



## INTERACTION EFFECT OF GENDER AND TEACHING METHOD ON ACADEMIC ACHIEVEMENT AND INTEREST OF STUDENTS' IN ELECTRONIC LIBRARIES COURSE IN FEDERAL TERTIARY INSTITUTIONS IN ANAMBRA STATE, NIGERIA

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### Abstract

**Purpose:** This study investigated the interaction effects of teaching method and gender on students' academic achievement and interest in selected topics in electronic libraries.

**Design/Methodology:** Quasi-Experimental design was adopted. One institution was assigned to the experimental group while the other was assigned to the control group through a simple toss of the coin. Two groups experimental (30) and control (30) was used to investigate the interaction effect of teaching method( CAI) and gender on academic achievement and interest of students' in electronic libraries. In order to carry out the study effectively two hypotheses were formulated to guide the study. The sample for the study consisted of 60 electronic libraries students' in the tertiary institutions in Anambra State. Purposive random sampling was used to draw two institutions from the three federal institutions in Anambra State. A structured, self administered questionnaire termed "ELIS" was used for data collection. The population of the study was 100 students. A quasi experimental design was used to carry out this study. The internal consistency of the instrument was determined using Kuder-Richardson Formular 21 which yielded a reliability coefficient of 0.92. Mean and Standard Deviation were used to answer the research question. Experimental group was taught through computer aided instruction whereas control group was taught through modified lecture method. On the completion of six weeks' the effects of teaching method and gender were determined. The instruments were validated by experts. Data collected were analyzed using mean and standard deviation.

**Findings:** The researchers found out that there was no significant interaction effect of teaching method and gender on the mean interest scores of students in electronic libraries. However, no significant interaction effect of teaching method and gender was found on the mean achievement scores of students' in electronic libraries course.

**Practical Implications:** Based on the above findings, it was notice that the teaching and learning of electronic libraries will become practical and effective when lecturers improve in their teaching methodology.

**Originality/Value:** The value of this paper lies in finding out how teaching method and gender interaction affect academic achievement and interest of students' in electronic libraries.

**KEYWORDS:** Interaction Effect, Gender, Electronic libraries, Teaching Method, Anambra State, Nigeria.

### Introduction

Electronic libraries is one of the core courses in library and information science departments in federal tertiary institutions in Anambra State. The inclusion of Electronic Libraries in the tertiary institution curriculum in effect means that every student of Library and Information Science should have the opportunity to study the course and be used to computer. Electronic libraries is also known as Internet and electronic libraries course. Electronic

Libraries is that aspect of Library and Information Science process that prepares students for on-line- practical skills .The practical and technical skills in electronic libraries include; on-line resources access, operations, electronic library services, integrated search and management. Rapid changes have taken place in the approaches to teaching and learning of electronic libraries. Also developments in Technology particularly Information and Communication Technology

Education and their influence on the Library and Information Science Education imply that Lecturers and students must learn to adapt with the constant changing world to meet the contemporary development process. When Information Communication Technology (ICT) is properly integrated in Library and Information Science and Electronic Libraries classrooms, it can help to prepare and educate students on sharing of knowledge among themselves. It is also a viable tool which allows lecturers to provide feedback to student. 'ICT enhances teaching and learning as it involves the usage of variety of tools to enhance and facilitate teachers' pedagogical activities through its dynamics, interactive, flexible and engaging content' (Ugwuanyi, Mwantok, Mbara, and Ogbu, 2018). Electronic libraries is one of the areas in library and information science that students find difficult. Electronic libraries refers to the course in library and information science that treats the concept of internet and uses, Internet communication, search engines and search strategies, and issues and problems of ICT.

Information and Communication Technology is the use of computers, electronic and telecommunication equipment to process, store and retrieve, analyze and disseminate information in digital and other forms" (Ugwuanyi, Mwantok, Mbara and Ogbu, 2018). They further opined that it encompasses computer hardware, software, the network and other digital devices as video, audio and camera which convert information, images, sound, motion, data and text into digital forms. Electronic libraries is the bedrock of on-line information searching and retrieval development in library and information science course.

