Role Playing Teaching Strategy and Its Effect on Academic Achievement of Students in Learning Simple Blue Print Reading

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ABSTRACT
Role play is the practice of having students take on specific roles and act them out in a case-based scenario for the purpose of learning course content or understanding complex or ambiguous concept. The researchers employed non-randomized quasi-experimental research design. Intact class A and B were used for the study. Students in class A were taught simple blue print reading using role play teaching method while student in class B were taught simple blue print reading using lecture teaching method. The researchers used one research question and hypothesis in the study. Population consists of 124 JSS1 students from Gbarainowei Government Secondary School, Bayelsa State. Purposive sampling technique was used to select 22 students in JSS1B in Gbarainowei Government Secondary School, Bayelsa State. The researcher developed an instrument titled ‘Simple Blue Print Reading Test’ (SBPRT). The test instrument consists of 10 items which was selected from the content of Basic Technology at JS1 in Nigeria Ministry of education syllabus. SBPRT item were subjected to content validation by two Basic Technology teachers from Maranatha Secondary school, Port Harcourt. Spearman Ranking Order technique was used to calculate the reliability of the instrument to be 0.83. Mean and standard deviation were used to answer the research questions, while Analysis of Variance (ANOVA) was used to analyze the research hypothesis. The findings from research question 1 showed that experimental group taught simple blue print reading with role play teaching method performed better than those taught with the lecture method with a mean difference of 20. The null hypothesis was accepted as F-calculated value of 2.72 was less than F-tabulated value of 4.35 at 0.05 level of significance. This indicates that there is no significant difference between the academic achievement of students taught simple blue print readings using role play teaching method and those taught using lecture method. Therefore, among others it was recommended that students should engage in practical oriented teaching strategy like the use of role play method to boast students’ academic achievement.

Keywords: role playing teaching strategy, academic achievement & simple blue print reading.

INTRODUCTION
Blue prints are used to for presentation of original details of drawings. Blue print reading is the end result of sketches which are developed by architects and draughtsman to show the exact representation of a building (Elekwa, Bamikoro, Oluyide, Ladoye, Nurudeen, Akuru & Olopade, 2011). Blue print reading is one of the fundermental topics treated in basic technology at junior secondary school level. Basic technology is an essential course that introduces students’ modern concept and innovation in the world. Technology related courses are always central among mandatory subjects that students at the lower level of secondary education are expected to pass for upward movement (Rijavec & Brdar, 2002). Basic Technology is practical-oriented subject that is meant to develop practical and applied skills in the young engineers and scientist (Joshua, 2014). Teaching and learning of the subject are designed to ensure inculcation of technological literacy, that is, basic understanding of and capability in
technology; exposure of the beneficiaries to the world of work to match their talents and interests for wise vocational choice; and instillation of positive attitudes toward work as a source of human identity, livelihood and power (Joshua, 2014). Student growth and development in basic technology depends on the teaching method and approach adopted by the instructor. In a study conducted by Okoye, Momoh, Aigbomian, & Okecha (2008), they examined the correlation between two independent variables of teacher quality and instructional strategy on students’ performance in secondary school science in Ethiope East and Ukwuani Local Government Areas of Delta State. The result of the study showed that the teacher quality and instructional strategy had positive significant relationship with achievement in science; and that teacher quality and instructional strategy were two non-separate interactive independent variables in science education. This implies that teaching strategy is a key factor for that may influence students’ performance in Basic Technology.

Different teaching strategies have been developed over the years to solve students learning difficulty and to improve academic performance. Academic achievement of the students start from the classroom and technical college teachers should train the students with appropriate method that would be used to pass across skills and knowledge rather than the usual traditional method (Osho, 2007). Some of such expository methods used in teaching are lecture, group discussion; project based learning strategy, role play teaching method, cooperative and so on. Observation shows that students learn most often with the lecture method in school and in such class, notes are taken as teacher gives instruction (Agboola, & Oloyede, 2007). In conventional/traditional lecture method, the teacher is the sender or the source while the educational material is the information or message and the student is the receiver of the information. In terms of delivery medium, the educator can deliver the message through the talk and chalk method (Rengarajam, 2005). It has been observed by teacher and researcher that the conventional method of teaching in the classroom is of limited effectiveness in both teaching and learning (Rengarajam, 2005). In such a class, students play partial role in contributing to knowledge and their concentration fades off after 15 to 20minutes (Damodharan, 2006).

