



Effect of Knowledge Vehicle (K-YAN) on Students Interest and Ease of Work in Woodwork Trade in College of Education (Technical) Gombe, North-East Nigeria

Bukar Yakubu Bwala

Federal College of Education (Technical) Gombe, Gombe State, Nigeria
ybwala300@yahoo.com

Abstract This study attempts to look at the effect of K-YAN vehicle knowledge on ease of learning and interest of students in woodwork trade in the Federal College of Education (Technical) Gombe. The study used only NCE 11 for the experiment. Two groups were randomly selected to participate in the experiment. The two groups experimental and control. The researcher developed lesson plans for the control and experimental group. A quasi-experimental control group design was used. Descriptive survey research questions were developed to answer the research questions. The instrument was trial-tested at Ramat Polytechnic Maiduguri and a reliability coefficient of 76.4 was obtained. Mean and the standard was used to analyze the data collected. The result shows that K-YAN vehicle knowledge is an idle multimedia instrument that can increase student's interest and makes it easier for students to learn woodwork trade. It was recommended that teachers be trained to use K-YAN as a new multimedia teaching strategy

Keywords K-YAN, Woodwork Trade

Introduction

Application of Technology in education is rapidly changing the traditional pedagogical activities of the school education system on a global scale; our society is rapidly adapting itself to the evolving scientific, technological, and communication innovations. Davis, Deil, and Rios [1] opined that information and communication technology (ICT) has now become an integral part of the society youths from many countries getting used to the resources more than ever before. Vikoo, [2] stated that information and communication technology is the convergence of computer networking and telecommunications to process, store, retrieve and send information of all kinds, it is the intermingling of information technology (IT) and communication Technology (CT), these changes need to be adopted by all teachers and students in woodwork trade in the North East in particular and Nigeria in general.

Literature Review

Rapid rising and development of multimedia have provided a better means of exploring new teaching strategies, multimedia is used to create a context to teach trade skills has it's a profound advantage, technological know-how has been there for a long time in form of films, radio and TV and have proved successful in replacing the traditional teaching method, multimedia teaching stresses the role of students and enhances the importance of interaction between teachers and students. Badarch [3] opined that the major feature of multimedia teaching is to train and improve student's ability to listen, speak, and to develop their communication competency. Hiradhar [4] opined that during the process, teachers' role as a facilitator is particularly paramount, using multimedia in content creation is a good platform for exchange between teachers and students, while at the same time



providing an environment that improves the traditional classroom teaching model, in this way teachers in the classroom no longer blindly inputs information and force students to receive it in a passive way.

Multimedia refers to the use of computer technology to create, store and experience multimedia content, in addition, multimedia-based training allows the students to go through a series of presentations, text about a particular topic in various information format, multimedia applications are used by teachers and lecturers to convey information such as lecture slides, assessment materials, and other learning resources; it can also be used by students to learn new skills and knowledge without teacher's guidance, multimedia allows teachers to prepare study materials for students in a more clear and comprehensive way such as demonstration and visualization of the study material in a multimedia presentation.

Interest, therefore, is a powerful motivational process that energizes, guides academic and career trajectories and is essential to academic success, interest is both a psychological state of attention and effect towards a particular object or topic and an enduring predisposition to reengage over time [5].

Students are more likely to go to class, pay attention, become engaged, take more courses as well as process information effectively, and ultimately perform well if they have developed an interest in what is learned. According to Renninger & Hidi [6], interest is a powerful motivational process that energizes learning and guides academic and career trajectories.

Conventional teaching strategies are teacher-centered teaching and lecturing, this is the most common teaching strategy found in schools generally for some decades now. McCracken, Warmbrod, and Whittington [7] classified conventional teaching strategy into two groups namely: the group techniques which include discussion, demonstration, field trips, role-playing and resources people, and individualized techniques which include supervised study, experiments, and independent study. Creswell [8] summarized conventional teaching methodology into four categories namely, Instructor-centered, interactive, individualized, and experimental teaching methods, conventional teaching strategies are no longer suitable for individual requirements more especially in educational technology courses.

