ISSN: 5072-4228
Volume 11, Number 2, 2023
Innovative Journal of Scientific and Advanced Studies

IMPACT OF TEXT AND REALIA ON ACHIEVEMENT OF BASIC TECHNOLOGY STUDENTS IN WOODWORK IN TECHNICAL COLLEGES IN TARABA STATE, NIGERIA

Prof. I. S. Daramola[1], Prof. M. S. Abifarin[1], Denen Daniel Mom[2] & Dr. S. S. Manabete[1]
[1]Department of Science and Technology Education, Faculty of Education, University of Jos, [2]Department of Civil Engineering, Taraba State Polytechnic, Jalingo, Nigeria

ABSTRACT

The study investigated the impact of utilization of texts and realia on achievements of Basic Technology students in woodwork in technical colleges in Taraba State, Nigeria. Three research questions and four hypotheses were raised and tested at 0.05 level of significance; the study adopted the quasi-experimental design. The population of the study comprised of 236 students. A sample of 82 students from two technical colleges participated in the study. Descriptive statistics were used to analyze data for answering the research questions. The student's t-test was used to test the hypotheses. The results revealed that texts and realia instructional strategy was effective in improving the achievements of students to the extent that the experimental group performed significantly better than the control group. Also the results from the hypotheses testing showed that there was no significant difference in the achievements of male and female students on the one hand and the rural and urban school students on the other hand. Recommendations were made to the benefitting stakeholders such as students, teachers and schools on the use of texts and realia in teaching Basic Technology.

Key words: Achievement, Basic Technology, Realia Texts , Utilization

INTRODUCTION

Realia and texts are real things and objects which may include specimens, tools, artifacts, plants, and animals. They are not commonly considered as visuals because visual implies representation of an object rather than the object itself. Usually, they are classified as instructional materials because the information in them provides direct and purposeful learning experiences. Their uses may not be limited to only sight but other sensory modalities can be involved such as smell, touch and taste.

Realia and texts have made appreciable and useful contributions in the development of curriculum and methodology of teaching and learning process. They are the special and skill development resources that facilitate the process of teaching, learning and evaluation of Basic Technology skills. They possess tremendous education values which can only be realized if the materials are wisely and effectively utilized by the teacher otherwise, they may turn out to be not only useless but also sources of disastrous instructional consequences. Blayds (2000) argued that instructional resources may lack some qualities of an ideal instructional material and become indispensable because of its relevance and simplicity. Blayds also pointed to the fact that sources of instructional materials result in more effective learning of factual information and skills in less time than mere verbalization.

In an effort to improve academic excellence, the teacher's role lies on proper and effective utilization of realia and texts during teaching-learning situation. Skill is required if adequate utilization of realia and pictures is adopted by the teacher because they stimulate learning; they are classified as instructional media because the information on them provides direct and purposeful learning experiences. Realia and texts are devices that help the teacher to communicate effectively with the students so that the students understand the message put across to them. These materials be they real or representation, are information carriers specifically to fulfill objectives in a teaching-learning situation such that they are regarded as the backbone of

the whole range of the classroom communication which expedites learning through the various senses.

The importance of motivation for learning has been greatly emphasized by educationists and psychologists. This is because, the learners' programme in school hinges on the learners' interest to learn and ability to retain presented materials. Learners who fail to be interested in the learning materials presented are expected to retain less and thereby achieving poorly in the subject. According to Agbo (2009), woodwork has been noted of all the technical subjects as the one in which the students lose the greatest interest in learning. Despite the importance of woodwork as a foundational pillar of technical subject in the Construction Trades in Technical colleges, achievement of students in the subject has really not been encouraging.

Achievement is recorded when students persist with the tendency to pay attention and enjoy activity or content. Achievement is an emotionally oriented behavioral trait which determines students in tackling educational programmes or other activities. It is an important variable in learning because when students show interest in any activity, they are likely to achieve highly in that activity. The use of pictures and texts is significant in teaching, particularly in teaching woodwork. The success or failure of how a topic has been taught depends to a large extent on how effectively the realia and picture were applied in teaching the topic. Realia and pictures are used to present ideas and concepts which may be difficult to understand if presented using verbal codes only. They serve as concrete channels of communication which can help a learner to form a mental picture of what is being given to him.

The use of instructional materials in teaching has often resulted in quality instruction and assists the learners to recognize and recall with ease. Current obvious reality is that many teachers depend mostly on textbooks and chalkboards as instructional materials while other relevant instructional materials such as maps, charts, realia, texts, overhead projectors and others are sparingly used. Okobia (2011) posited that one major problem associated with the use of instructional media in many parts of Nigeria is cost of manufacturing the instructional materials. Nigerian teachers operate from a deficient environment where teaching and learning is seriously improvised particularly in the rural setup. Even in urban areas only few schools are connected to the national grid while virtually all the rural schools do not enjoy basic facilities like electricity.

