British Journal of Education
Vol.8, Issue 1, pp.20-31, January 2020
Published by ECRTD- UK
Print ISSN: ISSN 2054-6351 (print), Online ISSN: ISSN 2054-636X (online)

COMMUNITY OF INQUIRY (COI) ON UNDERGRADUATES' PERFORMANCE IN COMPUTER IN EDUCATION, UNIVERSITY OF PORT HARCOURT

Akpan, Kufre Paul and Abraham, Lois Nkechi
Department of Curriculum Studies and Educational Technology, University Of Port Harcourt, Rivers State, Nigeria

ABSTRACT: *This study investigated the effect of Community of Inquiry (CoI) on undergraduates' performance in Computer in Education, University of Port Harcourt. Two objectives, two research questions, and two null hypotheses guided the study. Both conceptual and empirical studies were reviewed. The study adopted a quasi-experimental design with a total population of five hundred and thirty-two (532) male and female 400 level undergraduate students who are offering Computer in Education Course in Faculty of Education, and the sample comprised two hundred and eighty-nine (289) respondents purposefully selected from the entire population. The instrument used for data collection was a Computer Performance Test (CPT).The instrument was subjected to face and content validation with a reliability coefficient of 0.95. Mean, Standard deviation, z-test and Analysis of Covariance (ANCOVA) were the statistical tools used in the study. The findings revealed that there is a significant difference in the effect of strategies (Community of Inquiry and discussion methods) on students' performance in Computer in Education. Furthermore, there is no significant difference in the influence of gender on students' performance in Computer in Education. Based on these findings, the study recommends that Lecturers in Faculty of Education should integrate Community of Inquiry (CoI) instructional approach as a purposeful and effective instructional technique and resource in teaching Computer in Education and other core courses so that students could produce better and dependable results*.

KEY WORDS: community of inquiry (CoI), academic performance, blended learning.

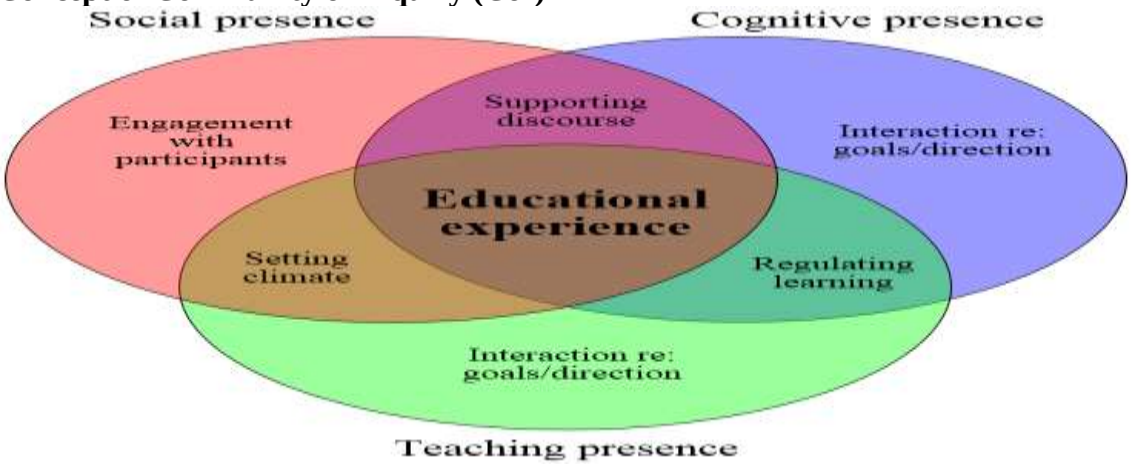
INTRODUCTION

In recent times the advancement in technology has greatly influenced our daily activities, including teaching and learning. This advancement has brought certain innovations and changes into the educational system with the aim of improving traditional ways of teaching and learning by introducing various active teaching approaches into the 21st-century classrooms. These active pedagogies include Community of Inquiry (CoI), collaborative learning, blended learning, inquiry-based learning, project-based learning, etc. This development evolved from integrating face-to-face experience with text-based activities to foster learning activities of the 21st century. The Community of Inquiry (CoI) emerged as one of the recent and innovative approaches to learning in which groups of individuals are involved in a process of empirical or conceptual inquiry into a problematic situation. It is a learning approach which provides learners with the opportunity of learning in small groups communicate, and collaborate with every member of the group with the aim of achieving a particular task (Anderson 2016). 'Community' of Inquiry is an aggregation of people who have a common concern or passion coming together to work and learn among themselves. They come together to share, work on a project, inquire about a certain area of concern, provide

support, and learn from each other. This group cohesion builds a sense of commitment and togetherness among learners which helps in facilitating their learning process.

