INFORMATION AND COMMUNICATION TECHNOLOGY AND STUDENTS’ ACADEMIC PERFORMANCE IN BUSINESS STUDIES IN JUNIOR SECONDARY SCHOOLS IN AROCHUKWU L.G.A. OF ABIA STATE

Solomon Iheonunekwu; Onyemaechi Kevin Egesi and Ogbenyealu Uche Uchechi

Abstract

This paper is a comparative study on the effects of Information and Communication Technology (ICT) and Students’ Academic Performance in Business Studies in Junior Secondary Schools in Abia State. In the study students’ achievement in Business Studies in junior secondary schools was investigated. Two research questions and two null hypotheses were used for this study. The hypotheses were tested at significance level of .05 to provide answers for the research hypotheses. Means, standard deviations and t-test were employed in analyzing the pre-test and post-test data. The .05 level of significance adopted for the analysis formed the basis for rejecting or accepting a null hypothesis. Findings of the study revealed that there was a significance difference between the achievement scores of Business Studies students taught with ICT instructional packages and those taught with the conventional method on the post-test ($t = 15.54$, $df = 78$, $p < .05$). The implications of the findings for the use of ICT instructional packages were discussed. Recommendations for the improvement of Business Education in Nigeria and suggestions for further studies were also postulated.

Knowledge Review Volume 23 No. 3, December, 2011

36
Educators are finding out that while ICT can provide a technical environment for constructivist learning to occur, there are needs to develop quality teaching and to sustain environment that will change and inspire students to learn (Aviram and Talmi, 2004). One of the problems of teaching and learning is the method of imparting knowledge to learners. The major difficulty in teaching of business studies has been the method by which the subject is customarily taught without regards to instructional materials. The pedagogical approach in imparting knowledge to learners has become inadequate to their needs. Bajah (1995) and Okeke (1986) found that science subjects has not been taught in Nigeria schools the way pupils can maximally benefits, as science instruments have mostly been teacher-centered. For the past two decades, science education has been facing a lot of difficulties which include poor performance of students in science subjects (Adeyegbe, 1992). Business Studies like other subjects, recorded poor students’ performance both in national and international examination (Akale, 1986). Many factors contributed to the poor performance of students in examination (Akale, 1986; Okebukola and Jegede, 1997). These factors include:

1. Inability of the teachers to put across the concepts to the students
2. Lack of skills and competence required for teaching
3. Shortage of qualified introductory technology teachers
4. Lack of teaching materials and necessary equipment.

Business Studies as a subject is very important for the economic and technological advancement of any nation. Though its usefulness cuts across all fields of human endeavor, the low enrolment of students in the subject at both junior and senior secondary school levels has been a source of concern to various people especially business educators at various times (Omosowo, 1997; Balogun, 1985; Ogunneye, 1982; Orisaseyi, 1977; Ogunyemi and Eboda, 1974).

Lack of active participation of students is one of the factors responsible for students’ poor performances in West African Examination Council (WAEC) results of secondary schools where students’ performances are generally poor in business subjects, physics, chemistry, biology and other sciences-related subjects (West African Examination Council, 2000). This pattern of poor performance in the by students is also observed in tertiary institutions (Olarinoye, 1987). Omosowo (1997) asserted that teachers were using the lecture method of teaching the subjects in the secondary schools. The direct impact of this method on learners is that it often leads to lack of understanding and this usually cause poor performance and low enrolment of students in the subject. The low enrolment in business subjects is a cog in the wheel of the economic, scientific and technological progress in Nigeria.

Many students see business subjects as too abstract to comprehend, thereby resorting to memorization or rote learning. Many students have also changed from business subjects to art and other subjects while dropped out and some failed woefully at the final examination. Meanwhile, various attempts have been made by government, school proprietors and teachers to facilitate effective teaching and learning of these courses, which are the rudiments of development of any nation. Textbooks have been constantly reviewed and rewritten in simpler forms and teaching materials of various types designed, yet the problems persist.

Ogunneye (1982) found out that in this era of technological advancement, technology is still having minimum impact on education. This is because 80% of teachers in Nigeria are mostly using the chalkboard and textbook method (traditional method) in teaching. Actually, most schools do not have modern instructional equipment and media. The few schools that have are unable to use them effectively due to erratic power supply and at times the inability of some teachers to operate some of this instructional media equipment. However, constant use of the traditional method of teaching is a major factor contributing to poor academic achievement of business education students.

**Statement of the Problem**

One of the major problems faced by business studies students is inability to remember what has been learnt. This problem is often caused by too much theoretical expression by the teachers while learners are passive listeners. Students memorize and regurgitate facts and concepts. These problems
confronting the teaching and learning of business studies can be handled using slide presentations, video presentation process and other interactive ICT software facilities in which a student interacts with and is guided by visual equipment aimed at achieving certain instructional goals (Ezeliora, 1997; Onasanya, 2002).