Similarly, gender has continued to be an issue of concern to Basic Technology education, presently, there is gender imbalance in technology education, particularly in woodwork subjects. In line with this position, researchers like Malachy and Ononugbo (2006), and Simeon and Musa (2010) found that girls under-achieved and are under-represented in the sciences and technology education, especially in woodwork. This is also evident from research reports of Okebukola (2002), Longe and Adedeji (2003), Yoloye (2004), and Ezirim (2006) which showed that gender has an impact on the sciences which include Basic Technology education. Also, the fact that boys recorded higher percentages of credit passes than girls in woodwork in National Business and Technical Examination Board (NABTEB) from 2010 – 2016 is an evidence of gender inequality. This issue of gender imbalance could be noticed in both urban and rural schools in Taraba State. Therefore, the main focus of the study is on the effects of utilization of realia and texts on the achievement of Basic Technology students in woodwork in Technical colleges in Taraba State.

STATEMENT OF THE PROBLEM

Out of all the Basic Technology subjects, woodwork has been noted as the one in which the students lose the greatest interest in learning (Agbo, 2009). Despite the importance of woodwork as a pillar of Basic Technology education, especially in the construction trades in technical colleges, students' achievement in the subject has not been encouraging. Literature is replete with evidence of this poor achievement in woodwork. Despite the emphasis that education should be student-centered for maximum self-development and fulfillment (FRN, 2004), many teachers still use lecture method which is a teacher-centered approach for teaching technical

subjects. Students' lack of adequate skills in woodwork practical, poor retention of learned materials, lack of motivation and achievement may all be attributed to teachers' use of ineffective teaching methods. The problem of this study therefore can be hinged on the broad question: To what extent will utilization of realia and texts improve achievements of students in Basic Technology courses in woodwork in technical colleges in Taraba State, Nigeria?

RESEARCH QUESTIONS

1. What is the level of achievement of experimental and control groups in woodwork in the posttest?
2. What is the nature of achievement of male and female students in woodwork after exposure to the use of texts and realia?
3. What is the nature of achievement of students in rural and urban schools in woodwork after exposure to the use of texts and realia?

HYPOTHESES

1. There is no significant difference between the pre-test and post-test mean score of SS2 students in woodwork in the control group.
2. There is no significant difference between the woodwork post-test achievements mean score of male and female students taught with texts and realia.
3. There is no significant difference between the woodwork post-test achievements mean score of students in urban and rural schools taught with texts and realia.

METHODOLOGY

Descriptive and inferential statistics were employed in analyzing the data collected. Frequency distribution, graphs and simple percentages were used to analyze and depict the data for answering the three research questions. For the hypotheses, all three of them were tested using the t-test. The data from the pre-test and post-test scores were captured and analyzed using the Statistical Package for Social Science (SPSS) version 20.

RESULTS

Research Question One

What are the levels of achievement of the experimental and control groups in instructions on woodwork in the post-test?

Table 1: Levels of Experimental and Control Groups' Achievements in Woodwork in the Post-test

Achievement levels	Range Score	Control		Experimental	
		N	%	N	%
High	60 – 100	18	42.90	3	83.81
Average	50 – 59	20	47.61	17	16.19
Low	0 – 49	4	9.5	20	0
Total		**42**	**100**	**40**	**100**

Table 1 shows that in the control group, 42.90% were at the high level while 47.61 were at the average level. After the treatment with realia and texts, 83.81% of the students moved to high achievement, 16.19% moved to average level and none of the students were at low achievement level. The result indicates that realia and pictures instructional materials when properly utilized will improve students' achievement.

Research Question Two
What is the nature of achievement of male and female students in woodwork after exposure to the use of texts and realia?

Table 2: Male and Female Students' Achievement in Woodwork after Exposure to the Use of Texts and Realia.

Achievement levels	Range Score %	Male N	%	Female N	%
High	60 – 100	14	46.7	5	41.6
Average	50 – 59	9	30.0	5	41.6
Low	0 – 49	7	23.3	2	16.8
Total		**30**	**100**	**12**	**100**

Table 2 analysis shows that 46.7%, 30.0% and 23.3% of male students were in the high, average and low levels of achievement respectively. On the other hand, 41.6%, 41.6% and 16.8% of the female students recorded achievement in the category of high, average and low respectively. This result is generally for the students in the two experimental groups in the post-test that was administered to the students. This indicates that realia and texts when used effectively can improve students' achievements.