K-YAN (Knowledge Vehicle) is a multimedia instructional technology and is a single wire computer with internet connectivity, projector, and the device was which converts any wall in a school into an interactive classroom, supports multiple peripherals, and enables interactive learning. K-YAN multimedia learning empowers the teacher to focus on improving the learning outcomes by using content that is modern, engaging, and involves the student at every step. According to Reddy and Tamanna [9], K-YAN multimedia is a user-centered and user-friendly multimedia design, K-YAN transforms a mix of products and services to a sustainable device, while still being economically successful, the multimedia assisted K-YAN based teaching presentations has radically changed the teaching paradigm, the conventional education system has focused on transmitting the teacher's knowledge, what the teacher knows is not necessarily what he should teach to students [10].

Statement of the Problem

One of the factors commonly identified as contributing to the poor performance of students is the teaching methodology, there has been a low turnout of students seeking for admission into woodwork trade, this negative response might be lack of awareness of the importance of the trade or might be as a result of poor teaching methods [11-12]. The study is intended to experiment with the validity or otherwise of introducing the vehicle knowledge (K-YAN) multimedia teaching strategy to observe if there will be a significant improvement in student's achievement, interest, and retention in woodwork trade, which will bridge the gap created by the present-theay technological explosion. It is expected that through the use of K-YAN based multimedia instruction, students will have a highly interactive classroom, new knowledge, develop new concepts, and express a strong understanding and retention of lessons taught and possibly an increase in student enrollment. There is likely hood also that, the integration of K-YAN based multimedia teaching and learning strategy will be a sure way to tap the interest of woodwork trade students and make them active participants in their own thinking.



Objectives of the Study

- i. Determine the level of woodwork trade students' interest between those in the control group and those in the experimental group in colleges of education in North-East Nigeria.
- ii. Conduct an experiment to determine the mean score difference on students' interest in woodwork trade when taught using K-YAN instructional multimedia teaching strategy and conventional teaching strategy in the college of education (Technical) Gombe, North-East Nigeria
- iii. Determine the level of perceived ease of woodwork trade by students' in the control group and those in the experimental group in the college of education (Technical) Gombe, North-East Nigeria
- iv. Conduct an experiment to determine the mean score difference of students' perceived ease of woodwork trade between those taught using K-YAN multimedia strategy and those taught using conventional strategy in the college of education (Technical) Gombe, North East of Nigeria

Research Questions

- i. What is the mean score difference on levels of students' interest in woodwork trade between those in the control group and those in the experimental group in the college of education (Technical) Gombe, North-East Nigeria?
- ii. What are the mean score difference of woodwork trade students' interest in the control group and those in the experimental group in the college of education (Technical) Gombe, North-East Nigeria?
- iii. What is the level of students' mean score difference on perceived ease of learning woodwork trade between the control group and experimental group in the College of Education (Technical) Gombe, North-East Nigeria
- iv. What are the students' mean score differences on perceived ease of woodwork trade between the control group and experimental group in the college of education (T) Gombe, North-East Nigeria?

Scope of the Study

The study will cover only NCE (T) 11 students in the Federal College of Education (T) Gombe, North-East Nigeria. The study will be delimited to, interest and ease of learning woodwork trade using K-YAN and conventional teaching strategies. All these will be drawn from Minimum Standard for Nigerian Colleges of Education NCCE (2012) [13].

Significance of the Study

The study when completed will be significant in a number of ways. The findings will be of considerable to odwork teachers, students, woodwork departments, curriculum developers, distance learning centers, and colleges of education in North-East Nigeria in general. The outcome of this study will be of benefit to woodwork students, the findings will afford the students the opportunity to learn by themselves, through mentoring with little or no guidance which invariably improves their achievement, interest, and retention towards learning woodwork trade. The study will be of benefit to woodwork teachers as the findings will increase the teacher's level of awareness of the use of K-YAN multimedia in woodwork trade, the findings will motivate and encourage woodwork lecturers to employ the use of multimedia instructional strategy and indeed other forms of multimedia instructional packages in schools to enhance teaching and learning strategies, it will serve as a guide in the conduct of modern teaching strategy for improvement of teaching and learning in colleges of education. The findings of this study would be useful to woodwork department and other technical departments in the college, it will serve as a guide towards the application of multimedia in the teaching of other subjects, the study will help the department in defining the interest of the students and their achievement and retention of what has been taught for future use

Research Design

This design for this study is the pretest- posttest non-equivalent control group, quasi-experimental design. This was because the researcher used the existing classes (intact classes). These intact classes were used because it was not possible to have complete randomization of the subjects due to the uniqueness of the class. NCE



(Technical) 11 students were used and the students were assigned into two groups. The experimental group was exposed to treatment using K-YAN multimedia teaching strategy while the control group was exposed to conventional teaching strategy. The independent variable was the teaching method manipulated at two levels which were the multimedia teaching strategy (experimental group) and the conventional teaching strategy. (Control group). The dependent variable was students', interest and ease of learning in woodwork trade, as determined by woodwork interest and ease of learning checklist developed by the researcher.

