GENDER INTERACTION EFFECT WITH MOTHER TONGUE MODEL OF INSTRUCTION ON BLOCKLAYING STUDENTS' ACHIEVEMENT AND RETENTION IN TECHNICAL COLLEGES

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Abstract

This study examined the interactive effect of gender and mother tongue for instruction on technical college students' achievement and retention in blocklaying in Oyo central senatorial district technical colleges. Two research questions were raised, and were hypothesized and tested at 0.05 level of significance. Quasi-experimental research design involving a pre-test post-test non-equivalent control group design was adopted for the study. The population of the study was 461 parts 1 to 3 students offering blocklaying in the three technical colleges across the senatorial district. Sample of 83 students was drawn for the study, using purposive sampling technique. The instrument used to collect data was a Blocklaying Achievement Test (BCAT), which was validated by three experts. Kuder Richardson 20 was used to establish the reliability coefficient of 0.82 for the BCAT. For the test of hypotheses, ANCOVA was employed. Findings revealed significant interaction effects of mother tongue medium of instruction and gender on the students' achievement and retention.

Keywords. Blocklaying, achievement, retention, Yoruba, English, mother tongue, gender

Introduction

Achievement is the measure of what a person had accomplished after exposure to educational programme (Adamu, 2016). According to Adedoyin (2013), achievement is defined as the outcome of the extent to which a student, teacher or institution has achieved their educational goals. This is to further explained that achievement is accomplishing whatever goals you have set for yourself, not necessarily earning a lot of money. Achievement is the positive level of attainment by an individual in a prescribed set of standardized knowledge/course of study for the purpose of acquiring permanent skill or development in an individual (Akinlabi ,2014). Owing to the fact that achievement covers a wide range of educational outcomes, its definition therefore depends on the indicators being used to measure it. Hence, achievement is operationally explained as the extent to which students attain mastery of the objectives of the blocklaying practices they are exposed to learn both in the classroom and on the site.

Retention can be described as the ability of a learner to keep the memories of the facts and knowledge he has acquired in the classroom over a long period of time. According to Houghton (2017), retention is the ability of the mind to remember information acquired from reading, observation or other processes. To the psychologist, this is the ability or power of the mind to store the past experiences of learning and utilizing them at a later stage (Khejeni, 2014).

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Similarly, retention is the repeated achievement by a learner of behavior earlier acquired, elicited after an interval of time (Kara, 2008).

Oladele (2010) posited that a learner who repeats an acquired piece of knowledge with less error is said to have retained the material learnt. It is affected by a degree of reinforcement, the method of learning and the learners' memory capacity among others. Since it is presumed that usage of mother tongue for instruction in classroom could assist students to learn, it is equally important to determine its ability to enforce learning and retention. Retention, therefore, is someone's ability to retain and recall past experiences or recognize what has been learnt or experienced in class over a period of time.

Blocklaying is a trade offered at both intermediate and advanced levels in technical colleges. The curriculum of intermediate blocklaying in addition to what may be termed general education subjects such as mathematics, English language, physics, chemistry, social studies, and others has the core trade subjects to include, introduction to building construction, concreting, blocklaying, land surveying, quantity surveying, technical drawing, building drawing and construction management. At the end of the programme, the students are registered to take one or all of the technical certificate examinations.NABTEB Examination in Blocklaying consists of written examinations and practical tests in the above mentioned papers with the exception of English Language, Mathematics, Social Studies and Construction Management which are purely based on written examination. In each level of the examination, the candidates are expected to pass in the written paper(s) as well as the practical test to earn a certificate.

Blocklaying operations in the technical college involve the skills required in accomplishing given tasks in mixing of mortars by hand, molding of blocks, laying of blocks, rendering of walls, wall tiling, pointing top walls and laying of curved walls (arches). It also involves workability test on concrete, slump test, placing of concrete, application of mixture to concrete, compaction, curing of concrete and fixing of concrete joint materials. The students will perform these operations using tools and necessary equipment. Blocklaying operations are based on actual jobs and not pseudo jobs. The training should be carried out to the extent, where it gives the trainee, a productive ability with which he can secure and hold employment and be able to profit by it.To achieve such level, proper instructional/training materials and skills as well as a proper and simple language of communication such as mother tongue must be utilized in the course of instruction. The use of training materials and language as Thelma (2015) posited, involves using materials and skills that are most appropriate and commonly available in communicating the concepts of technology more correctly and practically to the students through their mother tongues.