There is no best method of instructional delivery of particular instructional content. However, the instructors should realize that the method used can either enhance or undermine the learning outcome. Gutek (2012) observed that the teaching of the computer in higher institutions is entirely dominated by lecture method which is one of the crucial issues confronting the school system. This method of teaching deprived learners from discovering knowledge themselves rather than depending solely on the teachers as the main source of the knowledge. However, the emphasis is on the higher education teachers to be entirely committed to crucial matters and societal struggle confronting the schools since the success of every society depends on the products of the school. Blended learning which is an innovative instructional strategy that is congruent with the 21st century ideology entails the jointly use of different techniques and strategies with the help of technology which can equally be described as the combination of media and established classroom form of teaching has been identified as one of the instructional delivery methods of the 21st century. This approach to learning is flexible in nature and fosters learners' connection to the internet at their own pace. Basically, it involves the use of the internet and computer which is the center of the present day revolution in Information and Communication Technology (ICT). With the vast knowledge of Information and Communication Technology (ICT), teachers are saddled with other responsibilities such as knowledge developers, facilitators, managers, and evaluators. For teachers to be responsive to these urgent calls and responsibilities, it, therefore, requires that they must first exhibit similar skills that should be instilled in students by being involved in knowledge creation through the use of suitable teaching approach in the delivery of instruction.

Concept of Community of Inquiry (CoI)



Source: www.community+of+inquiry+approach.com

The Community of Inquiry framework is a framework that illustrates the totality of educational experiences of the 21st-century learning and also indicates the relationship between the three elements and their level of engagement in the learning process. The framework comprises three different elements which are a social presence, cognitive presence, and teaching presence. The Community of Inquiry framework clearly spells out the responsibilities of the teachers and learners respectively during the learning process. The social presence here represents the effective expression of the learners, open communication by learners and group cohesion. The

cognitive presence involves the ability of learners to explore the content of their learning, integration, and resolution of the learning task. The teaching presence represents the design and organization of learning contents by teachers, facilitating discourse and directing of course instruction.

Lipman (2014) defined Community of Inquiry (CoI) as an approach of learning in which a group of individuals is involved in a learning process of empirical or conceptual inquiry into a difficult situation. This approach lays emphasis on knowledge as that which is necessarily embedded within a social context which requires inter-subjective agreement among individuals who are involved in the process of inquiry for validity. Lipman (2014) sees the Community of Inquiry (CoI) as an approach of learning where learners listen to one another with the aim of building on one another's idea, and also challenging the opinion of others by seeking to identify one another's assumption using a collaborative approach. Anderson and Garrison (2016) defined Community of Inquiry (CoI) as a dramatic and reflective form of interaction built up by the same group of learners over time with an essential element of the three-presence framework which consists of social, teaching and cognitive presence that represents all the educational activities in the learning environment.

It is a teaching approach that values socialization and collaborative learning through discussion, and interaction through three overlapping elements which are teaching, social and cognitive presence. The Community of Inquiry involves a group of individuals who collaboratively engage in a purposeful interaction to construct personal meaning which confirms mutual understanding within the group of learners. Garrison, Anderson and Archer (2001) opined that community of inquiry (CoI) is a theoretical framework which represents a process of creating a deep and meaningful learning experience through the development of three interdependent elements which is social, cognitive and teaching presence.

