Effectiveness of the Constructivist Pedagogical Strategy on Academic Achievement of Nigerian Secondary School History Students

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Abstract: This quasi-experimental study sought to determine whether secondary school students taught history using the constructivist approach would perform better in a post-test than those taught by the expository/lecture approach. It also aimed at finding out the comparative performances of male and female students taught using the constructivist instructional approach. Two research questions and two hypotheses were formulated to guide the study.

The subjects consisted of 49 senior secondary school students of a secondary school in Imo State, Nigeria. These were randomly assigned to two treatment groups as follows: 24 to the constructivist and 25 to the lecture/expository group. The pre-test-post-test control group design was adopted. The experimental (E) group was taught using the constructivist approach while the control (C) group was taught with the lecture/expository method. Efforts were made to control for the extraneous variables.

The instrument for data collection was a 50 item History Achievement Test (HAT) which was developed and validated by the researchers. The reliability of the HAT was determined by using the Pearson’s Product Moment Correlation Coefficient Statistic and it yielded an index of 0.78.

The study lasted for 4 weeks during which the E at C groups were taught 3 topics of African History using the two methods. After the experimental treatment HAT was administrated to the two groups. Data related to the research questions.

Data were analyzed using means and standard deviations while those related to the hypotheses were analyzed using analysis of covariance. The result showed that the group taught by the constructivist approach performed significantly better than the control group taught using the lecture/exposition approach. The performance of the students was not influenced by sex as a factor.

Keywords: History, Constructivist Pedagogy, Lecture Method, and Academic Achievement

1.0 Introduction

The versatility of history as a school subject is evidenced by the fact that it relates to every aspect of life, focusing on the past, relating it to the present as a basis for addressing and forecasting the future. The History and Archaeology Panel (2000) describes History as a distinctive and well-established academic discipline with its own method of discourse. History is therefore the study of change and development in the society over time. According to Telebaum, Naidu, Jegede and Austin (2001) history possesses the features of both an art and a science, given that it enquires into the truth and doing so through a systematic and scientific mode of investigation.

Its study enables persons in a given country to understand how past actions, policies and practices affect the present, influence the future and allow people to evaluate these effects. History asks such questions as: What happened? Why did it happen? What was the result? These questions explain why history involves critical thinking about stories heard about the past and stories told in the present (Department of Basic Education 2010; Rob, 2016).

A critical analysis of the above questions in relation to any nation including Nigeria, and a judicious application of the implications of the correct and unbiased responses to the issues would lay a solid foundation for an enduring posterity for any nation. It is perhaps for this reason that history is one of the subjects studied at the post basic (secondary) education level in Nigeria as stipulated in the National Policy on Education of the Federal Republic of Nigeria (FRN, 2013). Without any doubts, the study is of critical importance to the growth and development of this nation. The Department of Basic Education (2010) asserts that history supports
democracy by upholding constitutional values reflecting the perspectives of the broad spectrum of people (race, class and gender), encouraging civil responsibility, promoting human rights and peace, and preparing for local and national responsibility.

The aims of history according to Akuakanwa (2017) are to: promote self-understanding; give proper conception of time, space and society; enable people assess the value and achievement of their own age; teach tolerance; develop right attitude, foster emotional integration; develop international understanding; and promote socialization.

Irrespective of the importance and relevance of history to national unity and development, the subject, until very recently, had suffered national disregard and neglect. Its relevance had been questioned and at a stage, it was almost completely expunged from curriculum as a full-fledged subject. Hills (2014) lamented over the withdrawal of history from the school curriculum during the 2009/2010 academic session. However, thanks to the wisdom of the then Minister of Education, Adamu Adamu, who took a bold step in making a policy statement that restored history as a full-fledged subject in our primary and secondary schools in 2018 (Nwachukwu, 2018).