The use of ICT instructional tools/devices in teaching of electronic libraries course will make the course more practical, enjoyable and more interactive. Every student needs the knowledge of electronic libraries because it equips them with information searching skills and much more because of the orderly and easy way in which it enables students to find information within a twinkle of an eye. The use of ICT instructional method such as Computer Aided Instruction may afford the students the

opportunity to focus on strategies and improve the students understanding of Library and Information Science course and Electronic Libraries in particular. When all these tool/devices and instructional method required in the teaching of library and information science education are used in teaching and learning of library and information science concepts like electronic libraries it is hoped that it will enhance the students' understanding of the concept and hence boost the students' academic achievement in electronic libraries.

Computer aided instruction (or "cai") according to Qureshi (2020) is defined as an "interaction between a student, a computer controlled display and a response entry device for the purpose of achieving educational outcomes". CAI is seen in electronic libraries course as an instructional method which help to enhance students' academic achievement and interest cum learning and increase students' test scores.

Adeyemi(2012) investigated the interaction effects of gender and teaching methods on students' achievement in teaching social studies at junior secondary school level in Osun state. Adeyemi(2012) revealed significant interaction effect of treatment and students' academic achievement in social studies. Akintade (2017) investigated the interaction effects of gender and teaching methods on students' academic achievement and attitude towards latitude and longitude in Nigerian secondary school in Nigeria. Akintade(2017) revealed that there was no interaction effect related to treatment, gender and students' subject area in the post-test. The study of Umoru and Adekunle(2019) revealed that the interaction effects of gender and teaching methods was not significant on students' achievement and retention in business studies. This means that gender and teaching method did not significantly interact over the students' achievement.

On whether there was no significant interaction effect of teaching method and gender on students' interest Egara(2010) noted that there was no significant interaction effect between the teaching method and gender on students' interest score. This shows

that teaching method (computer aided instruction) enhance and sustains interest of both male and female (gender) students. That is, it is gender unbiased and does not interact over the students' academic achievement and interest.

Academic achievement in electronic libraries refers to how instructional content a student has learned as shown by scores obtained by the student. "It is the ability to retain and subsequently remember things experienced or learned by an individual at a time" (Ugwuanyi, Mwantok, Mbara and (Ogbu, 2018). "Academic achievement is the successful completion, through effort, of the acquisition of academic content and skills which is determined by the scores or grades that students get in an examination or test" (Mutua, 2015 cited in Mbonu, 2018). Library and information science education can be evident in students' academic achievement, emphasize their understanding of the course (questions), acquisition of knowledge and skill, ability to comprehend and application of the skills obtained in the meaningful learning environment.

Despite the important position occupied by this subject, one observes that students' academic achievement in electronic libraries is not encouraging. Poor achievement in electronic libraries can be attributed to many factors such as inability for lecturers to incorporate learner-centered teaching methods, lecturers' inability to sustain students' interest during electronic libraries lessons, lack of well-trained ICT lecturer and paucity of laboratory facilities. Library and information science instruction should be learner centered approach and teaching and learning should be practical oriented involving both the lecturer and the students in an interactive process. This poor academic achievement of students in electronic libraries is dully experienced by both sexes (males and females) i.e according to gender.

Gender is a factor which indicates whether a human being is a male or female. "Gender simply means the character or characteristics of being male or female, man or woman, boy or girl (male or female student)" (Ukala, 2018). Ndanwu (2020) observes a significant

difference between males and females academic achievement and interest in electronic libraries in favour of the girls. Thus, Halpern & Diane (2011) cited in Elejere & Eze (2018) found that Science is free from gender bias.

### **Statement of the Problem**

One of the objectives of teaching and learning of electronic libraries in tertiary institutions is to promote an understanding of electronic libraries concepts being taught with a view to apply such knowledge as solution to on-line information retrieval process problems. It has been suggested that one way to enhance the academic achievement of students is through the use of learner centered method such as Computer Aided Instruction (CAI).