The social presence here represents the learners' ability to identify with the community through communication and development of personal relationship by way of projecting personal characteristics into the community of inquiry by presenting themselves as 'real people'. However, the social presence is evidence through three indicators which are; affect, open communication and group cohesion. Here effect implies the emotional aspect of the learners which is linked to task motivation and persistence. This indicator decreases social distance which in turn brings learners together and fosters learning by increasing critical thinking among learners. Open communication involves relevant conversation and recognition while group cohesion builds a sense of learners' group commitment which is all geared towards knowledge construction and transfer. Using Community of Inquiry (CoI), motivation is an essential ingredient for productivity in the classroom. It involves the internal or external factors that stimulate interest and the desires in learners to continually work towards attainment of the set goals (Marinak & Gambell, 2013).

Concept of Academic Performance

Freeman (2014) opined that academic performance is the ability of a learner to attain educational goals measured by the standardized test scores is expected of every teacher to evaluate students' learning in the area of knowledge and understanding based on the school activities, sound relationship and general lifestyle of the student. Danesy (2004) opined that academic performance entails the general attainment of the learner on the academic

prerequisite as designed by the school authority. Thus factors like the health of the learner, parental factor, socio-economic factor, and school environmental factor can either improve or reduce the academic performance of a child in school. Hoffman (2009) also argued that academic performance of postgraduate students can only validate improvement when they engage in collaborative learning with peers. This development provides multiple benefits which include retention, socialization and communication skills. Wentling (2015) opined that academic performance refers to the achievement of an individual's objective to various types of knowledge and skills. Here the objective is established based on the age, prior learning and capacity of individuals with regards to education, socialization, and qualification.

Some of the purposes of academic performance measurement are as follows: to determine the relative effectiveness of a program in terms of students' behavioural outputs; to identify students' growth or lack of growth in acquiring necessary knowledge skills, attitudes and social values; to help teachers determine the effectiveness of their teaching technique and learning material; to help motivate students to learn as they realize their progress or lack of progress in given task. Others are to encourage students to develop a sense of discipline and systematic study habits; to acquaint parents with their children performance; to predict the general trend in the development of teaching-learning process; to make a reliable decision about education planning and to provide educational administrators with adequate information about teachers' effectiveness and school need. Academic performance has to do with the extent to which an instructor or learners has achieved their instructional target targets. It is typically measured by examinations or constant assessment.

Concept of Blended Learning

Bishop and Verleger (2013) defined blended learning is an educational teaching approach that consists of two parts; an interactive group learning activities within the classroom environment (face-to-face) and the direct computer-based individual learning which involves a dynamic interactive session between teachers and learners. This instructional learning approach involves a process where the internet is being used with digital media with an established classroom form that needs physical co-presence of teachers and students. Majerich and McGraken (2013) defined blended learning as a strategy of teaching and learning in which the learning environment is the reference to two criterions where instructional content is delivered through both instructor and technology with the aim of acquiring knowledge. This approach is learner-centered which creates a flexible learning atmosphere for learners to collaborate, communicate, construct and share knowledge in the process of learning.

Christensen (2015) opined that blended learning is a formal education programme in which a student learns at least in part through the delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace. It is a form of learning which is described as a combination of offline and online forms of learning where the online may be over the internet, intranet, computer, and other software packages while offline is the traditional classroom where students and teachers meet face-to-face to engage in learning activities. Alexander (2010) defined blended learning as a formal educational system of learning in which learners learn at least in part through the delivery of content of instruction using online platform using their digital devices at their own pace. Here learners are given a particular task by the instructors during the face-to-face class interaction to go online and

explore the scope of their learning where they can collaborate with peers in order to accomplish the task so that they can discuss and contribute when meeting with their instructor.

Delialiogus and Tildrim (2012) stated that blended learning is a systematic and combination of ICT tools into academic courses in such a way that instructional goals are achieved. Consequently, Korkmaz and Karakus (2009) opined that blended learning can be referred to as an approach of learning which allows creating a suitable environment for students to achieve their objectives more easily in improving educational environments by applying to appraise technologies in various classroom environment that are adequately designed which combine the power of online learning with that of conventional face-to-face classroom learning.

Statement of the problem

In spite of the high level of development in the educational sector there are some challenges that are still confronting teaching and learning. Active learning is fundamentally a learner-centred environment that encompasses interactivity. Therefore teaching preparations and activities should be done and organized to optimize class time with frequent opportunities for questions, discussions and formative feedback. Classroom activities are becoming boring to students who are digital natives, with the increasing use of the internet; undergraduate students are no longer interested in traditional classroom activities and need to be exposed to new teaching strategies. Research surrounding 21st-century learning and university education indicates that there is a need for adoption of learner-centred approaches by instructors for instructional delivery.