The near-fatal blow unleashed on history in the Nigerian school curriculum was aggravated by the ineffective instructional method adopted by many teachers in teaching the subject in particular and other subjects in general (Akubulo, 2004; Ivowi, 2008, Azubuike, 2015; Mbakwem 2005) These authors asset the superiority of learner-centered instructional approaches over the teacher-centered modes in promoting authentic learning among Nigerian secondary school students. The constructivist pedagogy is one of the learner-centered methods of instruction.

Constructionism is a theory of learning by which students construct knowledge in the process of learning through interaction with a phenomenon within a social context. The belief is that students can learn by making sense of a phenomenon as they experience it, evaluate its merit and attempt to make sense of it within a socially acceptable context in the light of a prior knowledge (Blight 2000) The constructivists also believe that learning occurs when individuals assimilate new information into existing mental models that can accommodate both old and new insights gained from experiences. When this happens, knowledge structures are built and these are facilitated through active engagement in the learning process.

The constructivist approach to teaching is based on the constructivism theory which in turn posits that knowledge is constructed in the human mind when information comes in contact with existing knowledge. Constructivist theory emphasizes active learning which inherently implies doing. The theory originates from the ideas of Dewey (1938) both of which focus on how knowledge is organized in a learner’s brain; readiness of the learner and intuition of the learner. Onuoha-Chidebere (2014) reports that the purpose of constructivism in education is to make-learners become creative and innovative through analysis, conceptualization and synthesis of prior knowledge to create new knowledge. In her study she found that students taught mathematics with the constructivist approach performed better than those taught using the lecture method. Ayaz and Sekerci (2015) note that a constructivist teaching/learning environment is different from the traditional classroom. In the constructivist classroom, activities are profound. Learners are presented with information which forms the basis for their activities as active learners. Debates and other activities of interest and fun are undertaken which ultimately target the needs of the learners. These organized activities provide opportunities for creative thinking as students grapple with real life problems.

Teneburn, Naids, Jegede and Austin (2001) believe that the constructivist method has a positive influence on students’ academic achievements. Other studies confirm positive influence of constructivist methods on academic achievement (Karadunon & Gutekin 2007, Mbakwem, 2009, Onuoha Chidebere 2014; Oludipe and Oludipe 2010; Ayaz & Sekerci, 2015.

The constructivists acknowledge the learners’ role in the personal creation of knowledge and the importance of experience in learning. The constructivist approach incorporates a learning process wherein students gain their own conclusion through the creative aid of the teacher as facilitator. In other words, the teacher monitors, flexibly guides the students to the correct answers, while encouraging critical thinking. As a result, instead of having students relying on someone else’s information and accepting it as truth, the student should be exposed to data, primary sources and interaction with other students so that they can learn from the incorporation of their experiences. This is why some other methods of teaching are based on constructivism learning theory such as inquiry, discovery and cooperative learning, among others. (Applefield, Hube & Mieallem 2000)

The constructivist classroom employs such strategies as:

- having students working together and aiding to answer one another’s questions;
- designating one students as the expert on a subject and having them teach the class;
allowing students to work in group or pairs and research on controversial topics which they must present to the class; and

allowing constant conversation between the students and the teacher such that ideas can be considered and understood as the students feel free to accept challenges defend their own position and support real world situation with abstract supporting data. (Jonassen, 1991:10)

The constructivist teacher supports students by giving those tasks that challenge them thus encouraging students’ autonomy and initiating use of authentic data with manipulative, interactive and physical materials to challenge learners. Windschitl (2002) explains that teachers assist learners identify attributes of the rich, realistic contexts that have been unattended to before, and that demand constructivist solutions, and guide students’ interaction as they work cooperatively to solve the complex problems that no learner would manage alone.

Teaching history in a constructivist learning environment implies the relevance of authentic activities that would help history learners construct understanding and develop skills that are essential in solving problems that are genuine to real life situations. That learning environment can be supported with tools such as computers (Wilson, 2006; Onuoha-Chidebere, 2014). The learner in the constructivist learning environment is therefore self-directed, reactive and innovative. Students in the constructivist learning will be subjected to high-level thinking process which may involve the formulative and testing of hypotheses in an attempt to find solutions to historical challenges. This approach believes, should compel schools to create classroom environments that induce sufficient intellectual challenge and compel effective thinking on the part of learners.