The academic achievement reports of electronic libraries students in semester examinations have repeatedly showed that failure in electronic libraries may be blamed on the regular use of conventional teaching method of instruction. Researchers attributed this poor academic achievement to poor instructional method of teaching, paucity of facilities and inability of lecturers to introduce learner centered method. Researchers have recommended that lecturers should adopt learner centered methods that will actively involve the students in the teaching and learning process. For the teaching and learning of electronic libraries in tertiary institution to be effective, the lecturers should consider the use of this effective teaching methods named CAI so as to enhance and boost the academic achievement and interest of students'. Hence, the problem of this study is 'What is the interaction effect of teaching method (CAI) and gender on academic achievement and interest of students in electronic libraries as a course?'

### **Purpose of the study**

The purpose of this study was to find out the interaction effect of teaching method and gender on the academic achievement and interest of students in electronic libraries course. Specifically, the study seeks to:

1. Find out the interaction effect of teaching method and gender on students' interest in electronic libraries.

2. Find out the interaction effect of gender and teaching method on students' academic achievement in electronic libraries.

#### Research Questions

1. What is the interaction effect of teaching method and gender on students' interest in electronic libraries?
2. What is the interaction effect of gender and teaching method on students' academic achievement in electronic libraries?

#### Hypotheses

H<sub>01</sub>: There is no significant interaction effect of teaching methods and gender on students' interest in electronic libraries course.

H<sub>02</sub>: There is no significant interaction effect of gender and teaching methods on students' achievement in electronic libraries.

#### Review of Related Literature

Electronic libraries is education for and about online information retrieval. It is the course given through instruction in tertiary institutions to prepare students for jobs in libraries, library schools, and information centers. Electronic libraries is offered in tertiary institutions. Electronic libraries may provide relevant paradigm for the training of librarian or for a career that involves electronic learning. It can equip learners with the skills and knowledge to become and remain lifelong learners contributing positively to the society. Although, electronic libraries is considered as one of the most important aspect of tertiary ICT course; it does not only play an important role in library education but function as a gatekeeper to employment avenues and future educational opportunities. For students to understand, cherish, and possess the electronic libraries learning skills of on-line resources access, operation, integrated searching and management es is done. Basic knowledge of electronic libraries is needed for individual information searching and national development, also enables individual to understand and cope well with integrated search.

In spite of the importance of electronic libraries in national development, and its key position in relation to library and information science discipline, Electronic libraries is challenged by poor academic achievement. Poor academic achievement in electronic libraries could be attributed to many factors such as dearth of electronic libraries lecturers, lack of interest in the course, inappropriate teaching method, and non-use of student centered methods or innovative teaching methods, use of ineffective teaching material, and class attendance.

Interest as used in psychological and educational measurement is a motivational construction (Okeke, 2014 cited in Okeke, 2016). This implies that, interest as an object or activity is aroused as a result of the effort to satisfy a felt need. He gave four different types of interests namely:

**Test Interest:** It is a type of interest measured by objective test. This test is structured in such a way bring out the nature of interest possessed by the test.

**Manifest Interest:** This type involve professing of interest in an activity and going to participate in that activity.

**Expressed Interest:** This interest is described as verbal declaration of like and dislike to an object or activity.

"Interest helps the learner to achieve a better understanding of learning conditions or decisions about educational or vocational carriers" (Okeke, 2016). Okigbo and Okeke (2011) cited in Okeke (2016) stated that interest is an important variable because when one becomes interested in an activity, one is likely to be more deeply involved in that activity. This then, implies that interest can be conceptualized as both an individual predisposition and as a psychological state. Effective teaching-learning condition depends on the ability of a lecture to motivate the learners to pick interest in learning

"Academic achievement is the performance outcomes in intellectual domains taught at school, college, and university" (Spinath, 2012)". Academic achievement also represents performance outcomes that indicate the extent to which a person has accomplished specific goals that

were the focus of activities in instructional environments, specifically in school, college, and university”(Steinmayr,Meibner,Weidinger, and Wirthwein(2014).” Students’ academic achievement occupies a very important place in education as well as in the learning process”(Bolarinwa and Okolocha,2016).