Mother tongue can be described as a child's first language ever, it is the language of a child's environment or society, or language used in a child's native environment. Igbaji (2016) explained that mother tongue is the language of a child's ancestral means of communication, a language developed naturally by a child without being taught. Jannina and Mark (2014) stressed that the introduction of education by the colonial masters was not in the best interest of Nigeria but their interest was to impact knowledge that will help the interest of the colonial people and so the mother language was regarded as inferior to that of the colonial masters. Akinbote and Ogunsanwo (2013) also believed that a citizen that is literate even only in the mother tongue will be sufficiently equipped to live a useful life in the fast changing world.

For permanent literacy to be promoted in Nigerian schools, the use of the mother tongue as the medium of instruction in schools ought to be encouraged. Although English language retains its dominant position in the education delivery system in Nigeria, the thrust of education

language policy is the use of mother tongue, the language of the immediate community in elementary, primary and tertiary education. Unfortunately, English is the exclusive medium of instruction at the primary, junior and senior secondary school education and tertiary education (Ivowi, Okebukola, Oludotun & Akpan in Adekunle, 2008).

In some countries, such as Kenya, India, and various East Asian countries, mother is used to indicate the language of one's ethnic group. Also, in Singapore, mother tongue refers to the language of one's ethnic group regardless of actual proficiency, while the first language refers to the English language that was established on the island through British colonisation, which is the lingua franca for most post-independence Singaporeans due to its use as the language of instruction in government schools and as a working language (Akinlabi, 2014). It is expected that every child should be required to learn one of the three major Nigerian languages which are, Yoruba, Igbo or Hausa. It is not surprising that many children cannot speak any of the mother languages (Oginni & Owolabi, 2013). They further stressed that the challenges of teaching in mother tongue may remain irresolvable unless Nigerian education system is free of colonialism.

In the context of this study, mother tongue is the language of a child's origin, which is commonly used by the child's families and neighbors. It is a language a child learns naturally by observation from parents and household, a language that classifies and distinguishes one's ethnic/origin background, for example an Awka indigene is expected to have Igbo language as mother tongue. The National Policy on Education as reviewed by the federal government, affirmed that government recognizes the importance of language as a means of promoting social interaction, national cohesion and preservation of our culture (FRN, 2013).

One of the most topical issues in the current debate all over the world has been that of gender differences and achievement among students in schools. Certain cultures restrict particular gender to certain professions like farming, engineering and trading (Dania, 2014). Over the years, there has been a growing awareness of the role of women at home, school, and community in general. Certain vocations and professions have traditionally been regarded as men's (medicine, engineering, architecture) and others as women's (nursing, catering, typing, and arts) (Oludipe, 2012). However, there have been conflicting findings on how gender influences achievement. It seems the influence of gender varies according to school subjects. For instance, Kolawole (2007) revealed that male students performed better than female students in the cognitive, affective and psychomotor skill achievements when using their mother tongue while Abubakar and Adegboyega (2012), reported that gender was insignificant in the academic performance of students in Mathematics. Salami (2013) and Adamu (2016), posited that factors resulting from gender differences such as the rate at which male students learn practical skills may be different from the rate at which their female counterparts learn. Likewise, it is believed that gender also contributes to the differences in students' academic achievement rate. However, a key factor is the teacher and the medium of instruction used (Olanrewaju, 2013).

A critical question to ask at this juncture is, as the language used for teaching has significant impact on student achievement in relation to gender? To provide a possible answer to this question, Gin (2011) observed that in a contemporary context, men and women classification is a world where patriarchal values predominate. It is a world where there are general sets of belief that women are inferior to men and therefore, the power relations attached to the ideas, and beliefs, give men more power, opportunities and more advantage over women

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in the society. Nwona and Akogun (2015), noted imbalances against women in science, technology and mathematics as these subjects are perceived as masculine subjects. They are often compulsory in technical colleges.