Research Question Three
What is the nature of achievement of rural and urban students in woodwork after exposure to the use of texts and realia?

Table 3: Rural and Urban Students' Achievement in Woodwork after Exposure to the Use of Texts and Realia.

Achievement levels	Range Score %	Rural N	%	Urban N	%
High	60 – 100	3	16.6	6	28.1
Average	50 – 59	11	61.1	13	51.1
Low	0 – 49	4	22.3	5	20.8
Total		**18**	**100**	**24**	**100**

Table 3 analysis shows that 16.6%, 61.1% and 22.3% of rural school students' achievement were in the high, average and low levels respectively. On the other hand, 28.1%, 51.1% and 20.8% of the urban school students recorded achievement in the category of high, average and low respectively. This result is generally for students in the two experimental groups in the posttest that was administered.

Hypothesis One
There is no significant difference between the pre-test and post-test mean score of SS2 students of woodwork in the control group.

Table 4: t-Test Results of Pre-test and Post-test Achievement Mean Scores of Students in the Control Group

Test	Number N	Mean X	SD	df	t-cal	t-crit
Pre-test	20	21.02	6.87			
				38	-7.82	3.44
Post-test	20	31.73	12.68			

P>0.05

The Table 4 results show that t-calculated of the control group was -7.82 at df = 38 and α = 0.05 level of significance since the t-calculated for the pre-test and post-test of the control group was less than the P-value, it means that the null hypothesis is upheld. This means that there is no significant difference between the pre-test and post-test of the control group.

Hypothesis Two

There is no significant difference between the woodwork post-test achievements mean score of male and female students taught with texts and realia.

Table 5: t-Test Results of Post-test Achievement Scores of Experimental Group According to Gender

Gender	Number N	Mean X	SD	df	t-cal	t-crit
Male	30	51.94	13.89			
				40	-0.94	0.35
Female	12	54.39				

P>0.05

The analysis in Table 5 shows that the calculated value of -0.94 is less than the t-critical value of 0.35 at df = 40 and α = 0.05 level of significance. Since the t-value is in the critical region P>0.05 level of significance, then the null hypothesis is upheld, which means there is no significance difference between the post-test achievement mean scores of male and female students exposed to realia and texts.

Hypothesis Three

There is no significant difference between the woodwork post-test achievements mean score of students in urban and rural schools taught with texts and realia.

Table 6: t-Test Analysis Results of Posttest Achievement Mean Score of Students in Rural and Urban Schools in the Experimental Group

School location	Test	Number N	Mean X	SD	Df	t-test	P-value
Urban	Post-test	44	52.72	13.43			
					80	-0.84	0.40
Rural	Pre-test	38	52.13	16.22			

P>0.05

The analysis in Table 6 shows that the calculated value of -0.84 is less than the t-crit value of 0.40 at df = 80 and α = 0.05 level of significance. Since the t-value is in the critical region

P>0.05 then the null hypothesis is accepted meaning that there is no significant difference between post-test woodwork achievement mean scores of students in urban and rural schools exposed to realia and texts.

DISCUSSION

The study investigated the impact of utilization of texts and realia on achievements of Basic Technology students in woodwork in technical colleges in Taraba State, Nigeria. The study found that after the treatment with realia and texts, majority of the students moved to high achievement. The result indicated that realia and pictures instructional materials when properly utilized would improve students' achievement. Finding also showed that after exposure to realia and texts, both male and female students' achievement improved significantly. On the other hand, after exposure to treatment, urban students recorded higher achievement than rural students. This means that there was no significant difference between the pre-test and post-test of the control group. The study also found that there was no significance difference between the post-test achievements mean scores of male and female students exposed to realia and texts. Similarly, there was no significant difference between post-test woodwork achievements mean scores of students in urban and rural schools exposed to realia and texts. This finding is in agreement with the work of Ariyo and Ibeagha (2011) in which they concluded that school location has both direct and indirect casual linkages in students' achievement in woodwork technology. The findings agree with Olatoye and Agbatogun (2009) who found that school location i.e rural school students were lagging behind in their performance in science and technology when they were compared with those in urban schools.

RECOMMENDATIONS

1. In planning for technical colleges, teachers should show or itemize what learners need to learn in Basic Technology aspect of education, how learners are to achieve the intended goals, what teachers need to do to help students develop the acquired knowledge, skills, attitude and motivation in the context in which teaching and learning occurs.
2. Teachers should always play the role to enhance students' motivation by creating and maintaining success expectations during teaching and learning of Basic Technology as related to technological development which is fast advancing.
3. Re-training of teachers through workshops, seminars, and symposia are needed. This will enhance the teachers' skills in teaching Basic Technology in technical colleges.

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