EFFECT OF MULTIMEDIA-BASED INSTRUCTIONAL PACKAGE ON SECONDARY SCHOOL STUDENTS’ ACADEMIC ACHIEVEMENT IN GEOGRAPHY IN OYO STATE, NIGERIA

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Abstract
This study examined the effect of multimedia base instructional package on secondary school students’ academic achievement in Geography in Oyo State Nigeria. The study employed pre-test-post-test control group quasi experimental research design. The sample population comprises of 85 SS2 Geography students drawn from four public secondary schools in Ogbomoso South Local Government Area of Oyo State. Two intact classes were selected through simple random sampling technique from each of the selected schools and were later sub-divided into experimental and control groups. The study was guided by three null hypotheses. The two instrument used in the study were: Geography students achievement Test (GSAT) and Multimedia Instructional Package (MIP). Data were also analyzed with the use of mean, standard deviation ad t-test statistical tools. Findings of the study revealed that students taught with multimedia instructional package with the post achievement mean score (x=81.79) performed better than their counterparts taught with conventional method with post mean achievement scores (x=50.68). The findings also revealed that gender has no significant effect on the academic achievement of students. The male students had post-achievement scores (x=82.46) while the counterpart who are female had post-achievement mean score (x=81.95). Finally, it was recommended that Geography teachers should be exposed to seminars, workshops, and trainings; they should be encourage to use ICT tools in teaching while students should be given access to-computer usage with necessary facilities.

Keywords: Multimedia, instructional package, achievement, geography

Introduction
Geography as a school subject is very important and useful to student and everyone who seeks to cope with the ever-emerging realities of our time. This is because the earth which is the focus of geography study is the theater where virtually all human activities are carried out, and it is only reasonable that man knows about the nature and character of the earth, and consequences of interactions between man and his environment. Abdul (2007) defined Geography as a science of spatial relationships which focuses attention mainly on the interaction between man and his environment. Abdul (2007) defined Geography as a science of spatial relationships which focuses attention mainly on the interaction between man and his environments. Aman (2011) also views Geography as an inter-disciplinary field of study that influence agriculture, industry, commerce, economics development. Geography potentially assists cross-disciplinary learning and helps student to recognize the connections between geography and other field of study or specialization. Therefore knowledge of Geography is essential for successful living because of its practicable intellectual value (Abidoye and Ogunniyi 2012). According to Abul (2007) Geography is so distinguished from other branches of study mainly because of its ability to achieve a holistic and integrated understanding of its subject matter by drawing on knowledge from the natural sciences, the social sciences and humanities, and as it incorporates such into geographic perspective. Therefore, Geography is concerned with seeing a place in its total character and not in terms of a single phenomenon or group of isolated phenomenon (Abul 2007).

Aman (2012) identified the following objectives of Geography in school curriculum thus:
1. To enable students develop interest in both physical and cultural environment as a place, and home of human and thus broaden their outlook.
2. To enable the pupils to acquire a knowledge of natural resources.
3. To develop in pupils an understanding of how environment and climate have influenced our lives.
To develop in students an understanding of basic concepts, principles and theories relating to Geographical and environmental phenomena.

To train the pupils in nature studies.

To help students to understand the concept of human environmental relationship

To help students to develop a sense of responsibility towards the physical and cultural aspects of environment.

To develop in students a scientific attitudes and the ability to draw valid conclusions through independent thinking.

Unfortunately, reports on students’ academic performance in Senior Secondary Certificate Examination (SSCE) in Geography have not been encouraging (WAEC Chief Examiner’s reports have highlighted persistent poor performance of school certificate geography (WAEC 2004, 2005 and 2007 et cetera). This poor performance is attributed to poor method of instruction (Sharma 2013), wide coverage of the subject (Ofodu, 2010), insufficient instructional materials (Abidoye and Oguniyi 2012) and inadequate qualified teachers (Balogun 2006).