Statement of the Problem

Technical colleges is an institution of learning saddled with the responsibility of producing skillful individual as craftsman and meddle level artisans, so students, upon graduation, are expected to secure employment in industries, pursue higher certificate in higher institutions or start up their own business in their trained fields and become self-employed. To achieve this in blocklaying trades government have doubled their efforts to ensure that quality education is delivered but unfortunately this goal is not achieved in blocklaying at technical colleges. However, the unsatisfactory achievement among blocklaying students, especially, in Oyo central senatorial district technical colleges has become a serious concern to all.

This poor achievement of students as revealed by the results of students' in NABTEB exams between 2015 and 2020 may be attributed to the language of instruction used by the teacher to teach blocklaying students among others. The persistent poor achievement in blocklaying skills acquisition exhibited by the students in examinations and work places leave no doubt about the ineffectiveness of both the procedure and medium regularly used by the teachers to teach students. The Osungbemiro, Olaniyan, Sanni, and Olajuyigbe (2014) study revealed that among the many factors contributing to poor achievement of blocklaying students is the medium of instruction used by the teachers to teach and this plays a predominant role on the achievement of students in technical colleges. Hence, would the use of mother tongue as the medium of instruction in blocklaying yield appreciable result on students' academic achievement and also improve students' retention ability.

Purpose of the Study

1. Interaction effect of mediums of instruction and gender on academic achievement of technical college students in blocklaying/bricklaying and concreting.
2. Interaction effect of mediums of instruction and gender on the retention ability of technical college students in blocklaying/bricklaying and concreting.

Research Questions

The following research questions guided the study:

1. What is the interaction effect of medium of instruction and gender on the achievement of technical college students in blocklaying in Oyo central senatorial district?
2. What is the interaction effect of medium of instruction and gender on the achievement of technical college students in blocklaying in Oyo central senatorial district?

Hypotheses

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

1. There is no significant interaction effect of mediums of instruction and gender in the students' achievement in blocklaying.
2. There is no significant interaction effect of mediums of instruction and gender in the students' retention ability in blocklaying.

Methods

Pre-test, post-test quasi-experimental research design was adopted for this study. Quasi-experiment is a process where random assignment of subjects to experimental and control group is not possible (Nworgu, 2015). In this case, intact or pre-existing groups were used. The population was 461 part 1-3 students offering blocklaying in the three government technical colleges in Oyo central senatorial district of Oyo State, in the 2020/2021 academic session. The sample of the study consisted of 83 Part 2 blocklaying students of two technical colleges, drawn using the purposive sampling technique. The essence of purposive sampling is that two intact classes were selected and that the two classes selected from the colleges possess the characteristics of the entire population. The part 2 students were chosen for the study because these categories of students were in the main stream of their study.

The instrument used for this study was Blocklaying Achievement Test (BAT). The instrument consists of 45 objective questions, adopted from past examination questions between 2018 and 2020. The BCAT consists of pre-test, post-test and retention test questions. The pre-test, post-test and retention test questions are made of up of the same items. The instrument was validated by three experts, one from the department of technology and vocational education, faculty of education, Nnamdi Azikwe University, Awka, Anambra State, one from the department of foundations of Education, faculty of education, Nnamdi Azikwe University, Awka, Anambra State and one from Yoruba department, school of languages, Emmanuel Alayande College of Education, Oyo State .BCAT and lesson plans were given out together with the title of the study, purpose, research questions and hypotheses to the experts to check whether the instrument has both face and contents validity. Corrections, recommendations and suggestions of the experts were effected in the final draft. Kuder-Richardson formula 20 (KR-20) was used to determine the reliability of the instrument, and a reliability coefficient of 0.82 was obtained.

