

## COMPUTER GAME ASSISTED INSTRUCTION AND STUDENTS' ACHIEVEMENT IN SOCIAL STUDIES

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### Abstract

*This paper examines the effects of computer game assisted instructional method, student's achievement in social studies in Nigerian schools. An overview of the position of social studies subject in schools today is undertaken showing social studies teaching needs more attention, this is done by applying or integrating computer game assisted instructional method. Two research questions and hypotheses were formulated to direct the study. Social studies achievement test (SSAT) was used to collect data from 176 junior secondary school students (JSSII). The results showed that there is a significant difference in the achievement of students in favour of CGAIM, but there is no significant difference in the mean achievement level of boys and girls. It is recommended that in-service training seminars and workshops should be regularly organized for practicing teaching to acquaint them with new innovations and ideas in the methods of teaching the subject.*

**Keywords:** Computer game, instruction, achievement, Social studies

### Introduction

Computer game assisted instructional method (CGAIM) remains an important strategy for enhancing achievement in the implementation of the curriculum. Okafor (2008) noted that, it is necessary for Nigeria, a developing nation, to gear more towards authentic development through usage and promotion of assisted instructional method of teaching students at various levels of education.

Unfortunately, empirical studies have shown that despite the pivotal recognition and efforts towards effective teaching and learning of all subjects and social studies advancement, there is a continuous trend of poor usage of assisted instructional strategy in our secondary school level of education. James (2008) found in his study that there is a decline in the student's achievement in social studies. Findings from many studies have advanced numerous reasons for the deplorable state of social studies performance in Nigerian Schools. It is believed by some researchers that poor professional training, poor academic background of the teacher and inability of making proper use of assisted instructional methods are among the main factors responsible for the low performance of students in the subject (Nnaemeka 2008; Nwosu 2004 and Mazi, 2000) consequently, in order to realize these objectives that relates to the participation of students in practical activities, Mathew (2007) advised that teachers should use appropriate pedagogies that will not only demystify social studies but also it make it more interesting, fun and less fearsome. Sequel to this, the game assisted instructional method which has been adjudged to be effective in

enhancing student's achievement in history Aaron (2008).

Instructional games have been defined as enjoyable social activities with goals, roles and educational objectives (Samson 1998). Computer game according to Abel (1999) is an activity that proceeds according to a set of rules, but tempered with the whim of chance (good luck and hard work) lacing the game with a spirit of novelty. Computer game can be conceptualized as competitive interaction between two or more people bound by rules to achieve specified goals that depend on skills and chance.

Computers are highly motivating and have characteristic of challenges, fantasy and curiosity. CGAI therefore is a strategy that uses fascinating games relevant to scientific concepts to actively engage students in teaching-learning process. This method which enables the students to interact with scientific concepts in an enjoyable and very relaxed atmosphere creates enthusiasm in them. This makes the students look forward for the next lesson.

### Method

The study employed a quasi-experimental design of non-randomized pretest-posttest control group. This design was adopted due to the fact that it was not possible to have complete randomization of the intact classes of the subjects. The study sample comprised of 176 JSS II students from four schools in Minna metropolis of Niger State.

CGAIM consists of two types of computer games developed for the study. They are computer card games about symbols, valences, atomic numbers and electron configuration of elements; and jigsaw puzzle on formulae of compounds. The cards were drawn on 12 elements and 4 magic cards to change the course of the play. Any player that finishes his/her cards is considered to have won. The puzzles are cutout cards which can be fitted into each other to form formulae of compounds or subjects. The games are to enable the students to learn the concept of symbols of objects and formulae of compounds or subjects in exciting ways. It was anticipated that the enthusiasm shown by the students should encourage them to actively participate in the learning process and this would, in turn make the learning period longer.

#### Method of data collection

Data were collected using Social Studies Achievement Test (SSAT). SSAT was a 20 item instrument consisting of questions drawn from the topics covered by the treatment. The instrument was validated by three Social Studies teachers from Niger State Collage of Education. The instrument was pilot tested on a small sample of 25 students and its reliability was calculated using the Kuder Richardson (K-R-21) to be 0.92. The experimental group was taught using CGAIM while the control group was taught using lecture method for a period of four weeks.