However, in order to achieve the objectives of Geography in senior secondary school curriculum, very rich and variety of methods and instructional materials need to be employed. Multimedia package could be used by teachers to facilitate effective teaching and learning of geography and also to improve students’ performance in the subject. Multimedia according to Sharman (2013) is refers to computer-mediated information that is presented concurrently in more than one medium. It consists of some, but not necessary all of the following elements: text, still graphic images, motion graphics, animations, hypermedia, photographs, video, and audio, i.e. sound, music and narration. Ibrahim (2005) also defines multimedia as the existing combination of computer hardware and software that allows the integration of video, animation, audio graphics and text resources to develop effective presentations on an affordable desktop computer. Multimedia technologies and applications are probably one of the most exciting innovations in the age of information evolution. They helped and got help from internet and other communication and computer inventions. Multimedia has the potential to create high quality learning environment, with the capability of creating a more realistic learning content through its different media (Adeosun, 2002) also claimed that the use of different presentations like video clips along with map or other kind of presentation help to get the information closer to reality. Adding music makes the idea clearer and it attracts the attention of the learners. Sharman (2013) asserted that the use of multimedia in class draws the attention and interaction between students and teachers. He also said further that multimedia presentation provide simultaneous feedback.

Gender is another important factor affecting students’ academic achievement in school subjects. Balogun (2013) reported that gender has significant influence on achievement while Mohammed (2004) reported otherwise. This situation therefore sustains the curiosity of researchers on this, making it necessary for the need to understand how achievement is influenced by gender and multimedia package in Geography.

Statement of the problem
Studies had revealed that the teaching and learning of Geography in secondary school is characterized with the use of conventional teaching method, which always makes teachers to dominate the class while the learner remain passive. The use of conventional method often responsible for learners’ low interest and poor academic achievement of students in the subject. The need to make use of modern technology therefore arise. This study investigated the impacts of multimedia on secondary school academic achievement in Geography in Oyo State Nigeria. The effect of gender on academic achievement was also examined in the study.

Methodology
This study adopted pre-test, post-test control group quasi experimental research design to determine the effect of multimedia package on senior secondary school student’s academic achievement in Geography. The population of the study comprises of all senior secondary school students in Ogbomoso South Local Government Area of
Oyo State. A sample size of 85 senior secondary Geography students (SS2) made up of 44 males and 41 female were randomly selected from four public secondary schools. Intact classes were used in each of the selected schools and were later subdivided into experimental and control groups. The experimental group consists of 24 boys and 20 girls making it to be 44 students while the control group consisted of 22 boys and 19 girls making it to be 41 students.

Two instruments were used in the study. They are: (i) Geography students Achievement Test (GSAT) and (ii) Multimedia package for Geography students (MPGS).

Geography students Achievement test (GSAT) was a self-develop instrument consisting of 20 items multiple choice with options a-d on Geography contents. This was designed to test students’ ability to master Geography contents. The instrument was validated through experts review. The instrument was later administered on 30 students from school not used for the study. A reliability coefficient of 0.82 was obtained using cronbachAlpha method.

Multimedia package for Geography students (MPGS) is an interactive multimedia package develop by the researcher together with computer experts. It consists of sound, images and video clip of Geography content recorded in a CD-ROM. The instrument was validated by 2 computer experts from computer Department in LadokeAkintola University of Technology Ogbomoso were also involved in the validation of the package.

**Results**

**Hypothesis 1:** There is no significant difference between the pre-test mean achievement scores of students in the experiment and control groups.

Table 1: Pre-test mean achievement scores of experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>DF</th>
<th>t-cal</th>
<th>t-critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>44</td>
<td>40.76</td>
<td>3.02</td>
<td>43</td>
<td>0.57</td>
<td>21</td>
</tr>
<tr>
<td>Control Group</td>
<td>41</td>
<td>39.72</td>
<td>2.81</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1 shows that the mean achievement scores and standard deviation of experimental group was 40.76 and 3.02 respectively while the mean achievement scores and standard deviation of the control group was 39.72 and 2.81 respectively. The table also shows the t-calculated (0.57) which was higher than t-critical (2.1). This result simply shows that there was little or no significant difference in the pre-test mean achievement of the experimental and control groups. This implies that both groups were equal ability. Hence the null hypothesis is hereby accepted.

