

Effect of Podcast and Demonstration Method on General Woodwork Students Learning Outcome in Technical Colleges in North-Central, Nigeria

Dr. Stephen Musa Daniel, Jonathan Danladi, Nehemiah Udu, El-Mahmud Mohammed, Muhammed Aliyu Vatsa, Abdulrahman Mohammed Muroro

School of Technical Education Umaru Sanda Ahmadu College of Education Minna Niger State

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ABSTRACT

The study determined the effects of podcast and demonstration methods on students learning outcomes in general woodwork in technical colleges in North-central Nigeria. The study adopted a quasi-experiment research design was used in this study. The study was conducted in the North-central geo-political zone of Nigeria with the total population of 1013 students. A two-stage simple random sampling technique and purposive sampling technique was used in the study. In the first stage, the simple random sampling technique was used to select 12 technical colleges from the list of 29 in the geo-political zone which gives the total sample size of 430 students. Two instruments were used in this study and they are: Woodwork Achievement and Retention Tests (GWWART) and General Woodwork Interest Inventory Test (WWIIT). The instruments for collection of data for the study and the lesson plans were validated by three experts from the Department of Industrial and Technology Education, Federal University of Technology Minna. Data were collected and analysed as follows: Mean and Standard deviation was used to answer all the research questions while hypotheses formulated for the study and was tested using analysis of covariance (ANCOVA) at $p < 0.05$ level of significance. Findings from the study revealed that Podcast and demonstration method are effective in improving students' achievement in GWW but demonstration method is more effective on students' achievement in GWW than podcast method, there was an effect of interest on the achievement of students taught GWW with podcast and demonstration method but demonstration method was more effective than podcast and podcast and demonstration method are effective in improving students' academic retention in GWW but demonstration method is more effective on students' academic retention in GWW than podcast method. Based on the findings from the study, it was recommended among others that, General woodwork teachers should adopt demonstration method to teach students at technical colleges to enhance student's academic achievements and retention in GWW and regular workshop and seminar should be organized for GWW teachers by Federal and State Ministries of Education on the needs for the teachers to use demonstration method

Keywords: Podcast, Demonstration Methods, Students learning outcomes, General Woodwork, Technical colleges, Achievement and Retention

INTRODUCTION

Technical colleges are institution design to prepare the individual (learner) with scientific knowledge and skills leading to gainful employment. The Nigeria Technical Colleges are educational institutions established with the aim of training students to acquire appropriate vocational skills, knowledge, attitudes, habits of thoughts and qualities of character that enable them develop their intellectual, social, physical, emotional and economics capabilities to becomes self-reliant and contribute to National economic growth and development (Okolie, *et al.*, 2019). In order to ensure the aim and objectives of establishing technical colleges and vocational training centres are fully achieved, the Federal Government of Nigeria in 1977 set up National Board for Technical Education (NBTE). NBTE as regulatory agency has major mission of providing enabling environment where proper quality information and aptitudes in Science, Technical and Vocational Education would be procured for academic and important living. The Board was empowered to coordinate the activities of both technical and vocational training

centres by setting standards for these schools in terms of facilities, teaching manpower and accreditation of courses and to guarantee that both technical and Vocational Schools fit in with the State Policy on the set down requirements and standards. The courses offered at these technical colleges and vocational training centres includes general subjects such as mathematics, English languages, social studies, civic education, basic science and religion studies. While trade areas include: Motor Vehicle Mechanics, Blocklaying and Concreting, Computer Craft Studies and woodwork trades among others, and these trade areas are the subject related trade general woodwork (NBTE, 2020).

General woodwork is one of the subject related trades in technical and vocational education. According to Oviawe (2021) it is a skill-oriented subject related trade offered in technical colleges in Nigeria that prepares the learner with knowledge and skills in the art and craft of woodworking and further equips the individual with the necessary skills for self-enterprising and as skilled craftsmen in the wood-base industries. According to Okolie, *et al*, (2019) the skill areas of general woodwork technology include carpentry and joinery, upholstery, wood machining and furniture making. The combination of furniture making, machining, upholstery and cabinet making are offered in technical colleges as General woodwork. It is design to provide the students with general knowledge and skills in woodwork aiming at preparing the individual for self- enterprising. This is in line with aim of establishing the technical colleges.