Computer can be used to transform classroom instruction into a series of rich memorable experiences and thus, reduce boredom and forgetfulness in teaching subjects such as business studies. In the recent years, the development of microcomputer in the process of teaching and learning has become widespread in educational institutions (Ezeliora, 1997; Onasanya, 2002). Abimbade (1996) reported that the use of computer (1) increases the time of learners devote to learning, (2) enhance the speed of available of data and information, (3) provide immediate feed-back, (4) assist less qualified teachers and (5) increase teachers efficiently and effectiveness.

Udousoro and Abimbade (1997) and Adeniyi (1997) pointed out that students taught mathematics and physics with visual aid achieved higher cognitively than those taught without computer. This study was carried out to determine the effect of ICT on business studies and its implication on student’s performance. It was to address the problem of consistently poor performance of students in junior secondary schools and tertiary levels. The study also compares the effect of ICT presentation and the traditional method of teaching (chalk-and-talk method) in teaching and learning of business studies in junior secondary schools in Abia State, Nigeria.

Research Questions
The following research questions were formulated to guide the study

1. What are the achievement scores of students taught business studies with ICT presentation and those taught without ICT?
2. What are the achievement scores of male and female students taught business studies with ICT presentation?

Hypotheses
The following research hypotheses were tested at .05 level of significant

1. There is no significant difference between the mean achievement scores of students taught business studies with ICT presentation and those taught without the ICT
2. There is no significant difference between the mean achievement scores of male and female students taught business studies with ICT presentation.

Methodology
Research Design
The research design used for the study was a pre-test-post-test experimental control group design carried out in some junior secondary schools in Abia State, Nigeria between July 2009 and May 2010. The students were randomized into two groups. The researcher used an experimental research approach. Therefore, the pre-test and post-test control group design was used for the study.

Area of Study
The area of study is Arochukwu L.G.A of Abia State, Nigeria.

Population of the Study
The population of this study is made up 140 students offering business studies in four Public Secondary Schools in Arochukwu L.G.A of Abia State.

Sample and Sampling Technique
The sample for this study is 30 business studies students that were randomly selected for the study from each of the four secondary schools. In all, there were 60 males and 60 females. The students were taught the same concepts in using the conventional method and the ICT learning software. The sample subjects were drawn from two co-educational schools and two single gender
schools in Arochukwu L.G.A. of Abia State. The subjects from the co-educational schools were selected by the use of stratified random sampling technique. This method was chosen so that the gender variable could be appropriately represented. The same subjects were drawn from two co-educational and two single gender schools in Arochukwu Local Government Areas of Abia State. The subjects from the co-educational schools were selected by the use of stratified random sampling technique. This method was chosen so that the gender variable could be appropriately represented.

**Instrumentation**

The test instrument was made up of 50 items of Business Studies Achievement Test (BSAT) which was used as pre-test and post-test to measure both the lower and higher cognitive skills of the students. The test items required multiple-choice objective questions with five options (A-E) as possible answers to the questions which the students answered before and after the experiment. The experimental group was exposed to business studies lesson using ICT method for period of 6 weeks while the control group was taught the same using the conventional traditional method. After the duration of 6 weeks of treatment for the experimental group and the 6 weeks of lecture method for the control group, the post-test (BSAT) was administered to both groups.

The development of courseware for these research materials follows the systematic and recursive approach of instructional development model put forth by Mervill and Goodman (1997) and Philip (1987) however, five trails were made before the packages become successful. It was then tested with some few selected secondary schools in Ohafia zone. These schools used for testing the packages falls between the population of the study but not part of the schools selected for the study. Some of the complaints from these selected students about the packages was later used for further modification and finally perfected the package.

**Validity and Reliability of the Instruments**

The ICT presentation items were pilot tested and found to satisfy face, content and construct validity by three experts in educational technology, and science education departments. Item analysis of the instrument was carried out to determine the discrimination indices after which the final items for the instrument were selected and the reliability coefficient computed using the Richard Kuderson formula 21 (KR-2). The value obtained for the reliability coefficient was 0.95 and this was considered to be adequate for this study.

**Method of Data Analysis**

The mean, standard deviation and the t-test statistical analysis scores of the different groups were computed and used in answering the research testing the hypotheses. The level of the significance adopted for the analysis was $p \leq .05$. This level of significance formed the basis for rejecting or not rejecting each of the hypotheses.

**Results**

Two research questions were raised in this study and two null hypotheses were formulated and tested to provide answers to the research questions. Analysis of the pre-test and post-test collected were used to answer the research questions using the two null hypotheses as guide. Means, standard deviations and the t-test were employed in analyzing the pre-test and post-test data. The level of significance adopted for the analysis is .05. This level of significance formed the basis for rejecting or not rejecting a null hypothesis.

A pre-test was administered to both the experimental and control groups. The test was the 50 item multiple-choice on business studies. The subjects were allowed 40 minutes to do the test. The test was given to determine the academic equivalent of the experimental and control groups. The mean scores of students in the experimental and control groups on the pre-test were calculated and the t-test computed for the two means. Table 1 shows the means, standard deviations and the result of the t-test analysis.

The result in Table 2 shows that there is no significance at .05 level of significance between the pre-test mean scores of the experimental and control groups ($t = 0.22$, df = 118, $p>0.05$). This means that the subjects in the experimental and control groups were at the same entry level with
Hypothesis 1

There is no significant difference between the mean scores of students taught business studies with ICT presentation and those taught using the conventional method of presentation. To test this hypothesis, the post-test means scores of the experimental and control groups were presented and compared using the t-test statistics. The result is shown in Table 2.