The community of Inquiry (CoI) is one approach that research has shown may improve students' engagement since it promotes teamwork among learners. This approach contributes to the mastery of concepts representing strong teaching present in the online component and also foster independent and self-directed learning. However, recent development has shown a marginal decline in undergraduate students' performance in the Computer in Education course between 2009 - 2013 in Faculty of Education, University of Port Harcourt. Based on these observations, the researchers are interested in finding out what could be responsible for this poor performance. Could it be the lack of facilities in the faculty for the teaching of the course? Could it be teaching strategy used by lecturers in teaching this course? Thus, this study intends to investigate the effect of the Community of Inquiry (CoI) on undergraduates' Performance in Computer in Education, University of Port Harcourt Rivers State. The table below shows a detail of the academic performance of undergraduate students in Computer in Education (EDU 402.1) across the faculty.

YEAR	Curriculum Studies and Educational Technology						Total Passed	Total Failed	Total number of Students	% Passed	% Failed
	A	B	C	D	E	F					
U2009	16	13	31	38	14	9	60	61	121	49.6 %	50.4%
U2010	22	18	21	24	19	11	61	54	115	53.1%	46.9%
U2011	32	34	11	25	12	2	77	39	116	66.4%	23.5%
U2012	14	59	32	2	6	5	105	13	118	88.9%	11.1%
U2013	25	46	12	13	2	3	83	18	101	82.7%	17.8%
	Educational Management and Planning										
U2009	0	28	60	23	43	2	88	68	156	56.5%	43.6%
U2010	20	41	13	38	6	3	74	47	121	61.2%	38.9%
U2011	13	19	26	21	8	11	58	40	95	61.1%	42.1%
U2012	41	8	34	56	3	1	41	60	143	28.6%	41.9%
U2013	22	10	11	1	1	55	43	57	100	43.0%	57.0%
	Educational Foundations										
U2009	3	4	38	36	7	44	45	87	132	34.1%	70.8%
U2010	31	1	38	3	10	30	70	43	113	61.9%	38.1%
U2011	21	26	32	21	5	7	79	33	116	68.1%	28.5%
U2012	16	3	42	16	29	3	61	48	109	55.9%	44.1%
U2013	21	6	27	23	33	9	54	65	119	45.4%	32.7%

Source: Departmental Academic Advisers

Aim and Objectives

This study investigated the effect of Community of Inquiry (CoI) on undergraduates' performance and in Computer in Education in Faculty of Education, University of Port Harcourt. This study specifically:

1. Compared the effect of Community of Inquiry (CoI) instructional strategy and discussion teaching method on the students means performance scores.
2. Compared the effect of Community of Inquiry instructional strategy on the mean performance scores of male and female students in Computer in Education.

Research Questions

The following research questions were raised to guide the study:

1. What is the effect of Community of Inquiry (CoI) instructional strategy and discussion teaching method on the students mean performance scores?
2. What is the effect of Community of Inquiry instructional strategy on the mean performance scores of male and female students in Computer in Education?

Research Hypotheses:

The following null hypotheses were formulated for the study.

1. There is no significant difference in the performance of students taught using Community of Inquiry (CoI) and those taught using discussion method.

British Journal of Education
Vol.8, Issue 1, pp.20-31, January 2020
Published by ECRTD- UK
Print ISSN: ISSN 2054-6351 (print), Online ISSN: ISSN 2054-636X (online)

2. There is no significant difference in the effect of Community of Inquiry instructional strategy on the mean performance scores of male and female students in Computer in Education.

METHODOLOGY

This study adopted a non-randomized, control group, pre-test, post-test quasi-experimental design. The population of the study consisted of all the 400 level undergraduate students who are offering the course Computer in Education (EDU 402.1) for the 2018/2019 academic session in Faculty of Education University of Port Harcourt which is five hundred and thirty-two (532). The sample size of this study consists of two hundred and eighty-nine (289) fourth year students in the Department of Curriculum Studies and Educational Technology (EDC male 56; female 91 total 147) and Department of Educational Foundations (EDF male 111; female 31 total 142), Faculty of Education, the University of Port Harcourt who are offering the Course Computer in Education for 2018/2019 academic session. A purposive sampling technique was used in selecting the sample for the study.