In understanding the aim of Federal Government of Nigeria in preparing the individual for useful living and for further studies in higher education, General woodwork students are still lacking the required knowledge and competencies to perform the expected roles in the General woodwork workshop due to their inability to mark out and construct simple woodwork joint, interpret drawing and proper use of hand tools (Oviawe, 2021). However, the persistent poor academic achievement as well as the retention in General woodwork and other technical subjects are as a result of the inappropriate teaching method adopted by teachers (Ogbuanya *et al.*, 2017). These means that for good quality teaching and learning at technical colleges, the use of appropriate instructional method of teaching like information and communication technology (ICT) that will likely increase students achievement, retention, interest, ability level, involvement and commitment in learning should be adopted, as this may enhance the cognitive or intellectual abilities of the students towards the acquisition of appropriate work skills, abilities and competences for the individual to live and contribute to the development of the society. Akude and Ajuzie (2021) view ICT as videos, Television, Multimedia and Computer software which combines text, sound and colourful moving images used to provide challenging and authentic contents that will engage students in the learning process. Thus, the teachers can make their teaching more attractive not only by using lecture method, demonstration method among others but also by using ICT gadgets that are rich in learning materials in the form of digital textual, pictures, screencast, projector, charts, models, video and podcast.

Podcast is a digital media file or services of file that is distributed over the internet using syndication feeds for play back on portable media players and personal computer. According to Stajka (2019) podcast is an audio or visual contents that are automatically delivered over a network via free subscription. Once subscribe to podcast it be regularly distributed over the internet or within the schools network and accessed with an internet portable open database (iPod), any media player (MP3), laptop, or desktop computer. Podcast includes audio, portable document format (PDF) and electronic publication (E-pubfiles) which can be subscribed to and subscribers are able to listen and spread the episodes to any type of media player. Podcasting allows the users to download multimedia files which include audio and video at any convenient time easily and play back on mobile devices. In this regard, Oviawe (2021) identified three types of podcasts to includes; Basic podcast, enhanced podcast and demonstration method. Basic podcast contains only audio content and is the easiest to create and listen to, an enhanced podcast has both audio and video slides. The choice of podcast by the teacher is influence by the strategy employed and the learning content to be supplied to the students. However, this study will be limited to two types of teaching methods which are podcast and demonstration method of teaching.

Demonstration is one of the strategies employed in education institution use by the teacher for effective delivery of learning content. Demonstration strategy is a method of teaching concept, principles of real things by combining explanation with handling or manipulation of real things materials or equipment. Demonstration method involves showing doing or telling the students the point of emphasis. It is mostly used as a technique within the method of teaching and atimes as a method of teaching itself. The entire unattractive physical structure

of the school building could de-motivate learners to achieve academically (Cheta *et al.*, 2018). This is referring to learner's environment mismatch. In the same way, Eze (2022) also found statistically significant differences in students' science achievement in favour of urban schools as compared to rural schools. The reasons for this may be varied and complex but is probably related to differential access to resources required for quality teaching and learning. Kay (2022) opined that Students learn by investigating, collaborating, researching, observation and demonstration among others which may be used to improve students' academic achievement.

Academic achievement is the measurement of the effect of specific programme of instruction. Ogbuanya *et al.* (2017) see Academic achievement as a performance in school subject as symbolized by score on an achievement test. Academic achievement can be referred to the quality of knowledge acquired and retained by the students in the course of study. Students are achieving when they acquired the required knowledge that will prepare them for the field of work and for further studies. Umar (2024) asserted that academic achievement depends on several factors such as instructional methods, learning environment and the learner. Kpolovie *et al.*, (2024) posited that Academic achievement of students may partly depend on the kind of attitude they put towards school and the level of success they wish to attain. However, students' academic achievement is measured by their ability to retain the acquired knowledge as poor academic achievement of students in general woodwork could be attributed to poor retention.

Retention is the ability to remember learnt concept and be able to reproduce what has been learnt in the past. Chinwendu and Nnoduka (2020) explained that retention is the measure of the length of time a student can remember the content he or she was exposed to in a particular course. Students tend to retain what was learnt only when they are actively involved in the lesson and if enough and rich learning experiences are provided. Thus, the use of appropriate instructional method is identified by researchers to be one of the means through which retention can be facilitated by engaging the students in active learning. Oviawe (2021) found that student's achievements and retention ability could be aroused and retained through the use of an appropriate instructional method. Therefore, academic achievement of students in woodwork could depend on the teaching methodology and motivating factor, ability and interest (Kennedy *et al.*, 2016).

