Standard	Remark Deviation (SD)
16.	Visiting woodwork technology industries at the end of each lesson for better understanding of some woodwork concepts	5.54	0.53	Agree
17.	Field trips is as effective method of teaching since it helps students acquire useful skills and knowledge.	3.48	0.50	Agree
18.	Field trips sharpens students' observational abilities and helps elicit their interest.	3.45	0.51	Agree
19.	Field trips is useful in developing all senses of students.	3.44	0.53	Agree
20.	Things can be observed and studied through field trip e.g. woodwork machines.	3.57	0.49	Agree
21.	Experienced gained during field trips can motivate students to read and construct models with information gathered from textbooks.	3.50	0.50	Agree
22.	Allowing students to teach themselves the acquired practical skills after the trip what has been learnt after the lesson.	3.51	0.50	Agree
		2.70	0.66	Agree
Grand Mean		3.49	0.50	Agree

Data presented in Table 2 show the mean and standard deviation of the respondents to what extent field trips teaching method improves students' practical skill in woodwork trades in technical colleges.

Research Question 3: Does project based teaching method improve students' practical skills in woodwork trades in technical colleges?

Table 3: Mean and standard deviation on the extent project-based teaching method enhances students' practical skills in woodwork trades in technical colleges.

S/N	Item Statements	Mean ($\bar{x}$)	Standard	Remark Deviation (SD)
23.	Allowing students to engage themselves in practicing what they learned from project.	3.43	0.50	Agree
24.	Using well equipped and organized workshop for practical	3.46	0.50	Agree
25.	Using modern hand tools for teaching during practical class.	3.37	0.57	Agree
26.	Grouping students into small groups during practice and monitoring.	3.50	0.50	Agree
27.	Emphasis should be laid on how to use a particular tool/equipment/machine.	3.53	0.56	Agree
28.	Always inviting woodwork experts to give lectures to students on practical innovations and skills.	3.66	0.48	Agree
29.	Always teaching practicals in a well-organized and equipped workshop.	3.50	0.50	Agree
30.	Project can be prepared by the students and placed on display.	3.41	0.67	Agree
31.	Giving project works model to students constructed at the of the lesson	1.90	0.93	Agree
Grand Mean		3.31	0.58	Agree

Data presented in Table 3 show the mean and standard deviation of the respondent to project based teaching method enhances students' practical skills in woodwork trades in technical colleges. The results further revealed that the respondents agreed on the items 23, 24, 25, 26, 27, 28, 29 and 30. But they disagreed that giving work model to students to construct at the end of each lesson attracted a mean of 1.90 and a standard deviation of 0.93. However, with a grand mean of 3.31 revealed that the respondents agreed that project-based teaching method enhances students' practical skills in woodwork trades in technical colleges in Lagos and Ogun States.

Research Hypothesis 1: There is no significant difference in the mean ratings of (qualified and unqualified) woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.

Table 4: Independent sample t-test on difference in mean ratings on qualified and unqualified woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges.

Qualification Of teachers	N	($\bar{x}$)	Std Deviation	Df	t-test	Sig	Remark
Unqualified	28	217.53	6.03	66	-0.05	0.96	Ho is
Qualified	40	217.62	7.75				accepted

Table 4 shows the independent sample t-test on the difference in the mean rating between qualified and unqualified woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges. It can be seen that the degree of freedom df is 66 and the t-test value is 0.05 and level of significance is 0.96 which is greater than the set alpha level of 0.05. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the mean rating between qualified and unqualified woodwork teachers on particular teaching method to be adopted in teaching woodwork.

Research Hypothesis 2: Significant difference does not exist in the mean ratings of experienced and less experienced woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.

Table 5: Independent sample t-test on difference in mean ratings on less experienced and experienced woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges.

Experience of Teachers	N	($\bar{x}$)	Std Deviation	Df	t-test	Sig	Remark
Less Experience	29	217.17	7.94	66	-0.41	0.67	Ho is accepted
Experienced	39	217.89	6.38				

Table 5 shows the independent sample t-test on difference in the mean ratings between experienced and less experienced woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges. It can be seen that the degree of freedom is 66 and t-value is -0.41 and level of significance is 0.05. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the mean ratings of less experienced and experienced woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges.

Research Hypothesis 3: There is no significant difference in the mean ratings of male and female woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges.

Table 6: Independent sample t-test on difference in mean ratings of male and female woodwork teachers on any teaching method to be used for teaching woodwork trades in technical colleges.