Other studies by Karadumen and Gultekin, 2007; Oludipe and Oludipe 2010; Onuoha-Chidiebere 2014 and Ayaz and Sekera 2015 and Aydisheh and Gharib 2015 confirmed the superiority of the constructivist instructional strategy over the traditional approach in the teaching of the social studies, integrated science, mathematics, Turkish studies and mathematics respectively.

In all the studies that have examined the efficacy of the constructivist approach none of them investigated the effectiveness of the methods in the teaching and learning of secondary school history in Imo State or elsewhere in Nigeria.

Furthermore (Nwachukwu (2018) observes that the academic performance of candidates who took history in the West African Senior Secondary School Certificate Examinations in 2016 was not encouraging at all, a trend that had persisted over the past several years. There is therefore the need to conduct studies on methods of improving the teaching of history in order to attract more students to study the subject and improve the performance of students in the subject.

1.1 Purpose of the Study
This study aims at determining the effects of the constructivist instructional approach on academic achievement of secondary school students in history in Imo State. More specifically, the study sought to determine:

i. if students taught with the constructivist approach will obtain significantly higher mean achievement scores than those taught using the conventional lecture/expository method; and

ii. if differences will exist between the mean scores of male and female students taught with the constructivist approach.

1.2 Research Questions
The following research questions guided the study:

i. What is the difference in the mean achievement scores of students taught history with the constructivist approach and those taught with the lecture/expository method?

ii. What difference exists in the mean achievement scores of male and female students taught history with the constructivist approach?

1.3 Hypotheses
The following hypotheses were formulated to guide the study:

HO1: There will be no significant difference in the mean achievement scores of student taught history using constructivist method and those taught through traditional lecture/expository at post-test.

HO2: There will be no significant difference between the mean achievement scores of male and female students taught history with the constructivist approach at post-test.
2.0 Methodology

2.1 Design: The study adopted a quasi-experimental design using the pre-test-post-test control group design. It adopted a 2 x 2 factorial design. This involved 2 two teaching methods, (one experimental and one control group). The experimental group was taught using the constructivist approach and the control group was taught with the expository/lecture method. One dependant variable (achievement) and one moderator variable (gender) were involved in the study. A pre-test and post-test were administered to both groups.

2.2 Subjects: The subjects used for the study comprised a total of 49 students of the senior secondary school 2, who registered for history in the West-African Senior Secondary School Certificate Examination in one Secondary School in Imo State, Nigeria.

The students were randomly (using the ballot technique) assigned to the two treatment groups of
- 24 for the constructivist instructional approach,
- 25 for the lecture/expository method

2.3 Instrumentation

2.3.1 Development of the Instrument

A 50 – item multiple-choice pretest was developed based on the topics that all the students had studied in their previous class-senior secondary school 1. The said pretest was constructed by the researchers using a table of specifications to ensure judicious coverage of all the topics studied in the previous year. Another 50 item multiple choice History Achievement Test (HAT) was developed based on the topics to be taught in the course of the experiment. The topics were

a. Indirect Rule in Northern Nigeria;
b. Indirect Rule in the Western Nigeria.
c. Indirect Rule in Eastern Nigeria,

The table of specifications was used to ensure that the test question items covered both the topics to be studied as well as the appropriate cognitive levels that the questions ought of target.

The face and content validations of the instrument (HAT) were undertaken by two experts in the areas of curriculum studies and measurement and evaluation; and a history teacher in a school not used for the study. The reliability of the HAT was established using a test-retest procedure in which the instrument was administered two times to 20 students who were not part of the study in a different school within 3 weeks interval. Using the Pearson’s Product Moment Correlation Coefficient Statistics, a reliability index of 0.78 was obtained. This was considered high enough for the study.