**Hypothesis 2:** There is no significant difference between the post-test mean achievement scores of students taught multimedia package and those taught with conventional teaching method.

Table 2: Post mean and t-test achievement scores of experimental and control group.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Df</th>
<th>t-cal</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>44</td>
<td>81.79</td>
<td>4.35</td>
<td>83</td>
<td>3.52</td>
<td>2.0</td>
</tr>
<tr>
<td>Control Group</td>
<td>41</td>
<td>50.68</td>
<td>3.81</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

From the table 2 above, the post-test mean achievement scores of the experimental and control groups were 81.79 and 50.68 respectively. Testing hypothesis 2 at 0.05 level of significance, the result shows that t-calculated was 3.52 which is by far greater than t-critical of 2.0, hence a significance difference existed between the post-test mean achievement scores of students taught
with multimedia package and their counterparts taught with conventional method of teaching. Therefore the hypothesis which states that there is no significant difference between the post-test mean achievement scores of students taught with multimedia package and those taught with conventional teaching method is hereby rejected.

**Hypothesis 3:** There is no significant difference between the post-test mean achievement scores of male and female students taught with multimedia package.

Table 3: Post mean and t-test achievement scores of male and female students exposed to multimedia package

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>Df</th>
<th>t-cal</th>
<th>t-critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>24</td>
<td>82.46</td>
<td>4.80</td>
<td>43</td>
<td>0.23</td>
<td>2.01</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>81.98</td>
<td>4.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the table 3 above, the post-test achievement mean scores of male and female student with multimedia package were 82.46 and 81.98 respectively. Testing hypothesis 3 at 0.05 level of significance, the result shows that the t-calculated was 0.23 which was considerably less than the the t-critical of 2.01.

Hence, there was significant different between the post-test achievement scores of male and female students exposed to multimedia. Therefore the null hypothesis stated above was accepted.

**Discussion of findings**

The findings of the study reveal that pre-test mean achievement scores and standard deviation of both experimental and control group were similar. This is an indication that both groups were of equal ability with experimental group having just little edge over scores of both groups at pre-test stage were low, indicating the overall ability or entry behavior of the students at the onset of the study. The low pre-test scores of both group was not unconnected with the method of instruction as achievement is a product of effective teaching and learning which was a factor of methodology (Abidoye and Oguniyi 2012).

Findings of the study also reveal that students taught with multimedia package (experimental group) clearly performed better than those students taught with conventional method of teaching (control group). This result is in agreement with Abdul (2007) and Adeosun (2002) who in the study stated the contributions of multimedia based instruction to high academic achievement of students in secondary school Geography and social studies respectively.

Finding of the study on research hypothesis three indicated that the performance of male and female students exposed to multimedia instructional package were similar and not significantly different. This finding is in line with that of Ofodu (2010) and Abidoye and Oguniyi (2012) who reported that gender has no significant has no significant influence on achievement while Nzgaku (2007) and Sharma (2013) reported otherwise.

**Conclusion**

This study revealed that exposing learners to multimedia instructional package enhance their performance in Geography in senior secondary school (SSII). This implies that the use of multimedia-based instructional package always increase students’ performance in secondary school subjects especially geography.

**Recommendation**

Based on the findings of the study, the following recommendations were made:

- Teachers should be encouraged to use multimedia instructional package in the process of instruction.
- Government and school authorities should organize training and workshops for Geography Teachers on the use of multimedia instructional package.
- All teachers in secondary school should be technologically inclined.
The necessary facilities should be put in place for effective use of ICT in the school.

References