Interest is an important factor in learning. According to Ogbuanya *et al.*, (2017) it is viewed as the feeling that an individual has when he or she wants to know or learn more about something. This means that the student is bound to pay attention in that particular lesson. Eze (2022) maintained that interest comes as a result or eagerness of curiosity to learn not by force. Interest is an important variable in learning because if a student has positive interest towards a particular subject he or she will not only enjoy studying the subject but would also derive satisfaction from the knowledge of the subject. Student's interest in academic achievement will induce him to behave and act in a certain way towards his studies. This can be related to students' interest, reactions, impressions and feelings the student has in GWWT and its related tasks most especially in topics like machine tools, wood finishes and finishing, timber preparation, wood fittings among others which students performs below expectation in their final examinations. However, the contradictory evidence in academic achievement due to student's ability level has resulted into the need to verify how basic podcast and demonstration method can enhance the student's achievement, interest and retention in general woodwork trade. Therefore, it is against this background, that this research study attempt to investigate the effects of podcast and demonstration methods on students learning outcomes in general woodwork in technical colleges in North-central Nigeria.

Statement of the Problem

General woodwork trade offered in technical colleges aim at producing skilled craftsmen who will be self-reliant or employed for pay in ministries, parastatal and industries. The Federal Government of Nigeria (FGN, 2013) outline the aim of technical college after completion of the programme to include; to secure employment at the end of the whole course or after the completion of one module of employment, to setup their own business and become self-employed and be able to employed others and pursue further studies in higher institution. General woodwork students upon graduation are expected to possess skills among others in machines, carpentry and joinery, furniture making and upholstery, as well as having the ability to operate machines to operate woodwork workshop, maintain and repair household furniture's among others (Oviawe, 2021). It is hoped that these skills will boost their chances at enterprise and self-reliance. The realization of this objective rests hugely on the quality and strategies of instruction they receive from the teacher. However, Umar (2024) observed that general

woodwork students of technical colleges lack necessary knowledge and practical skills require for employment despite its importance in developing labour skill and human resources for technological advancement.

As a woodwork teacher, observations and interactions with students in technical colleges in North-Central Nigeria has shown the possibility of student not having the required skills to start-up an enterprise or to be employed as a skill craftsmen in the industry due to their in-ability to mark and construct simple woodwork joints, these caught the attention of the researchers. The implication of this is that students were not provided with the necessary skills as a result of inappropriate method of instruction, instructional materials and inability of the teacher to effectively implement the curriculum. Igwe and Ikalule (2024) attributed poor academic performance of students in general woodwork to deficiency in teaching methods used by the teacher probably due to nonuse of innovative methods that are problem solving oriented such as guided discovery, critical thinking, problem solving among others. However, the use of podcast and demonstration methods has been purported to have the potential of enhancing students learning in biology (Bimpe, 2026). It is hoped that the use of podcast and other method which demonstration method is inclusive may help in increasing the academic achievement and interest of students in general woodwork, Therefore, the problem of the study is put in question form: What is the effect of podcast and demonstration method on students learning outcomes in general woodwork in technical colleges in North-central Nigeria?

Aim and Objectives of the Study

The aim of this study is to determine the effect of basic podcast and demonstration methods on students learning outcomes in general woodwork in technical colleges in North-central Nigeria. Specifically, the study sought to determine;

1. The academic achievement of students taught general woodwork using podcast and demonstration method technical colleges
2. The interest of students taught general woodwork using podcast and demonstration method in technical colleges.
3. The effect of podcast and demonstration method on student retention in general woodwork.

Research Questions

Based on the objectives of the study the following research question were formulated to guide the study

1. What is the effect of podcast and demonstration method on students academic achievement in general woodwork in technical colleges
2. What is the effect of podcast and demonstration method on students interest in General woodwork in technical colleges
3. What is the effect of podcast and demonstration method methods on student retention in woodwork.

Research Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance

H₀₁: There will be no significance difference between the mean scores on students' academic achievement when taught general woodwork using podcast and demonstration method in technical colleges.

H₀₂: There will be no significance difference between the mean scores on student's interest when taught general woodwork using podcast and demonstration methods.

H₀₃: There will be no significance difference between the mean scores on student retention when taught general woodwork using podcast and demonstration method.