The instrument for the study was a Computer Performance Test (CPT) with subjective tests consisting twenty (20) items. The instrument was administered before the treatment to obtain the pre-test scores and the reshuffled version of the test was re-administered to the students after the treatment to obtain the post-test scores for the study. The instrument was subjected to face and content validity by experts in Educational Measurement and Evaluation and the reliability co-efficiency of 0.95 was obtained. The data collected were analysed using mean and standard deviation to answer research questions. The null hypotheses were tested using Z-test analysis and Analysis of covariance (ANCOVA) at 0.05 alpha level.

Data presentation and analysis

Research Question 1

What is the effect of Community of Inquiry (CoI) instructional strategy and discussion teaching method on the students mean performance scores?

Table 1.1: Analysis of performance in computer in education of students taught using community of inquiry teaching strategy and discussion method.

	Pre-test			Post- test	
Methods	**N**	**$\bar{x}$**	**Std Dev**	**$\bar{x}$**	**Std Dev**
CoI	147	58.40	17.66	68.60	16.78
Discussion	142	43.00	14.61	60.11	13.60

The result showed in table 1.1 above revealed the mean scores of students' performance in computer in education. During the pre-test students the Community of Inquiry group had (mean=58.40; SD=17.66) and in post test (mean=68.60; SD=16.78). While the group thought with discussion method had pre-test (mean=43.00; SD=14.61) and post test (mean=60.11; SD=13.60). This implies that students taught Computer in Education with Community of Inquiry performed better than those taught with discussion method.

British Journal of Education
Vol.8, Issue 1, pp.20-31, January 2020
Published by ECRTD- UK
Print ISSN: ISSN 2054-6351 (print), Online ISSN: ISSN 2054-636X (online)

Research Question 2

What is the effect of Community of Inquiry instructional strategy on the mean performance scores of male and female students in Computer in Education?

Table 1.2: Analysis of performance in computer in education of male and female students.

	Pre-test			Post-test	
Gender	**N**	**$\bar{x}$**	**Std Dev**	**$\bar{x}$**	**Std Dev**
Male	167	39.35	11.36	66.28	10.46
Female	122	36.43	12.14	65.32	12.38

The result shown in Table 1.2 above revealed that the performance mean score of male students taught computer in education with Community of Inquiry instructional strategy. During the pre-test male students had (mean=39.35; SD=11.36), and in the post-test (mean=66.28; SD=10.46. while the female had (mean=36.43; SD=12.14), and in post-test (mean=65.32; SD=12.38) respectively. Therefore the male students outperformed female students in computer in education.

Hypothesis 1

There is no significant difference in the performance of students taught using Community of Inquiry (CoI) and those taught using discussion method.

Table 1.3: ANCOVA of difference in the use Community of Inquiry (CoI) teaching approach in teaching Computer in Education and students performance.

Dependent Variable: Post-test

Source	**Type III Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**	**Partial Eta Squared**
Corrected Model	16301.652[a]	2	8150.826	120.887	.000	.583
Intercept	52261.157	1	52261.157	775.098	.000	.818
Pre-test	2273.230	1	2273.230	33.715	.000	.163
Strategies	13015.269	1	13015.269	193.033	.000	.527
Error	11664.570	284	67.425			
Total	790799.000	287				
Corrected Total	27966.222	285				

The hypothesis in table 1.3 showing the students mean scores taught computer in education using community of inquiry (CoI) teaching approach and discussion method in the post-test was tested at $p < 0.05$ level of significant. The calculated value revealed .000 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is rejected. Thus there is a significant difference in the effect of strategies (community of inquiry and discussion method) on students' performance of the computer in education.

Hypothesis 2

There is no significant difference in the effect of Community of Inquiry instructional strategy on the mean performance scores of male and female students in Computer in Education.

Table 1.4: ANCOVA of difference in the influence of male and female students' performance in Computer in Education.