“ Modified lecture is the process of adding to traditional lecture for a period that lasts between (50-60) minutes, by asking a number of questions and discussing them with students, to activate the lecture or work on activating them”(Saadeh,2010 cited in Ibtihal,2017).Modified lecture method is also a type of lecture method. It is the conventional method of teaching used in this study.

“Gender refers to all the characteristics of man and woman, which a particular society has determined and assigned each sex”(Dave-Ugwu,2018).Ezeh(2013) cited in Dave-Ugwu,(2018) “describes gender as personality traits , attitudes, behaviors, values, relative power, influence, roles and expectation(femininity and masculinity) that society ascribes to the two sexes on a differential basis”.Gender is important in educational system because it influences the curriculum, instructional materials, career choices and general behavior of pupils and teachers alike”(Dave-Ugwu,2018). In the context of teaching – learning , and in this study, it concerns male and female issues. It is in view of this, and the fact that to the knowledge of the researcher , that no work has been carried out in Anambra state to find out the interaction effect of teaching method and gender on the academic achievement and interest of students’ in electronic libraries course.

### **Methodology**

This study employed quasi experimental design. The population of the study consisted of all the third year library and information science students offering electronic libraries in federal tertiary institutions in Anambra State. The population is one hundred students enrolled for the 2018/2019 academic session.

The sample for the study consists of sixty (60) students. Purposive sampling technique was used to select two (2) federal tertiary schools out of three (3) federal tertiary institutions in Anambra State. Hence the researcher used the students as groups already organized in classes. One group of students (experimental) was taught electronic libraries with computer aided instruction and another (control) was taught electronic libraries using the modified lecture teaching method in a usual classroom setting. The instrument for data collection was (ELAT) Electronic Libraries Achievement Test and (ELIS) Electronic libraries interest scale. The ELAT consist of two sections, section A consists of information about the students while section B consists of fifty (50) multiple choice questions drawn from the four topics on electronic libraries taught.

The instrument was face and content validated by experts from library and information science department, and measurement and evaluation all from Nnamdi Azikiwe University, Awka. Their comments and suggestions were used in restructuring the test items that appeared in the final draft of the questionnaire. ELAT and ELIS was subjected to reliability analysis by the researchers using Pearson moment correlation and Kuder-Richardson formula (K-R 21).

Prior to the treatment Pre-test was administered prior to the commencement of the treatment and the result collected from each student were recorded. At the end of the teaching period that lasted for a period of six weeks, a post test was conducted for the experimental and control group. The data collected were analyzed using mean and standard deviation to answer research question while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance.

**Hypothesis 1:** There is no significant interaction effect of teaching method and gender on students’ achievement in electronic libraries

Data related to Hypothesis 6 is presented in Table 10

**Table 1:** Summary of Analysis of Covariance (ANCOVA) Test for Significant Interaction Effect of gender and teaching method on students achievement in electronic library

Source	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	12934.40	4	3233.60	37.42	0.00	
Intercept	4478.76	1	4478.76	51.83	0.00	
Pretest1	4174.42	1	4174.42	48.31	0.00	
Gender	12.31	1	12.31	0.14	0.71	
GROUP	1796.26	1	1796.26	20.79	0.00	
Gender * GROUP	121.32	1	121.32	1.40	0.24*	NS
Error	4752.53	55	86.41			
Total	262424.00	60				
Corrected Total	17686.93	59				

\*NS = Not Significant at 0.05 level of significance

Table 1 present the result of the two way analysis of covariance conducted to test for significant interaction effect of teaching method and gender on the mean post test achievement scores of students in electronic libraries. As shown, the F-value for the interaction effect of gender and teaching method is 1.40 with level of significance being 0.24. Based on the fact that the obtained level of significance (0.24) is greater than the stipulated probability level of 0.05, the hypothesis is upheld. This result implies that

there is no significant interaction effect of teaching method and gender on the mean achievement scores of students in electronic libraries.

#### Hypotheses 2

There is no significant interaction effect of teaching method and gender on students' interest in electronic libraries.