Social studies teachers in the selected schools were well trained by the researcher on how to use CGAIM strategy before the treatment. Social studies achievement test was administered to the experimental and control group to get the pretest scores before treatment. After the 4<sup>th</sup> week, SSAT was administered again to both groups to obtain the posttest scores. The scores from these tests were analyzed using mean, standard deviation and t-test to answer the research question.

#### Results

Results show the mean achievement scores of experimental group as 7.42 before the treatment while the control group was 7.31. This shows that the mean achievement scores of the two groups of students were almost the same before the treatment (mean difference is only 0.11). This indicates that the two groups were of similar cognitive level before they were exposed to the different methods of teaching. The posttest mean scores of the two groups were 11.33 and 7.33 for the experimental and control groups respectively. This shows that the experimental group gained from the instructional method used with a mean difference of 4.00. This is indicated by the increase in the mean

achievement score from 7.42 to 11.33 (a mean difference of 3.91). On the other hand, the control group shows that the students gain is negligible with lecture method. It can be deduced that the students taught with CGAIM achieved better than those taught with lecture method.

The results also show that the effect of CGAIM on students' achievement in social studies was significant. This was revealed by calculated F - value of 61.52 which is greater than the F - critical value of 3.86 at  $P > 0.05$ . Hence, the use of CGAIM greatly enhanced the student's achievement in social studies.

Further results show that the experimental group obtained a mean achievement score of 11.33 in the posttest compare to 7.79 in the pretest. This indicated an improvement compared with their control group counter parts of 6.94 and 7.09 for posttest and pretest respectively. The female students also followed this trend with a mean achievement score of 9.28 compared to 7.71. This shows that both male and female students in the experimental group achieved higher than their control group counter parts.

However, the results also showed that the male students in the experimental group had higher mean achievement scores of 11.33 compared with their female counterparts. This situation is confirmed by the pretest - posttest result of 3.54 for the male and 2.30 for the female respectively. This implies that gender has an effect on the achievement level of the students in social studies. However this is refuted by the F- value of 0.87 calculated which is lower than critical F-value of 3.86 shown in table 2. This means that there is a difference in the mean achievement scores of male and female, this difference is not significant.

#### Discussion and educational implications

The study revealed that the students taught with computer game assisted instruction method achieved higher than those taught with lecture method (see table 1 and 2) respectively. The reason for this according to Abubakar (2008) is that the students were stimulated to learn without the use of computer game assisted instructional, which brings competitiveness, total involvement and employment of the lesson. The finding also confirmed the research of Mathew (2008) which showed that students showed greater understanding and performance of social studies concepts when exposed to interest, clinching and sustaining computer games. Also the finding from table 2 showed that male students had greater scores than their female counterpart, the difference in the performance is not significant. This

is contained in James (2008) that the performance of students in social studies does not depend on gender. The finding is also consistent with that of Aaron (2008).

#### Conclusion

The paper highlighted the importance of computer game assisted instructional technology in enhancing students' achievement in social studies. The paper reinforces the use of computer game assisted instruction which has been tested and proved to be a very viable strategy in enhancing student's achievement in social studies.

#### Recommendations

In order to significantly reduce the recurring problem of low achievement of students in social studies in Nigerian secondary schools, the following recommendations are made:

1. Social studies teachers should expose their students to various educative games that are related and tested to teach social studies concepts.
2. Teacher training institutions should emphasize the need to clinch students' interest through the use of strategies such as computer game. This strategy encourages activity-oriented method.
3. All authors of social studies text books should be encouraged to explain some social studies concepts on their books using local games that are relevant.
4. School administrators should be prevailed upon to provide the necessary games that can facilitate meaningful learning in their schools. This will enable the teachers to have access to them for better delivery of their lessons.
5. Seminars and workshops should be organized for in-service social studies teachers to keep them abreast with new innovations in methods of teaching the subject.

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