LITERATURE REVIEW

literature review will explore existing studies and research that have investigated the use of woodwork using podcast and demonstration method of teaching in technical colleges. Furthermore, it will analyze the different teaching and learning strategies employed in previous studies to determine which aspects are most effective in facilitating the teaching and learning of woodwork in technical colleges in North-Central Nigeria. Even with the application of scientific knowledge and skills learned by graduates from these technical colleges they still perform poorly in their national examination especially in general woodwork and as a result of this poor performance of woodwork student in this technical colleges, most of these graduates are faced with several challenges and most people enjoy the stimulating challenge of a good problem and the satisfaction of solving it. By reading the problem statement carefully, you get accurate comprehension, the meaning of words and sentence structure in order to gather all the important facts. Most problems are written clearly, so use standard reading techniques to accurately interpret what is written.

Achievement is the outcome of education which involves the determination of the degree of attainment of the learner in tasks, courses or programmes to which the learner is sufficiently exposed. Ogbuanya and Akinduro (2017) recommends that teacher or instructors should use appropriate instructional materials, methods and strategies to render the teaching and learning of woodwork enjoyable, interesting and to improve achievement. However, learning outcome in woodwork relates to accomplishment of learning by a students in both cognitive and psychomotor domain of learning. Based on the foregoing, it becomes necessary to investigate the effect of podcast and demonstration method on woodwork student learning outcome. Therefore, this study shall ascertain whether podcast and demonstration method used for teaching and learning woodwork may improve student learning outcome at Technical Colleges.

RESEARCH METHODOLOGY

A quasi-experimental research design was used in this study. Specifically, the pretest, posttest, non-equivalent control group design was adopted for the study. The quasi-experimental design was used because the classes of students are already organized into intact classes to provide for stability and avoid disruption of class lessons and class arrangement. The study was conducted in the North-central geo-political zone of Nigeria with the total population of 1013 students. The NTC II students were utilised for the study because of the nature of NBTE curriculum for technical colleges with topics that were taught in the second year of general woodwork trade. A two-stage simple random sampling technique and purposive sampling technique was used in the study. In the first stage, the simple random sampling technique was used to select 12 technical colleges from the list of 29 in the geo-political zone which gives the total sample size of 430 students. Two instruments were used in this study and they are: Woodwork Achievement and Retention Tests (GWWART) and General Woodwork Interest Inventory Test (WWIIT). The researchers prepared two sets of lesson plans that were used for teaching the two experimental groups. The instruments for collection of data for the study and the lesson plans were validated by three experts from the Department of Industrial and Technology Education, Federal University of Technology Minna. Data were collected and analysed as follows: Mean and Standard deviation was used to answer all the research questions while hypotheses formulated for the study and was tested using analysis of covariance (ANCOVA) at $p < 0.05$ level of significance. The decision on the research questions was based on the mean gain score. The decision on the hypotheses was based on comparing the P-value on the output of the statistical tool used with a significance level of 0.05. The null hypothesis was rejected when P-value is less than 0.05. Otherwise, the null hypotheses are accepted.

RESULTS AND DISCUSSION

Research Question 1

What is the effect of podcast and demonstration methods on student's academic achievement in General woodwork in technical colleges? The data analysis for research question one is shown in Table 1

Table 1: Mean on the Effect of podcast and Demonstration Method on Students' academic Achievement Scores in General woodwork

Groups	N	PrettestMean	SD	Posttest Mean	SD	Mean Gain
Podcast	272	26.53	97.29	57.27	16.55	30.74
Demonstration method	158	27.23	99.34	59.42	61.53	34.30

Table 1 show that the pre-test of the podcast group mean academic achievement score is 26.53 with standard deviation of 97.29 while a mean score of 57.27 was gotten in the post-test with standard deviation of 16.55. However, the pre-test, post-test mean gain of podcast group was 30.74. The pre-test mean score of the demonstration method is 27.23 with standard deviation of 99.34 and a post-test mean of 59.42 with standard deviation of 61.53 while its pre-test, post-test mean gain is 34.30. It is revealed that demonstration method group mean achievement score is greater than the mean achievement score of the students in the group of podcast method. Therefore, demonstration method is more effective than the podcast in improving the academic achievement of students in general woodwork

Research Question 2

What is the effect of podcast and demonstration method on students interest in General woodwork in technical colleges? The data analysis for research question two is shown in Table 2