Research Design Layout

Experimental O_1 ----- X_1 ----- O_2 (K-YAN multimedia teaching strategy)
Control O_1 ----- X_2 ----- O_2 (Traditional woodwork teaching strategy)

For the descriptive survey aspect of the study

The questionnaire was developed by the researcher to suit the characteristics of the subject and course undertaken, Where there are doubts about the response of the respondents, the researcher verifies and clarifies the answers through the interview; items left unanswered by the students were answered during the interview. For analysis of the data collected L-Kert 5 point rating scale was used with strongly agree, Agree, Undecided, Disagree and Strongly Disagree.

The population of the Study

The target population of this study comprises all NCE 11 students offering woodwork in Federal College of Education (Technical) Gombe North East of Nigeria, there are one hundred and eighty (180) registered students in 2018/2019 academic session. This level of students' was chosen because they have already been exposed to the trade and will at the end of the year make choice as to which trade they may wish to graduate in.

Sample and Sampling Techniques

All NCE 11 students were already divided into four intact groups A, B, C and D. two groups were randomly selected making a sample size of 90 students, 45 in each class.

An instrument for Data Collection

The instrument used for data collection is the woodwork Interest/ ease of learning checklist (WWIEL). Two types of lesson plans were prepared by the research one to be taught using the conventional method and the other one using the K-YAN multimedia strategy.

Validation of the Instruments

The interest and ease of learning checklist and the two lesson plans were validated by two professors and two other senior lecturers at Federal College of Education (Technical) Gombe. All validates were professionals in woodwork trade.

Reliability of the Instrument

The instrument (WWIET) was pilot tested at Ramat Polytechnic Maiduguri (RAMPOLY) using 30 students. The Polytechnic is located within the North East Geopolitical zone of Nigeria and was not part of this study, even thou it is not a college of education it offers woodwork trade at NCE level and they have the same characteristics with the school of study. The reliability was found to be 76.4

Procedure for Data Collection

The period for administration of the instrument and subsequent collection of data was 12 weeks. This happens because a semester in colleges of education according to the minimum standard is 12 weeks, which includes revision and examination. The researcher trained 2 research assistants who helped in administering the instrument and teaching the students



Data Analysis

Mean and the standard deviation was be used to answer the research questions.

Significance of the Study

The findings of this study would be valuable to administrators of distance learning programs, it would provide an opportunity to tackle the obvious challenges in the handling of woodwork trade components of teaching and it would enable students to acquire technical skills at their own pace where K-YAN learning is available. The findings of the study will benefit both the federal and state government; it will form part of a solution for possible improvement of quality of woodwork teaching and learning woodwork trade which the country is in dear need to improve the economy and provide employable graduates.

The findings of the study will encourage technical knowhow, such that people will be engaged in the design and production of multimedia software packages in our schools based on the approved minimum standards for NCE technical students. The findings will bring into existence a new multimedia instructional strategy call K-YAN, which has not yet been put into use in colleges of education in North-East Nigeria; the study will make it abundantly clear that K-YAN multimedia is not meant to replace teachers in the classroom but to compliment the conventional teaching strategy which has been in existence since time immemorial.

In general, the findings will immensely contribute towards improving the body of knowledge, by serving as a reference point for researchers for further studies and replication in a different environment, it will further add to the existing body of knowledge in woodwork trade and other related trades. The study will gender female students in pursuing of the pursuit as a trade and other related technical courses in colleges of education in North-East Nigeria

Research Question 1

What is the mean score difference on the level of perceived ease of learning woodwork trade among NCE 11 students in the College of Education (Technical) Gombe, when taught using the conventional strategy of learning?