2.4 Development of Lesson Plan

Two variants of the same lesson plans covering all the three topics and eight lessons to be taught in the course of the experiment were developed jointly by the researchers and the classroom teachers who were to serve as research assistants to teach using the two different approaches (the constructivist, and lecture/expository methods). Using the lecturers who teach Methodology courses in the Faculty of Education, Abia State University, Uturu, Nigeria, the lesson plans were validated and certified appropriate for the study.

2.5 Training of Research Assistants

The 2 teachers/research assistants were trained in the procedures for carrying out the different teaching methods using the lesson plans as a guide. Their training lasted for one week of three practice sessions until we were confident in their ability to use the different lesson plans. Using two validated checklists of criteria for effective teaching, one, by the constructivist approach and the other by the lecture/exposition method, in rating the two teachers on their ability to teach in line with the prepared lesson plans, we became confident of their skills when their scores on the checklists measured up to 70% efficiency level.

2.6 Experimental Treatment

The trained teachers were given appropriate orientation on how to conduct the study with respect to time to teach the classes, the duration of the lessons, the same topics to be taught during each lesson period, the only difference being the instructional method as shown in the lesson plans. Obviously as a result of the activities involved in the constructivist instructional approach which included small group tasks, and discussions of data obtained from interviews their classes often took a longer period than the lecture group. It also involved pre-lesson activities such as internet and library search for information, and interviews of community elders.
The lessons/experimental treatment lasted for four weeks of two lesson periods per week. The lesson plans for the constructivist were used for teaching the experimental group while the lesson plans for lecture method were used to teach the control group.

Efforts were made to control for the intervention of extraneous variables like Hawthorne effect, experimenter bias, non-randomization effect and test instrument effect. At the end of the treatment, the two groups were tested under the same environmental condition using the HAT. Data related to the research questions were analyzed using means and standard deviations while those related to the hypotheses were analyzed using the analysis of covariance (ANCOVA).

### 3.0 Results

This section presents the analysis of data collected by the researchers for the study. The presentation is done according to the research questions and hypotheses.

#### 3.1 Research Question One

What difference in the mean achievement scores of students taught history with constructivist approach and those taught with lecture method?

The results of analysis of data generated are summarized and presented in Table 1.

<table>
<thead>
<tr>
<th>Source</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constructivist approach</td>
<td>24 17.50 2.09</td>
<td>33.54 4.65</td>
<td>16.04</td>
</tr>
<tr>
<td>Lecture method</td>
<td>25 17.08 1.71</td>
<td>19.48 5.88</td>
<td>2.4</td>
</tr>
</tbody>
</table>

The result presented in Table 1 shows that students taught history with constructivist approach had pre-test achievement mean score of 17.50, post-test mean score of 33.54 and mean achievement gain score of 16.04, while those taught with lecture method had pre-test achievement mean score of 17.08, post-test mean score of 19.48 and mean achievement gain score of 2.4. This result indicates that students taught with constructivist approach achieved higher mean score than those taught with lecture method at post-test. This implies that constructivist approach is an effective method of teaching history in secondary schools. The test of the corresponding hypothesis will however, establish whether or not the observed difference is statistically significant.

#### 3.2 Research Question Two

What difference exists in the mean achievement scores of male and female students taught history with constructivist approach?

The results of analysis of data generated are summarized and presented in Table 2.

<table>
<thead>
<tr>
<th>Source</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10 18.00 2.83</td>
<td>35.70 3.77</td>
</tr>
<tr>
<td>Female</td>
<td>14 17.04 1.35</td>
<td>32.00 4.72</td>
</tr>
</tbody>
</table>

The result presented in Table 2 above shows the difference in the mean achievement scores of male and female students taught history with constructivist approach. The result reveals that male and female students taught History with constructivist approach had post-test mean achievement scores of 35.70 and 32.00 respectively. This result indicates that the male students had higher mean scores than the female students. That is to say that the male students appeared to have performed better than the female students taught History with constructivist approach. The test of hypothesis will however establish whether the difference in the mean scores is statistically significant.
3.3 Hypothesis One:

There is no significant difference between the mean achievement scores of students taught history using constructivist approach and those taught with lecture method at the post-test.