Table 2: Mean on the Effect of interest when taught using podcast and demonstration methods in General woodwork

Groups	N	Prettest Mean	SD	Posttest Mean	SD	Mean Gain
Podcast	272	27.65	10.96	41.59	60.60	13.94
demonstration methods	158	26.38	97.60	59.42	67.90	17.16

Table 2 revealed that interest inventory score of students on general woodwork using podcast and demonstration method. The pretest mean score of students taught GWW using basic podcast method was 27.65 with standard deviation of 10.96 and the mean score for post-test was 41.59 with standard deviation of 60.60 while the pretest, post-test mean-gain was 13.94. The pretest mean score of GWW students taught using demonstration method was 26.38 with standard deviation of 97.60 and a mean score for post-test was 43.54 with standard deviation of 67.90 while the pretest, post-test mean gain was 17.16. The results revealed that each instructional method has significant increase on students' academic interest. However, the mean gain of students taught GWW using demonstration method had higher mean gain compared with students taught GWW using podcast instructional method.

Research Question 3

What is the effect of podcast and demonstration method on student's retention in General woodwork in technical colleges? The data analysis for research question three is shown in Table 3

Table 3: Mean on the Effect of podcast and demonstration method on Students Retention in General woodwork

Groups	N	Prettest Mean	SD	Posttest Mean	SD	Mean Gain
Podcast	272	57.27	16.55	59.42	17.22	21.50
Demonstration method	158	63.08	21.73	60.15	21.14	31.30

Table 4.3 shows that demonstration teaching method is more effective than the podcast in improving the academic retention of students in General woodwork. The basic podcast group had a mean score of 57.27 in the post-test with standard deviation of 16.55 and a mean score of 59.42 in the retention test with standard deviation of 17.22 while the post-test, retention test mean-gain in podcast was 21.50. The demonstration method group post-test mean score was 63.08 with standard deviation of 21.73 and the mean of retention test was 60.15 with standard deviation of 21.14 while the mean-gain from post-test, retention test was 31.30. Based on the use of

demonstration method and podcast methods in teaching GWW revealed that there was a significant difference in favour of demonstration group. The result revealed that, retention mean score of demonstration group is greater than the mean retention score of the students in the basic podcast group. Therefore, demonstration method is more effective than the podcast in improving the academic retention of students in General woodwork.

Hypothesis 1

H₀₁: There is no significant difference between the mean achievement scores of General Woodwork students taught using Podcast Instructional Method and those taught using demonstration method. The data analysis for Hypotheses one is shown in Table 4.

Table 4: Summary of Analysis of Covariance (ANCOVA) for Test of Significant Difference between the Mean Achievement Scores of students taught GWW using podcast and demonstration method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	29085.174 ^a	2	14542.587	233.287	.000
Intercept	4014.623	1	4014.623	64.401	.000
Pre-test	28691.427	1	28691.427	460.258	.000
Group	259.558	1	259.558	4.164	.043
Error	7667.532	123	62.338		
Total	458647.000	126			
Corrected Total	36752.706	125			

a. R Squared = .791 (Adjusted R Squared = .788)

Table 4 revealed the F-calculated values for mean scores of podcast and demonstration method on the achievement test of GWW. The result revealed that the F-calculated value for Group is 4.64 with p-value of 0.43 is less than .05. Therefore, the null hypothesis is rejected. With this result, there is significant difference in the mean achievement scores of GWW students taught using podcast instructional Method and those taught with demonstration method.

Hypothesis 2

H₀₂: There is no significant difference between the mean Interest scores of high, medium and low ability level General Woodwork students taught using podcast and demonstration method. The data analysis for Hypotheses two is shown in Table 5

Table 5: Summary of Analysis of Covariance (ANCOVA) for Test of Significant Difference between the Mean Interest Scores of students taught General Woodwork using podcast and demonstration method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3125.407 ^a	2	1562.704	121.252	.000
Intercept	12722.059	1	12722.059	987.122	.000
Pre-test	3081.277	1	3081.277	239.081	.000
Groups	74.481	1	74.481	5.779	.018
Error	1585.228	123	12.888		
Total	224796.000	126			
Corrected Total	4710.635	125			

a. R Squared = .663 (Adjusted R Squared = .658)