Dependent Variable: Post-test						
Source	**Type III Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**	**Partial Eta Squared**
Corrected Model	16632.915[a]	4	4158.229	62.740	.000	.595
Intercept	52455.601	1	52455.601	791.464	.000	.822
Gender	.14	1	.14	.00	.96	.000
Gender * Strategies	13303.378	2	6651.689	100.362	.000	.540
Pre-test	2085.626	1	2085.626	31.468	.000	.155
Error	11333.307	287	66.277			
Total	790799.000	286				
Corrected Total	27966.222	285				

The hypothesis in table 1.4 showing the male and female students mean scores taught computer in education using community of inquiry (CoI) teaching approach in the post-test was tested at $p < 0.05$ level of significant. The calculated value revealed 0.96 which is greater than 0.05 level of significant. This therefore implies that the null hypothesis is accepted. Thus there is no significant difference in the performance of male and female students using Community of Inquiry instructional strategy on students' performance of the computer in education.

DISCUSSION OF FINDINGS

The result revealed the performance mean score and standard deviation of students taught computer in Education using Community of inquiry and discussion method. The result revealed that during the pre-test students the Community of Inquiry group had (mean=58.40; SD=17.66) and in post-test (mean=68.60; SD=16.78). While the group thought with discussion method had pre-test (mean=43.00; SD=14.61) and post-test (mean=60.11; SD=13.60). When subjected to hypothesis test the calculated value revealed .000 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. Thus there is a significant difference in the effect of strategies (community of inquiry and discussion method) on students' performance of the computer in education. This finding agrees with that of Garrison (2011) opined that Community of Inquiry consists of three elementary elements such as teaching presence as a design, facilitation, and direction of cognitive and social processes for the purpose of realizing meaningful educational learning outcome. The teaching presence consists of three categories of activities which are design and categorization, facilitating discourse and direct instruction. Design and categorization involves planning a lot of activities like planning the learners' curriculum, the organization of learning environment, learning resources etc. The second category which is direct instruction involves the presentation of questions, explanation, and provision of direct feedback through any channel to the learners. While the last category which is facilitating discourse consists of sharing knowledge by identifying areas of agreement and disagreement which is the major aim of learners'

participation in the Community of Inquiry class in order to communicate, construct and share knowledge to colleagues. Also that the use of Community of Inquiry approach among secondary school students helps in motivating them for learning and also foster their curiosity for learning a particular subject.

The result in hypothesis two also revealed the mean scores of male and female students' performance in computer in education. The result revealed that the performance mean score of male students taught computer in education. During the pre-test male students had (mean=39.35; SD=11.36), and in the post-test (mean=66.28; SD=10.46. while the female had (mean=36.43; SD=12.14), and in post-test (mean=65.32; SD=12.38) respectively. Therefore the male students outperformed female students in computer in education. But when subjected to hypothesis test the calculated value revealed 0.96 which is greater than 0.05 level of significant. This therefore implies that the null hypothesis is therefore accepted. Thus there is no significant difference in the performance of male and female students using Community of Inquiry instructional strategy on students' performance of the computer in education.

The finding is in agreement with that of Wentling (2015) conducted a study on the correlation between gender and academic performance of secondary school students and the findings revealed that male students performed higher than their female counterpart especially when it has to do with online courses. Some of the areas of performance are as follows: to determine the relative effectiveness of a program in terms of students' behavioural outputs; to identify students growth or lack of growth in acquiring desirable knowledge skills, attitudes and social values; to help teachers determine the effectiveness of their teaching technique and learning material; to help motivate students to learn as they discover their progress or lack of progress in given task.

Summary
This research sought to investigate the effect of the Community of Inquiry (CoI) on undergraduates' performance and interest in the computer in education, University of Port Harcourt Rivers State. Two objectives, two research questions and two hypotheses were used for the study. Literatures related to this study were reviewed. The research design was quasi-experimental and the population comprised 531 male and female undergraduate students in the three departments who offers computer in Education in faculty of education, university of Port Harcourt Rivers state with a sample of two hundred and eighty-nine (289) undergraduate students elected using purposive sampling techniques. Computer Performance Test (CPT) was used in collecting data which was validated using face and content validity. It was tested for reliability using test-re-test. Mean standard deviation and Analysis of Covariance (ANCOVA) were used to answer research questions and testing of hypotheses.