Hypothesis one was tested with analysis of covariance (ANCOVA) in Table 3.

Table 3: Summary of Analysis of Covariance for the Pre-test and Post-test Scores of Constructivist Approach and Lecture Group method (p<0.05)

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F.cal</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected model</td>
<td>2423.196</td>
<td>2</td>
<td>1211.598</td>
<td>42.089</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>4532.663</td>
<td>1</td>
<td>453.663</td>
<td>15.725</td>
<td>.000</td>
</tr>
<tr>
<td>Pre-test</td>
<td>3.781</td>
<td>1</td>
<td>2.006</td>
<td>.070</td>
<td>.793</td>
</tr>
<tr>
<td>Teaching methods</td>
<td>3597.421</td>
<td>1</td>
<td>2406.332</td>
<td>83.592</td>
<td>.000</td>
</tr>
<tr>
<td>Error</td>
<td>1772.968</td>
<td>46</td>
<td>28.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63683.000</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>5421.768</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .647 (adjusted R Squared = .631)

Results in Table 3 revealed that the F-calculated value is 83.592 and the p-value of 0.000 is less than 0.05 level of significance, indicating that there is a significant difference in the mean achievement scores of students taught history with constructivist approach and those taught with lecture method. Hence, the null hypothesis is rejected. This implies that students taught with constructivist approach performed significantly better than those taught with lecture method on the same History Achievement Test.

3.4 Hypothesis Two:

There is no significant difference between the mean achievement scores of male and female students taught history with constructivist approach at the post-test.

The results of analysis of data generated are summarized and presented in Table 4.

Table 4: Analysis of Covariance (ANCOVA) for Test of Difference in the Mean Scores of Male and Female Students taught by Constructivist Approach.

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F.cal</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected model</td>
<td>118.734b</td>
<td>2</td>
<td>59.367</td>
<td>3.288</td>
<td>.057</td>
</tr>
<tr>
<td>Intercept</td>
<td>156.973</td>
<td>1</td>
<td>156.973</td>
<td>8.693</td>
<td>.008</td>
</tr>
<tr>
<td>Pre-test</td>
<td>38.876</td>
<td>1</td>
<td>38.876</td>
<td>2.153</td>
<td>.157</td>
</tr>
<tr>
<td>Constructivist approach</td>
<td>.000</td>
<td>0</td>
<td>.</td>
<td>.</td>
<td>.</td>
</tr>
<tr>
<td>Gender</td>
<td>55.532</td>
<td>1</td>
<td>55.532</td>
<td>3.07</td>
<td>.094</td>
</tr>
<tr>
<td>Error</td>
<td>379.224</td>
<td>21</td>
<td>18.058</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>27499.000</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected total</td>
<td>497.958</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .238 (Adjusted R Squared = .166)
Table 4 shows the analysis of covariance (ANCOVA) for test of hypothesis 2. The F-calculated (F-cal) value is 3.075 and the p-value of 0.094 which is greater than 0.05 level of significance, indicating that there was no significant difference between the mean achievement scores of male and female students taught history with constructivist approach. Therefore, the null hypothesis of no significant difference between the mean achievement scores of male and female students taught history with constructivist approach is upheld.

4.0 Discussion of Findings

The study reveal that constructivist approach is an effective method of teaching history in secondary schools and that it can be used to improve students’ performance in history. In affirmation to this finding, Karadumen and Gultekin (2007) discovered that constructivist learning materials improved or increased academic success and retention of students. Oludipe and Oludipe (2010) also concluded that the constructivist-instructed students had higher scores on the post-test and delayed post-test, compared to those exposed to conventional (lecture) method of teaching. Similarly, Aydisheh and Gharib’s (2015) finding indicated that the constructivist teaching positively affects knowledge, understanding, application, analysis, synthesis and evaluation. They concluded that constructivist teaching can help with students’ academic achievement. The similarities recorded above could be attributed to the effectiveness of the teaching method over time.