Table 5 revealed that F-value for the test of significance among the interest score students in the two instructional methods (podcast and demonstration method) in General woodwork test. The calculated F-value of 5.779 and p-value of 0.018 is less than 0.05. This implies that there was significant difference in the mean interest scores of

students taught general woodwork using podcast and demonstration techniques. It was further revealed that interest of students taught general woodwork using demonstration method was significantly better than students exposed to podcast instructional techniques

Hypothesis 3

H₀₃: There is no significant difference between the mean retention scores of General Woodwork students taught using Basic Podcast Instructional Method and those taught using demonstration method. The data analysis for Hypotheses three is shown in Table 6

Table 4.6: Summary of Analysis of Covariance (ANCOVA) for Test of Significant Difference between the Mean Retention Scores of General Woodwork Students taught using podcast Method and those taught using demonstration method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	35534.923 ^a	2	17767.461	818.326	.000
Intercept	.767	1	.767	.035	.851
Posttest	35528.574	1	35528.574	1636.361	.000
Groups	289.127	1	289.127	13.317	.000
Error	2670.569	123	21.712		
Total	484158.000	126			
Corrected Total	38205.492	125			

a. R Squared = .930 (Adjusted R Squared = .929)

Table 6 shows that podcast and demonstration method as the main effect is significant to students' retention in GWW. This is revealed by the calculated F-value of 13.317 and p-value of 0.000 is less than 0.05. Therefore, the null hypothesis of no significant difference is accepted. This indicates that there was a significant difference in the mean retention scores of GWW students taught with podcast Instructional Method and those taught using demonstration method.

Findings of the Study

- 1 Podcast and demonstration method are effective in improving students' achievement in GWW but demonstration method is more effective on students' achievement in GWW than podcast method.
- 2 There was an effect of interest on the achievement of students taught GWW with podcast and demonstration method but demonstration method was more effective than podcast.
- 3 Podcast and demonstration method are effective in improving students' academic retention in GWW but demonstration method is more effective on students' academic retention in GWW than podcast method.
- 4 There was significant difference between the mean achievement score of students taught general woodwork using podcast and demonstration method
- 5 There was significant difference between the mean interest score of student's taught general woodwork using podcast and demonstration method.
- 6 There was significant difference between the mean retention scores of students taught general woodwork using podcast and demonstration method.

DISCUSSION OF FINDINGS

The findings on the effect of podcast and demonstration methods on students' academic achievement scores in general woodwork shows that the mean achievement in the demonstration method group is higher than the podcast group. This implies that students in the demonstration method group had a higher mean gain compared to their counterparts in the podcast group after treatment. The finding supported the results of Okolie *et al.* (2019) who reported that exposing students to demonstration teaching method increases students' achievement than podcast method. Stajka (2023) stresses that podcast and demonstration methods significantly improved students'

academic achievement than traditional teaching method. In the same way the finding of this study confirmed the findings of Bimpe, *et al.* (2016) who found out that podcast Instructional method increased academic achievement of students' in Biology than those taught with traditional methods of teaching. In addition, Umar (2024) also discovered that students taught using demonstration method are involved in solving problems and help to promotes their thinking capacity, increase their understanding of the content and give opportunity for better application of the knowledge compared to the students' taught using conventional teaching methods. The findings of this study is related to the findings of Eze (2022) who reported that demonstration method is beneficial for gaining clinical skills, changing attitudes, encouraging cognitive learning and retaining knowledge. The finding of this study accords well with the findings of Munion (2018) who revealed that students' taught with demonstration method or approach perform students better that those who used a dictionary-focused approach and traditional approach. This is because demonstration method or approach is a student centred method of teaching which encourage independent learning and interaction among students. In the same vein, there was no significant difference between the mean score of podcast and demonstration method groups in the achievement of students in general woodwork. This is because, F-calculated value (4.164) and p-value of (0.043) for the effect of teaching method on the academic achievement of GWW students taught using podcast and those taught with demonstration method is less than 0.05. Therefore, the null hypothesis was accepted. The findings of the study confirm with the study conducted by Nwachokor, *et al.* (2019) which revealed that students in the study agreed that demonstration method and podcast increase productivity, promote creativity and facilitate academic learning.