Table 1: t-test Comparison of the Mean Scores of Experimental and Control Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>df</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>t-crt</th>
<th>p-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental groups</td>
<td>60</td>
<td>118</td>
<td>13.84</td>
<td>2.86</td>
<td>0.22*</td>
<td>2.08</td>
<td>0.83</td>
<td>Not significant</td>
</tr>
<tr>
<td>Control groups</td>
<td>60</td>
<td></td>
<td>13.65</td>
<td>3.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Not significant at 0.05.

Table 2: t-test comparison of the post-test mean scores of experimental and control groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>df</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>t-crt</th>
<th>p-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental groups</td>
<td>60</td>
<td>118</td>
<td>64.66</td>
<td>5.82</td>
<td>15.54*</td>
<td>4.75</td>
<td>0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Control groups</td>
<td>60</td>
<td></td>
<td>49.63</td>
<td>4.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at p < 0.05.

Table 3: t-test showing the post-test performance of male and female students in the experimental group

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>df</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>t-crt</th>
<th>p-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>30</td>
<td>58</td>
<td>62.26</td>
<td>6.23</td>
<td>0.29*</td>
<td>2.07</td>
<td>0.757</td>
<td>Not Significant</td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
<td></td>
<td>63.73</td>
<td>5.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Not Significant at p < 0.05.

The result (of the t-test analyses) in table 2 shows that there was significant difference between the post-test mean scores of the experimental and control groups at 0.05 level of significant (t = 15.54, df = 118, p < 0.05). Hypothesis I was therefore not accepted. This means that there was significance at 0.05 level of significance between the performances of students taught business studies with the ICT presentation and those taught conventionally. Students taught with the computer package performed better than those who were taught without computer; hence, the ICT software enhanced the learning of Business Studies.

Hypothesis 2

There is no significance difference between the mean achievement scores of male and female students taught business studies with the computer-aided learning software. To test this hypothesis, the post-test mean scores of male and female students in the experimental group were computed. The analysis was carried out using the t-test statistics and the result shown in Table 3.

From the result, in Table 3, it can be seen that there was no significant difference between the post-test mean scores of male and female students in the experimental group at 0.05 level of significant (t = 0.29, df = 58, p > 0.05). Null hypothesis 2 was therefore not rejected. The performances of the male
and female students in the experimental group were equally enhanced by the use of the ICT software; hence, the computer software on business studies was gender friendly.

Discussion
The result in hypothesis 1 which states that there no significant difference between the means scores of students taught business studies with ICT presentation and those taught using the conventional method of presentation, this seems to support earlier studies which concluded that students taught Mathematics and Physics with computer achieved higher cognitively than those taught without computer (Udousoro & Abimbade, 1997; Adeniyi, 1997; Hassan, 1997; Jonah, 1991). Finding on Table 2 shows that there was a significant difference in the business studies achievement of students taught with the computer-aided learning packages. Those students taught with the computer instructional packages performed better in the business studies achievement test compared with those who were taught using the conventional method. Computer aided learning promotes intrinsic motivation for graduate students to learn better, therefore, be seen as a tool for effective teaching and learning of introductory technology subjects. The ICT is an effective tool that can efficiently and effectively develop individual’s cognitive structure, psychomotor and affective abilities. Findings on Table 3 indicated that there was no significant difference between the performances of male and female students who were taught business studies with instructional packages. The male and female students performed equally well. The result agrees with the findings of Abdullahi (1982), who found that gender did not influence students’ performance in science generally.

Conclusion
Instructional strategies that teachers employ in teaching science subjects at secondary school level have significant effects on students’ achievement. The findings of the present study showed that better performance in business studies can be achieved through the use ICT instructional packages. Male and female students were affected positively and equally by the use of ICT instructional packages in teaching business studies. This showed that the ICT is not gender dependent. The use of ICT for teaching and learning in our schools should be encouraged. Therefore, computer instructions should be made compulsory for teachers and students in all levels of our educational systems.

Recommendations
The following recommendations are made:
1. Curriculum planners should enforce/inoculate the use of ICT and computer education/training into school curricula
3. Educators should continue to lay more emphasis and implement the concepts of educational technology as a means of enhancing the quality of education.
4. Federal government should fully implement ICT literacy at all levels of education in Nigeria.
5. In-service training should be given to teachers on educational technology particular on the production and use of computerized instructional materials.
6. There is need for government and non-governmental organizations to organize seminars, workshops, conferences as well as in-service training for teachers on methodology of teaching so as to be able to compare and contrast effects of different methods of teaching on students’ achievement.
7. Schools should be equipped with computer and internet facilities and other necessary instructional packages like slide and video presentations.
8. Emphasis should be placed on making learning to be a learner-centered affairs as well as teaching for meaningful learning.

References

Information and Communication Technology and Students' Academic Performance in Business Studies in Junior Secondary Schools in Arochukwu L.G.A. of Abia State