Gender of Teachers	N	($\bar{x}$)	Std Deviation	Df	t-test	Sig	Remark
Male	39	216.69	6.66	66	-1.22	0.22	Ho accepted
Female	29	216.79	6.38				

Table 6 shows the independent sample t-test on difference in the mean rating between male and female woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges. It can be seen that the degree of freedom is 66 and t-value is -1.22 and level of significance is 0.22 which is greater than the set alpha level of 0.05. Thus, the null hypothesis is accepted. This shows that there is no significant difference in the mean rating between male and female woodwork teachers on particular teaching method to be adopted in teaching woodwork trades in technical colleges.

4. Discussion of Findings

Study findings for research question one revealed that respondents agreed that demonstration method is

required by woodwork teachers to improve students' practical skills in technical colleges in Lagos and Ogun States. This is corroborated by Nwoke (2019) who pointed out that vocational and technical education is concerned not just about teaching and learning, it is also concerned with producing things that have utility household items, implement, clothing, shelter, food among others for human sustenance. Demonstration method is useful mostly in imparting psychomotor skills and lessons that requires practical knowledge. The gains of using demonstration method in teaching lies in the fact that it bridges the gap between theory and practical, enables learners to become good observers and generate their interest and students see immediate progress as a result of a correct effort and it enables the teachers to teach manipulative and operational skills.

In terms of research question two, the study revealed that the respondents agreed that field trip method is required by woodwork teachers to enhance students' practical skills in technical colleges in Lagos and Ogun States. In view of this, Olaitan, Nwachukwu, Igbo, Onyemachi and Ekong in Oseni (2022) explained that field trip training model exposes learners to practical experience in their occupation using different locations and experiences. The findings is in line with Akubuilu (2010) who noted that field trip is a method of teaching that involves taking the students on an excursion outside the classroom for the purpose of making relevant observation necessary for understanding of the topic under study.

For the project-based method, the participants agreed that allowing students to engage themselves in practicing what they learned from projects using modern hand tools for teaching, using well equipped workshops for practicals among others promotes practical skills in students. Hence, with a ground mean that is higher than the benchmark means the respondents agreed that project-based method is required by woodwork teachers to enhance students' practical skills in technical colleges. This is supported by Nwachukwu (2010) who remarked that technical education project are regarded as concrete evidence of students' accomplishment of his/her educational achievement and as an investment, and that often people judge the worth of a programme by the number and quality of project completed.

The hypothesis tested revealed that there was no significant difference in the mean responses of qualified and unqualified woodwork teachers on particular teaching to be adopted in teaching woodwork. This finding corroborates Filgona, Sababa and Filgona (2016) whose study revealed that there is no significant difference between qualified and unqualified teachers on technical competency. However, the study's finding contradicted Ichazu and Omoregie (2020) study, whose study investigated the influence of teachers' qualification on students' academic performance in senior secondary school Chemistry and found out that there is a significant difference existing between the qualified and non-qualified teachers' competencies impacting on students' academic performance in senior secondary school in Chemistry.

Hypothesis two stated that there is significance in the mean responses between experienced and less experienced woodwork teachers on particular teaching method for teaching woodwork trades in technical colleges. The finding on this method corroborated Alhassan and Aede (2020) whose study investigated

professional competence for technical and vocational education training teachers at technical colleges in Niger State and found that there is no significant difference between experienced and inexperienced teachers on the needed competences.

Results from hypothesis three revealed that, there was no significant difference between male and female woodwork teachers on any particular teaching method to be used for teaching woodwork. The finding of this study corroborates Ibrahim, Adisa, Abdulkadir and Nene (2013) study on gender inequality in the performance of bricklaying and blocklaying skills. In all, these mean that qualification, experience and gender of teachers did not influence the mean responses of woodwork teachers on particular teaching method to be adopted in teaching woodwork.

5. Conclusion

Based on the findings of the study, it is concluded that this study has shown that the participants agreed that demonstration teaching method is required by woodwork teachers to enhance students' practical skills in woodwork trades. Similarly, field trip and project-based teaching methods are highly required by woodwork teachers for practical skill acquisition. Also, the study revealed that qualification of the teachers, experience and gender of the teachers did not influence the mean responses of woodwork teachers on the particular teaching method to be adopted in teaching woodwork trades in technical colleges in Lagos and Ogun States.

6. Recommendations

Based on the findings of the study, the following recommendations are made:

- The identified strategies required improvement needs for teachers of woodwork to form the basis for in-service training programme to be organized by the training institutions.
- Curriculum planners should use the identified strategies improvement needs in planning and developing the curriculum content of the in-service training programme.
- Government should make efforts to provide enough in-service training programmes for woodwork technology teachers. Such in-service training programmes should be in the form of a worksop, post graduate programmes, seminars, conferences and other forms that will assist the teachers of

woodwork in improving their practical skills acquisition strategies.

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