Further findings revealed that there was no significant difference between the mean achievement scores of male and female students taught history with constructivist approach. This agrees with Akimbobola’s (2013) study which concluded that a significant difference did not exist between the achievements of male and female students in evolution. Onuoha-Chidebere’s (2014) study also tallies with the finding. In her study, gender was not a significant factor in students’ academic achievement.

Akimbobola (2002) reports that any differences in the performance between boys and girls could be result of school environment and other issues. He maintained that prior to attending school, the general intelligence of girls was higher than that of the boys, but school conditions and good methods gives the boys the opportunity to enjoy some privileges.

Dabi (2008) in his own opinion stated some factors responsible for sex differences in academic achievement in some subjects to include the kind of methods applied in the curriculum, students’ attitude towards the subject and the nature of the vocational aspect of the subject. The above implies that gender can affect academic performance of students. That is why the present study uses gender as a moderator variable to investigate its influence on the academic achievement of secondary school history students.

One significant curricular implication of the utilization of the constructivist pedagogical approach pertains to the preparation of the lesson timetable especially in both private and public schools in Imo state. In primary and junior secondary schools, the lesson timetables provide for 30 and 35 minutes duration for lower and upper basic education classes respectively, while in senior secondary schools 1-3, the lesson period lasts for forty minutes. Such lesson periods are definitely too short for meaningful learning activities to be undertaken in most school subjects. For learners to be fully engaged in a learning activity, the teacher needs to have planned the said activity along with the learners and this planning takes time. After performing the activity, some time is needed to link the said activity with the day’s lesson objectives because activities are not undertaken in isolation of the lesson objectives. All these can hardly be effectively accomplished within the lesson period in its present form. This largely explains the preponderance of the expository method among primary and secondary school teachers.

Another implication of the findings is the need to reorientate our teachers from the traditional, expository/lecture/teacher-talk approach which is prevalent as a teaching approach in most of our schools to the learner-centered approach. We know that many of our teachers were trained to teach with the traditional teacher-centered methods. However governments, both at the federal and state levels, have invested funds substantially in the retraining of teachers along the modern learner-centered methods but it would appear that the old tradition is difficult to get rid of. In fact, the teachers that apply the expository approach feel justified by the fact that a lesson period of 30 to 40 minutes is certainly too short for any meaningful learning activity to be cooperatively planned and undertaken by the class and teacher. The lecture approach therefore becomes to them, the more realistic approach. We therefore call on the education authorities in Imo state of Nigeria to do the needful by creating enough time in the lesson timetable for useful activities to be undertaken by teachers and their class pupils and students.

Conclusion

The importance of history as a subject in the Nigerian school curriculum has over the years been played down and at a stage was nearly expunged from the curriculum. The reasons included the poor enrolment of students in the subject, the ignorance of policy makers about the important of the subject and the poor intelligence of girls was higher than that of the boys, but school conditions and good methods gives the boys the opportunity to enjoy some privileges.
performance of students in the external examinations. This study as revealed that with appropriate methods of teaching, students can perform well in the subject. When this happens, many students will very likely be attracted to study the subject in the Senior Secondary School Certificate Examinations and GCE. We therefore invite teachers of history to utilize the findings of this study to improve the quality of teaching of the subject. The curriculum planners and school administrators also need to examine the issue of timetabling and provide sufficient time, at least one hour for the study of the subject.

References


[7]. Azubuike, A.S. (20150. Effect of guided inquiry method on academic achievement and attitude in physical and health education at the Upper Basic Education level in Imo State (Master’s dissertation). Abia State University, Uturu, Abia State.