On the other hand, Rao & Stupans (2012) stated that role play teaching strategy is the practice of having students take on specific roles and act them out in a case – based scenario for the purpose of learning course content or understanding complex or ambiguous concepts. Sogunro (2004) said that, the guidelines for role-play are usually modeled on realistic criteria so the students can get as close to the real thing as possible. Rosa, (2012) asserts that research on role-play effectiveness and best practices exists as far back as 1970’s. In recent times, role-play has been touted as a tool better suited for the needs of today’s college students than more traditional teaching methods. According to Maier (2002), role play pedagogy has been shown to be effective in reaching learning outcomes in three major learning domains such as affective, cognitive and behavioral. Westrup & Planander (2013), Sogunro (2004) were of the opinion that by making students take on the role of another person, they practice empathy and perspective taking. This can lead to more self-reflection and awareness on the part of student. Shapiro & Leopold (2012) also reported that researchers have found role-play useful in getting students to better grasp practical cognitive skills as well. Therefore, the study intend to look at the effect of role play teaching strategy on students achievement in learning simple blue print reading in Basic Technology.

Statement of Problem
The teaching and learning of Basic Technology has been problematic causing high rate of failure of students at external examination. Over the years, students’ performance in introductory technology has not been encouraging. The poor performance is very evident in the number of students that enroll for science including vocational and technical related subjects at the senior secondary school level which also goes further to affect their enrolment at the tertiary institution level (Negedu, T. O., Daluba1, N. E., 2014). This may be attributed to the teaching method adopted by the teacher in passing instructions in the class. There is therefore the need to introduce role play teaching strategy to see if student’s academic achievement will improve.

Purpose of the Study
Role Playing Teaching Strategy and its effect on Academic Achievement of Students in learning Simple Blue Print Reading was discussed in this study. Specifically the study intend to find out the difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.
Research Question
The research question was used as guide to the study:
What is the difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.

Research Hypothesis
The research hypothesis stated below was tested at 0.05 level of significance:
\[ H_0: \text{There is no significant difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.} \]

METHODOLOGY
Research Design
The researchers adopted two group non-randomized quasi-experimental research designs. Intact class A and B were used for the study. Students in class A are used as experimental group and were taught simple blue print reading using role play teaching method while student in class B are taught simple blue print reading using lecture teaching method and were used as control group. Treatment was administered to both experimental and control group.

Population of the Study
The population consist of 124 Jss1 students from Gbarainowei Government Secondary School, Bayelsa State. The students were selected because they are offering basic technology and are operating on the same curriculum as recommended by Nigeria basic education. The figure was obtained from the Vice Principal of the school.

Sample and Sampling Technique
Purposive sampling technique was used to select 22 students in JSS1B in Gbarainowei Government Secondary School, Bayelsa State. The students were randomly assigned to group A and group B. Group A students consist of 11 (4 males and 7 females) students and group B students consist of 11(8 males and 3 females) students. Students in group A were used as experimental group while students in group B were used as control group.

Research Instrument
The researchers in this study developed a test instrument titled ‘Simple Blue Print Reading Test’ (SBPRT). The instrument was developed based on sub-topics generated from simple blue print reading in basic technology. SBPRT item consist of 13 multi-choice objective questions with five response option (i.e. a, b, c, d, & e.). The instrument was given to both experimental and control group.