CONCLUSION

The findings of the study revealed that there is a significant difference in the effect of strategies (Community of Inquiry and discussion method) on students' performance of the computer in education. Also there is no significant difference in the performance of male and female students using Community of Inquiry teaching approach on students' performance of the computer in education. The following conclusions were made on the use of Community of Inquiry (CoI) for teaching and learning significantly predicts their academic performance at

the university level. This implies that exposing students to various teaching method such as Community of Inquiry (CoI) teaching approach gives learners the opportunity to expand more into the scope of their learning which in turn improve their level of interest in the course.

Recommendations

Based on the findings of this study the following recommendations were made;

- Lecturers in Faculty of Education should integrate Community of Inquiry (CoI) instructional approach as a purposeful and effective instructional technique and resource in teaching Computer in Education and other core courses so that students could produce better and dependable results.
- Faculty of Education should not be over emphasising on gender equality since it does not determine the academic performance of students.

REFERENCES

Alexander,R.(2010). *Dialogic Teaching*. Retrieved March 2016 from https://www.robinalaxander.org.uk/dialoic-teaching/.

Amadi, E. G. (2017) *Influence of gender on interest academic achievement of students in integratedscience.* Retrieved from http//eujournal.org/index.phpesj/article/viewfile/9156/8695

Anderson, T (2016). *A fourth presence for the Community of Inquiry (COI) model*.Retrieved from https//virtualcanuckca/2016/01/04/a-fourth-presence-for-the community-of-Inquiry-model. Accessed 8 May 2017.

Bishop, J. L. & Verleger M. A. (2013).*The Blended classroom: A survey of the research 12th American Society for Engineering Education Annual Conference andExposition*.RetrievedFromhttp://wwwasec.org/fileserver/papers/attachment/0003/3259/6219.pdf.

Christensen, T.K. (2015). Finding the balance: Constructivist pedagogy in a blended course.*The Quarterly Review of Distance Learning.* 4(3), 235-243.

Delialiogus, L & Tildrim M (2012) Learners motivation and E-learning design: A multinational validated process. *Journal of educational media 28 (4) 256-261*)

Demesy, A. J. (2004). *Psychosocial determinants of academic performance and vocational learning of student with disabilities in Oyo State*. Ibadan University Press.

Freeman, S; Eddy, S. L; & Smith, M. K (2014) *Active learning increases students' performance in science, engineering and mathematics*. Proceedings of the National Academy of Sciences 111(23) 8410-8415.

Garrison, R. Anderson, N & Archer, H. (2001). Critical thinking, cognitive presence and computer conferencing in distance education. *American journal of distance education 15 (1) 7-13*

Gerstein, Y. C (2012).*Educational Psychology Trends and Status in America*. New Russ foundation press New York.

Gutek, (2012) *Education in global context: institutional effectiveness practices in college and universities.* Retrieved on 25-07-2018 from http://eserv.uum.edu

Herrington, J (2006) *Authentic e-learning in higher education: design principles for authentic learning environment and task*. In world conference of e-learning in corporate government, health care and higher education (ELEARN) 2006, Hawali, (pp 316-317)

Hottman, E. (2009). *Social media and learning environment:* Shifting perspective on the locus of control in education 15(2), special issue Technology and Social Media, Part I.

http://www.epltt.coe.uga.edu/index.php?title=social-constructivism*http://www.teachthought-com on 1st July, 2018.*

Korkmaz, O. &Karakus, U. (2009). The impact of blended learning model on student attitudes towards Geography course and their critical thinking disposition and levels. *The Turkish online Journal of Educational Technology*. 8 (6) pp 14-18.

Lipman, K. (2014) Two approaches to entrepreneurship education: The different effects for and through entrepreneurship at the lower secondary school level. *The international Journal of Management Education* 12(3) 512-518.

Majerich, D. & McCracken, M. (2013) C21U's Guide to blending your classroom: centre for 21st century Universities http://wwwc2iu.gatech.ed/

Wentling, T. L. (2015). Mastery versus non-mastery instruction with varying test items feed backs treatment. *Journal of Educational Psychology* 65, 50-58.