Data related to Hypothesis 3 is presented in Table 5

**Table 2:** Summary of Analysis of Covariance (ANCOVA) Test for Significant Interaction Effect of teaching method and gender on students interest in electronic libraries

Source	Sum of Squares	df	Mean Square	F	Sig.	Decision
Corrected Model	22129.28	4	5532.32	77.85	0.00	
Intercept	5249.95	1	5249.95	73.88	0.00	
Pretest	10035.94	1	10035.94	141.23	0.00	
GROUP	1841.73	1	1841.73	25.92	0.00	
Gender	398.73	1	398.73	5.61	0.02	
GROUP * Gender	106.82	1	106.82	1.50	0.23*	NS
Error	3908.32	55	71.06			
Total	199704.00	60				
Corrected Total	26037.60	59				

\*NS = Not Significant at 0.05 level of significance

The data in Table 2 shows the result of the two way analysis of covariance conducted to test for significant interaction effect of teaching method and gender on the mean post test interest scores of students in Electronic library. As shown, the F-value for the interaction effect of gender and teaching method is 1.50 with level of significance being 0.23. Since the obtained level of significance (0.23) is greater

than the stipulated probability level of 0.05, the hypothesis is upheld. This result indicate that there is no significant interaction effect of teaching method and gender on the mean interest scores of students in Electronic Libraries.

#### Discussion of Findings

The findings of this study revealed that there is no interaction effect of gender and teaching

method, on students' achievement in electronic libraries. This finding is in line with that of . Adeyemi(2012); Mbonu(2018), Ezedinma and Nwosu (2018), and Okotcha (2018)who agreed from their study that there is no significant interaction between teaching method and gender on students' achievement in basic science and social studies. This finding appeared to be consistent with those of Akintade(2017) who found no interaction effect of treatment and gender on academic achievement of students.

Hypothesis two sought to find out whether there existed a significant interaction effect between the teaching method (computer aided instruction) and gender on students' interest in electronic libraries topics taught. The findings on table 2 showed that there was no statistically significant interaction effect of teaching method and gender on the mean interest scores of students in Electronic Libraries. This was in line with the findings of Egara (2010) that there is no significant interaction effect of treatment and students' interest in social studies.This was also in line with the findings of Egbunonu(2014) who found no interaction effect of gender and instructional treatment, on students' interest . This means that the teaching method (CAI) did not combine with gender to affect students' academic achievement and interest. Hence, the teaching method is gender friendly.

#### **Summary of the Findings**

From the analysis the following findings were made:

1. There was no significant interaction effect of teaching method and gender on the mean interest scores of students in electronic libraries.
2. There was no significant interaction effect of gender and teaching method on the mean academic achievement scores of students in electronic libraries.

#### **Educational Implications**

1. Lecturers are encouraged to use appropriate teaching methods that are making impact .Academic achievement and interest is not based on gender. If the method is able to reach the academic needs of both male and female students

they are bound to do significantly better in electronic libraries.

2. The study revealed that there was no interaction effect of teaching method (computer aided instruction ) and gender on student' interest and academic achievement. Gender does not affect the use of computer in learning process. Since this study showed that gender and teaching method did not significantly interact over their achievement and interest, it is imperative that this instructional method be employed effectively in electronic libraries lesson content delivery in tertiary institutions. A more innovative and interesting instructional method like computer aided instruction must be developed and implemented in electronic libraries classrooms if this course will achieve its aim.

#### **Conclusion and Recommendation**

Based on the results of this study, the researchers concluded that there is no interaction effect of teaching method and gender in the academic achievement and interest of students in electronic libraries. It is gender unbiased and hence, produces no significant interaction effect in the electronic libraries academic achievement and interest of male and female(gender) students 'in tertiary institution. Thus, the following recommendations are proffered:

1. Male and female electronic libraries lecturers should be open and ready to embrace the CAI method of teaching and ready to learn from his or her fellow lecturer.
2. Government should provide required ICT facilities in every tertiary institution, in order to make it popular among lecturers so that this new pedagogy (computer aided instruction) should be utilized in the teaching and learning of electronic libraries and other library and information science courses
3. Government and professional bodies like NLA should sponsor further research on other ways of enhancing academic achievement and interest of students' in

electronic libraries lesson at tertiary institution level.

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