The findings on students' interest based on the use of podcast and demonstration methods in teaching general woodwork shows significant increase on their interest in learning GWW with demonstration method group having the highest interest score. This implies that the two teaching techniques are effective in enhancing student's interest in studying general woodwork. The result of the findings agreed with Ogbuanya *et al.* (2017) which stated that interest is the attraction, which forces or compels a child to respond to a particular stimulus. A child develops interest if a particular stimulus (e.g. teaching method or school subject) is attractive and arousing or stimulating. This implies that the influence of demonstration instructional method has stimulate the interest of the students hence making them have better understanding and seek to improve their ability in the subject area. The study also agreed with Sauer (2022) who's study result revealed that students performed better on tasks that piqued their interests. This means that for general woodwork student's to have high achievement while demonstration method teaching method has increase their interest on the subject. The study is also in line with Umar (2024) who observed that interest can help us think more clearly, understand more deeply, and remember more accurately. Interest has the power to transform struggling performers, and lift high achievers to a new plane. Since demonstration method aroused the interest in general woodwork, this will help the students to understand more deeply and more accurately and improve their academic performance. Also, Kpolovie *et al.*, (2024) argue that improvement of student's interest in learning and attitude to school could contribute in enhancing their performance academically. These has clearly shown that demonstration method is capable of improving students interest in general woodwork and other trade subjects offered in technical and vocational colleges. This is because, F-calculated value (5.779) and p-value of (0.018) which is less than 0.005. Therefore, the null hypotheses was accepted meaning there was a significant difference between the mean Interest scores of high, medium and low ability level General Woodwork students taught using podcast and demonstration method.

The findings on student retention based on the use of podcast and demonstration methods in teaching general woodwork revealed significant difference where they retained to a great extent what they have been taught but students taught general woodwork with demonstration method retained their learning better than students taught with podcast. Therefore, it can be concluded that the use of demonstration method in enhancing student retention in GWW is most effective than podcast instructional method, because the mean gain of students taught with demonstration teaching method is greater than students taught with podcast teaching method. The findings on the test of significant difference between the student retention based on the use of podcast and demonstration instructional methods in teaching GWW revealed that there was a significant difference in favour of demonstration group. This is because, F-calculated value (13.317) and p-value of (0.000) for the effect of teaching method on the academic retention of GWW students taught using podcast and those taught with demonstration method is less than 0.05. The null hypothesis was accepted. Clearly, the different treatment

students were subjected to form the foundation for the significant difference in the student's retention. The findings of this study confirmed the findings of Munion (2018) who revealed that students who were taught using demonstration teaching method obtained higher retention mean scores in the retention test compare with those taught using traditional method. This finding agreed with the results of Nwachokor, *et al.* (2020) which shows that demonstration method of teaching increases students' productivity, promote creativity and facilitate academic learning.

CONCLUSION

The emerging new technologies, in the teaching profession evolving from emphasis on teacher-centred, lecture-based instruction to student-centred, interactive learning environments is paramount in the education system in Nigeria. The contradictive evidence in academic achievement due to student's ability level has resulted into the need to verify the appropriate student centred instructional methods that can enhance student's achievement, interest and retention in general woodwork trade. In search for the appropriate student centred methods of teaching and learning general woodwork which would be effective in enhancing students' academic achievement, interest and retention. The researchers has found podcast and demonstration method as effective and could be used in teaching general woodwork. The result of the study revealed that podcast and demonstration method are both suitable teaching method that can be used to improve students' academic achievement, interest and retention. The study further revealed that the demonstration teaching method is more however, effective in enhancing students' academic achievement, interest and retention of knowledge in GWW than podcast method. In addition, podcast and demonstration method have the ability to improve student's involvement in teaching and learning activities inside and outside the classroom. This research work has contributed immensely to knowledge in view of the current challenges confronting the nation's technical colleges with respect to teaching methods. Consequent upon this therefore, this study has filled the gap in the teachers centred method adopted in teaching students in technical colleges and has shifted to students centred method that could enhance achievement, interest and retention scores by introducing podcast and demonstration method which is based on the principles that enable students to study independently, search and construct their knowledge, master the subject and become self-reliant.

RECOMMENDATIONS

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

1. General woodwork teachers should adopt demonstration method to teach students at technical colleges to enhance student's academic achievements and retention in GWW.
2. Regular workshop and seminar should be organized for GWW teachers by Federal and State Ministries of Education on the needs for the teachers to use demonstration method.
3. Federal Ministry of Education and curriculum developer should incorporate demonstration method in their future curriculum design for enhanced students' academic achievement and retention in General woodwork.
4. Students should be exposed to the use of demonstration method to enhance their interest in learning general woodwork as they all show interest in the teaching method.

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