The Blocklaying Achievement Test (BCAT) was administered three times to students in both groups by the subject teachers, to ascertain the pretest, post-test retention scores, but test was reshuffled and the colour of the paper changed before administering it as post-test retention test. Each test lasted for a period of 60 minutes and scored in the answer sheet provided. One question carried one mark to make a total of 45 marks. The data, as the test scores, were analyzed using Analysis of Covariance (ANCOVA) at 0 .05 level of significance. The p-value was used to determine the rejection or acceptance of hypotheses, such that null hypothesis is rejected when p-value is less than or equal to 0.05; but when the p-value is greater than 0.05, null hypotheses is accepted (Dallal, 2002).

Data Analysis

Since the research questions were hypothesized, the results of the hypotheses are presented as follow>

Hypothesis 1

Table 1: Interaction Effect of Medium of Instructions and Gender on the Students' Achievement in Blocklaying

Source of Variation	Type III Sum of Squares	Df	Mean Square	F	Sig value

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Corrected Model	887.654[a]	4	121.431	6.667	.000
Intercept	102.504	1	102.504	9.345	.008
Achievement	946.939	1	946.939	31.436	.000
Gender	4.822	1	4.822	.432	.568
Treatment	41.915	1	41.915	1.999	.341
Gender * Treatment	15.93	1	15.93	.549	.000
Error	1231.742	112	19.286		
Total	18001.011	114			
Corrected Total	1505.553	113			

Table 1 shows that there is a significant interaction effect of medium of instruction and gender on the students' achievement in blocklaying, $F(1, 113) = .549$, $p< 0.05$. This indicates that there is a significant interaction effect of medium of instruction and gender on the students' achievement in blocklaying. Therefore, the null hypothesis that says there is no significant interaction effect for instruction and gender on the students' achievement in blocklaying is rejected.

Hypothesis 2

Table 2, Interaction Effect of Medium of Instructions and Gender on the Students Retention in Blocklaying

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38245.665[a]	4	9561.416	22.781	.000
Intercept	39769.078	1	39769.078	94.753	.000
Retention	7143.386	1	7143.386	17.020	.000
Gender	.486	1	.486	.014	.906
Treatment	4191.55	1	4191.55	119.51	.000
Gender * Treatment	8588.387	3	2862.796	6.821	.000
Error	96114.062	112	419.712		
Total	869080.000	114			
Corrected Total	134359.726	113			

Table 2 shows that there is a significant interaction effect for instruction and gender on students' retention in blocklaying, $F(1, 113) = .549$, $p< 0.05$. This indicates that there is a significant interaction effect for instruction and gender on students' retention in blocklaying. Therefore, the null hypothesis that says there is no significant interaction effect in the medium of instruction and gender on students' retention in blocklaying is rejected.

Discussion of Results

The findings revealed that there is a significant interaction effect of medium of instruction and gender on students' achievement in blocklaying. This implies that usage of mother tongue for instruction has significant interaction with gender for effective and potential ways of improving students' achievement in blocklaying. The finding is in line with Eze, Ezenwafor and Obidile (2016), which reported that medium of instruction and gender of the student interacted significantly.

The findings revealed that there is a significant interaction effect of medium of instruction and gender on students' retention in blocklaying. These findings was in agreement with the finding of Osungbemiro, Olaniyan, Sanni and Olajuyigbe (2014), that there is a significant

interaction effect on the use of indigenous language as a medium of instruction in teaching Biology on students' retention in Ondo West Local Government Area of Ondo State.

Conclusion

Based on the findings of the study, it was concluded that the use of mother tongue for instruction is an effective means of improving students' achievement as well as retention in blocklaying. Irrespective of the gender, the use of mother tongue for instruction showed a significant interaction between mother tongue as a medium for instruction, gender and academic achievement and retention of blocklaying students at the technical colleges in Oyo central senatorial district.

Recommendations

The following recommendations were made:

1. Teachers\instructors of blocklaying most acquire the knowledge and skills for the use of mother for instruction through educational means like training, conference and seminars.
2. Government at all levels should approve and encourage the use of mother tongue to teach skill courses like blocklaying in technical colleges.
3. Curriculum planners should incorporate the usage of mother tongue for instruction in technical colleges to teach blocklaying/bricklaying.

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