Administration of Instrument
Treatment for Experimental Group
The following steps were taken to administer SBPRT items for experimental group:
1. The researchers used the regular basic technology teacher as research assistant and briefed him on how to follow lesson plan guidelines in carrying out treatment for experimental and control group.
2. The research assistant observed regular school time table schedule in administering treatment for experimental and control group.
3. Students in experimental group were taught simple blue print reading using role play teaching strategy were provided with different building plans to observe.
4. The teacher taught the students various components of the building plan and asks them to identify the plan around their vicinity.
5. After illustration by the teacher, the students were left alone and asked to play the role for designing and interpreting blue print readings.
6. The teacher guided the students as they carry out role play demonstration.
7. At the end of the treatment, the teacher administered SBPRT as post-test to students for 1 hour.
Treatment for Control Group
The researcher observed the following procedure to administer treatment to control group:
1. The research assistant taught student in control group with lecture method following the regular lesson plan.
2. Students were presented with picture of different building plans as the lessons progress.
3. The teacher allowed the students to ask questions at the end of each discussion.
4. Finally, the students were given post-test on SBPRT for 1 hour.

Validation of Instrument
The researchers subjected SBPRT item to content validation by two Basic Technology teachers from Maranatha Secondary school, Port Harcourt. The test instrument consists of 10 items which was selected from the content of Basic Technology at JS1 in Nigeria Ministry of education syllabus. The experts were asked to check if each item were part of the topics covered during the study and to find out if statements used actually reflected solicited expression of interest.

Reliability of the Instrument
A test-retest reliability method was employed to determine the consistency of the items. After the items were administered twice within two weeks to 5 students in JSS1 in New Covenant Secondary School, Port Harcourt, Spearman Ranking Order technique was used to calculate the reliability of the instrument to be 0.83 which was considered adequate for the study.

Method of Data Collection
The experimental group taught simple blue print reading with role-play teaching method was administered with post-test that lasted for 1 hour. Students in control group taught simple blue print reading using lecture method were also given post-test that lasted for 1 hour. The scores obtained from post-test of students were converted to percentage and are used as source of data collection.

Method of Data Analysis
The raw scores obtained from the study were used to analyze the research question using mean and standard deviation. Analysis of Variance was used to analyze the research hypothesis at 0.05 level of significance.

FINDINGS
The finding is based on the analysis of data obtained in table 1 and 2 below.

Research Question
What is the difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method?

Table 1: Difference in mean academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Difference in Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group taught with role play teaching method.</td>
<td>79.40</td>
<td>20.00</td>
</tr>
<tr>
<td>Control group taught with lecture teaching method.</td>
<td>59.40</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>138.80</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Result from table 1 indicates that the mean score of Experimental group taught with role play teaching method is 79.40 and the mean score of control group taught with lecture teaching method is 59.40. This yielded a mean difference of 20.00 in favor of experimental group taught simple blue print reading with role play teaching method. Therefore from the data obtained in table 1 of research question 1 it can be stated that experimental group taught simple blue print reading with role play teaching method performed better than Control group taught with lecture teaching method.
Research Hypothesis
There is no significant difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.

Table 2: Analysis of Variance on the mean responses of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Df</th>
<th>Sum of squares(SS)</th>
<th>Mean square</th>
<th>F-cal.</th>
<th>F-tab.</th>
<th>Significance</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>200</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>20</td>
<td>1469</td>
<td>73.45</td>
<td>2.72</td>
<td>4.35</td>
<td>No significance</td>
<td>Accept</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>1669</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Decision: From F-ratio distribution, the critical value of F with 1 and 20 degree of freedom at 0.05 level of significance is 4.35. Since the computed value of 2.72 is less than critical or tabulated value of 4.35, we hereby accept the null hypothesis. This then implies that there is no significant difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method.

DISCUSSION
The result obtained from the study showed that experimental group taught simple blue print reading with role play teaching method performed better than Control group taught with lecture teaching method with a mean difference of 20.00. This findings is in line with the statement of HBU, 2014 role-play teaching strategy provide the possibility of significant learning, which give room for experience to be gained by encouraging students to develop an understanding of the situation from different point of view.

The findings of research hypothesis revealed that there is no significant difference in academic achievement of students taught simple blue print reading using role-play teaching strategy and those taught simple blue print reading using conventional lecture method. This is affirmative as f-calculated value of 2.72 is less than critical or tabulated value of 4.35 at 0.05 level of significance.

RECOMMENDATIONS
Finally, it was recommended that:
1. Teachers should engage students in practical oriented method of teaching like role play learning strategy.
2. Teachers should also develop lesson plans that should include role play instructional technique.

REFERENCES