Table 1: Mean and Standard Deviation of the Respondents on the level of perceived ease of learning woodwork trade among NCE 11 Students in College of Education (Technical) Gombe when taught using a conventional learning strategy

S/N	Item Statement	Mean	S/D	Remarks
1	Understanding construction details	1.34	0.95	Disagree
2	Easy to understand lesson without multimedia	1.91	1.05	Disagree
3	Submitting homework/assignment was easy	2.05	1.12	Disagree
4	Cost of learning is low	3.24	1.42	Agree
5	Communication with peers was easy	3.03	1.45	Agree
6	Easy to learn the topic	0.74	1,14	Disagree
7	Easy to visualize important concepts	0.46	1.06	Disagree
8	online resources	2.10	1.10	Disagree
9	Easy to retain lessons taught	1.84	1.21	Disagree
10	Easy to recall lessons taught	2.27	1.14	Disagree
	Grand Mean	1.70	1.16	Disagree

Table 1 shows the learners 'perceived ease of learning woodwork trade with challenges regarding understanding the construction details on board, general understanding of the lesson to be poor, visualization, retention, and recall with mean between 0.46-1.74 and had a mean of 3.24-3.03 in cost of learning materials and communication with peers. The average mean response was 1.70 while the standard deviation stood at 1.16

Research Question 2

What is the perceived ease of using K-YAN multimedia learning compared to the conventional strategy of learning woodwork trade among NCE 11(Technical) students in the college of Educa Collegeechnical Gombe?



Table 2: Mean and Standard Deviation of the Respondents on the perceived ease of use of K-YAN multimedia learning compared to the conventional strategy of learning among NCE 11 woodwork Students in college of education (Technical) Gombe, Gombe state

S/N	Item Statement	Mean	S/D	Remarks
1	Understanding construction details	3.44	1.35	Agree
2	Cost of software for lessons is fair	2.90	1.25	Agree
3	Submitting homework/assignment on the net is made easy	3.08	1.32	Agree
4	Cost of data for internet use is not easy	3.60	1.36	Agree
5	Communication with peers was very easy	4.00	1.42	Agree
6	Easy to understand the topic	4.10	1.44	Agree
7	Easy to visualize important concepts	4.04	1.46	Agree
8	Online resources were well organized	3.00	1.30	Agree
9	Online resources were well structured in a clear and understandable manner	3.67	1.39	Agree
10	Easy to retain lessons taught	2.80	1.21	Agree
11	Easy to recall lessons taught	3.23	1.34	Agree
	Grand Mean	3.44	1.35	Agree

Table 2 indicates that the student's perceived ease of learning using K-YAN multimedia strategy had a favorable response in that all the items tested had a mean score between 2.90-4.10. they reported that there is no problem with the use of K-YAN. The average mean response is 3.44 while the standard deviation stood at 1.35

Research Question 3

What is the mean score difference on the level of interest in woodwork trade among NCE 11 students in the College of Education (Technical) Gombe, when taught using the conventional strategy of learning?

Table 3: Mean and Standard Deviation of the Respondents on the level of interest in woodwork trade among NCE 11 Students in College of Education (Technical) Gombe, when taught using a conventional learning strategy

S/N	Items Description	Mean	S/D	Remarks
1	I will choose to study woodwork trade as a profession	1.20	0.87	Disagree
2	The future is bright	1.15	0.75	Disagree
3	I have no interest in woodwork but will still study it as a course	1.32	1.23	Agree
4	I believe that I will definitely improve my learning efficiency in woodwork	1.17	1.16	Disagree
5	I would not mind spending more hours in woodwork lessons	1.24	1.33	Agree
6	I will encourage my friends to undergo woodworking trade as a profession	1.05	1.02	Disagree
7	I enjoy group learning	1.40	1.10	Disagree
8	I enjoy the interactive learning	0.55	1.19	Disagree
9	I would not mind the cost of woodwork trade	2.30	1.42	Agree
	Grand Mean	1.26	1.19	Disagree

Table 3 shows that the level of interest in woodwork trade in low in items 1,2,4,7,8 while they responded positively to only items 3,5 and 9 respectively. The response indicates an average mean response of 1.26 and a standard deviation of 1.19.



Research Question 4

What is the mean score difference on interest in woodwork trade among NCE 11 students in the College of Education (Technical) Gombe, when taught using K-YAN learning strategy?

Table 4: Mean and Standard Deviation of the Respondents on interest in woodwork trade among NCE 11 Students in College of Education (Technical) Gombe when taught using K-YAN teaching strategy

S/N	Items Description	Mean	S/D	Remark
1	I will choose to study woodwork trade with K-YAN multimedia	3.16	1.34	Agree
2	woodwork trade made easy with K-YAN	3.32	1.28	Agree
3	The future is bright with K-YAN multimedia	4.27	1.44	Agree
4	I believe that participating in K-YAN multimedia learning will definitely improve my learning efficiency	2.63	1.20	Agree
5	I would not mind spending more hours in class K-YAN multimedia	4.10	1.24	Agree
6	I will encourage my friends to undergo woodworking trade with K-YAN multimedia	3.60	1.40	Agree
7	I enjoy group learning with K-YAN	2.71	1.22	Agree
8	I enjoy the interactive nature of K-YAN learning	2.30	1.15	Agree
9	I would not mind the cost if K-YAN is used in woodwork trade	4.20	1.40	Agree
	Grand Mean	3.37	1.29	Agree

Table 4 shows that all the items had a positive response with mean ranging from 2.30-4.27 with an average mean response of 3.37 and a standard deviation of 1.29

Findings from the Study

1. It was not easy for the students to understand woodwork trade when conventional teaching strategy was used
2. The cost of learning materials is easier to obtain under the conventional method of teaching
3. Communication with peers is easier with conventional teaching strategy than when K-YAN uses for teaching
4. It was not easy understanding construction details when conventional teaching strategy is used
5. The class is more interactive when K-YAN uses for teaching rather than when conventional teaching is used
6. Lessons are more interesting when K-YAN multimedia is used for teaching
7. The students don't care how much time they spend in class if K-YAN uses for teaching

Recommendation

It was recommended that teachers should introduce to the use of K-YAN multimedia in teaching woodwork trade-in colleges of education and other similar trades. The government should as a matter of urgency supply schools with this new multimedia instrument.

Conclusion

K-YAN multimedia is an effective and efficient tool for easing the problems encountered in teaching and learning woodwork trade in the College of Education in Gombe. If this is done, the students will be more interested in coming to terms with woodwork trade, as it is now the number of students offering woodwork as a trade is dwindling and not encouraging.

References

- [1]. Davis, C. H. F, Deil-Amen, R. Rios Aquilar & Canche M. S. G (2012). Social media in higher education. A literature review and research directions. Report printed by the University of Arizona and Claremont Graduate University. Retrieved 20/01./2020 from <https://works.bepress.com/hfdavis/2/>
- [2]. Vikoo, B (2012). Learning theories and instructional processes, 3rd edition. Portharcourt Nigeria. Peal publishers.



- [3]. Badarch (2013). Impact of using Multimedia Technologies on Education on Students Academic Achievement in the Bakirkoy Final College. *International Journal of Humanities, social sciences, and education*. Vol 5 issue 1.
- [4]. Hiradhar P. (2012). Effectiveness of Technology enables language enhancement program to devprogramse written communication skills of ESL. learners at tertiary level. the Unpublished doctoral dissertation by Sardar Patel University. India.
- [5]. Hidi S. Harackiewicz K. A. (2016). The four-phase model of interest development. *Educational Psychologist*. 2006;41:111127, doi;10.1207/s15326985ep4102-4.
- [6]. Renninger, K. A., & Hidi, S. (2016). Interest, attention, and curiosity. The power of interest for motivation and engagement, 32-51.
- [7]. McCracken H. (2006) Furthering connected teaching and learning through the use of virtual learning communities. e-mentor No.5 obtained through the internet. [www,e-mentor.edu.pl/eng](http://www.e-mentor.edu.pl/eng). assessed 25/5/2020.
- [8]. Creswell, J. W. (2012), *Educational Research: Planning, conducting and evaluating quantitative and qualitative research* 4thed Boston: Pearson.
- [9]. Reddy, R. C. M., & Shah, T. M. (2019). The Knowledge Vehicle (K-Yan): Sustainable Value creation by Design. In *Practice and progress in social design and sustainability* (pp. 216-236). IGI Global.
- [10]. Mondy, K. A. Woods, & Rafi, A. (2008), Uses and gratification expectancy model to predict students' perceived e-learning experience. *Educational Technology & Society*, 11(2) pp 241-261.
- [11]. Dike, V. E. (2017). Poverty and Brain Development in Children: Implications for Learning. *Asian Journal of Education and Training*, 3(1), 64-68.
- [12]. Saidu I. (2020). Effect of blended Learning on Junior Secondary School Students Academic Achievement and Retention in Basic Technology in Borno State, An unpublished doctoral thesis. Modibbo Adama University of Technology Yola.
- [13]. National Commission for Colleges of Education (NCCE) (2012), *Minimum standards for Nigeria Certificate in Education (NCE): Federal Republic of Nigeria*.

