Effect of Community of Inquiry on Polytechnic Undergraduates' Performance in English Language: A Case Study of Delta State Polytechnic, Nigeria

Adaeze Benedicta Ogude (Ph.D)
Department of Arts, School of General Studies, Delta State Polytechnic, Otefe-Oghara, Delta State, Nigeria
Ogudeadz25@gmail.com

Faith Ogheneovo Onotaniyohwo (Ph.D)
Department of Social Science, School of General Studies, Delta State Polytechnic, Otefe- Oghara, Delta State, Nigeria

Edafe Oyaigbevwen
Department of Arts, School of General Studies, Delta State Polytechnic, Otefe-Oghara, Delta State, Nigeria

ABSTRACT: *The study investigated effect of Community of Inquiry (CoI) on polytechnic undergraduates' performance and interest in English Language: A case study of Delta State Polytechnic. Three objectives of the study, three research questions and three hypotheses guided the study. The population of the study consisted of all the National Diploma II students who are offering the course Use of English 2 (GNS 102.1) for the 2022/2023 academic session in School of Engineering which is one hundred and eighty (180) students. The sample size of this study consisted of one hundred and eighty (180) students using census sampling technique. The instrument for the study was English Language Performance Test (EPT). Mean, standard deviation and z-test were the statistical tools used for the study. The findings revealed that there is a significant difference in the effect on the students' pre-test and post-test mean performance in English Language. There is a significant difference in the performance of students taught English Language using Community of Inquiry (CoI) and those taught with conventional method of teaching. Furthermore, there is a significant difference in the mean performance scores of male and female students when taught English Language using Community of Inquiry (CoI) instructional strategy. Based on these findings it was recommended that lecturers should adopt the use of Community of Inquiry instructional strategy in teaching English Language in the polytechnics for improved academic performance by students. Polytechnic lecturers should be trained on how to use the current and innovative teaching strategies in the field of education for self-efficiency in the profession. Also, that students' gender should also be considered by lecturers since the study has revealed it as a factor that can predict performance among learners before adopting any teaching strategy for maximum academic productivity.*
KEYWORDS: Community of Inquiry, students' interest, Academic performance and English Language.

INTRODUCTION

Technological development over the years has enabled mankind to operate with less effort. One of such developments involves the increasing use of the Internet as a means of presenting and delivering instruction to learners. Meaningful and useful education is something that every learner needs regardless of the career choices they will eventually make. The issue is how best to integrate Information and Communication Technology (ICT) into the classroom has always been there among practitioners in the field of education. Technology has introduced various active teaching strategies into the 21st-century classrooms. These active pedagogies include Community of Inquiry (CoI), Augmented Reality (AR), Collaborative Learning (CL), Blended Learning (BL), Inquiry-Based Learning (IBL), Adaptive Learning (AL) strategies among many others. This development has set a new pace of teaching and learning for learners and it becomes imperative for both instructors and learners to be ICT oriented for global best practice.

Concept of Community of Inquiry

Community of Inquiry (CoI) is one of the recent and innovative teaching strategies which group of individuals are involved in a process of empirical or conceptual inquiry into a problematic situation. It is a teaching strategy 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 instructional approach focuses on experimental learning and learner-centred interaction based on asking significant questions and not telling reproducing facts. This strategy recognizes the social presence of the learners through affection, open communication and group cohesion among learners, the teaching presence which involves the realization of personal meaning and educationally worthwhile learning outcome. The cognitive presence focuses on the extent of learners' participation in the group for knowledge construction by actively participating in their learning. Akyol, (2011) defined Community of Inquiry (CoI) as a group of instructors who share a technology-reliant environment, time-bound, virtual-space and rule-based interaction of perception of teaching and learning based on social, teaching and cognitive presence. Anderson and Garrison (2016) defined 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 consist of social, teaching and cognitive presence that represents all the educational activities in the learning environment. Ice (2007) defined the CoI as a system of learning which can be either asynchronous or synchronous in nature that allows the participant to connect to one another in the process of diagnosing a particular problem within the group members with the aim of constructing new knowledge. The community participation is categorized into three categories which are the social presence, cognitive presence, and teachers' presence.

Concept of English Language

English Language is a global language that is spoken all over the world. It is based on twenty-six (26) alphabet and forty-four (44) phonemes. Here in Nigeria, like other Anglophone countries English is Entrenched as second Language (EL2) by the British Colonial Masters. English language is a medium of communication that can manifest through its use in speech, reading, writing and listening to achieve and gain competencies and proficiencies in meeting

the diverse needs of the society. English language is an important language in the world. It is a language for the whole world because it is an international language and the language of science and technology. About a tenth of the world's population use English as a mother tongue and about a fourth of the world's population use English as a second or foreign language. It is a language used by most people in the world because no other language is as widely used as the English language. In Nigeria, the multi-lingual and multi-cultural nature of the country and the absence of a national unifying indigenous language have led to the adoption of the English language as a medium of communication. The ability to communicate in English has remained an unwritten yardstick to measure literacy level in Nigeria. Certain advantages accrue to persons who speak the language both nationally and internationally. The English language has always been the pivot on which the educational wheel of Nigeria rotates.

English language occupies a strategic position in the social life of an average Nigerian, it is the language of government, education, administration, trade, commerce, industry and politics. It is also the language of mass media including newspapers, radios, televisions and even judiciary. It is the language of the entire school system in Nigeria (FRN 2014). English Language is a core subject in the secondary school curriculum such that a credit pass in English Language is a prerequisite for one to gain admission into tertiary institutions in the country. It is crucial for the survival of the child in the school system. Its importance cannot be overemphasized. Hence Etukudo (2018) stressed that the English language is the life wire of the whole communication system in Nigeria at home level, business arena, school environment and in government settings.

Concept of 21st Century Education

Prensky (2001), exhibited independence by building a strong content knowledge that responds to varying demands of audience task, and use of technology to understand other perspectives and cultures. In this 21st century learners are different and can no longer use the 19th and 20th century knowledge for their learning as a guide to what is best for them. Ghani (2016) observed that the 21st century system of education is a type of education that prepares learners for the knowledge-based driven society where technology rules the world. Learning in this century is learner-centred which learners take total control over their learning, get engaged in their learning and make use of the soft skills to promote their level of creativity in the process of their learning. A 21st century learner is a problem solver, critical thinker, communicator and collaborator and as such, deeper learning environment is required in order to nurture the growth of such a learner. The contemporary framework for 21st century skills include the revised International Society for Technology in Education, (ISTE) (2007) that includes students' standards for technology as well as digital literacy standards from the educational testing service ICT literacy. Students are not meant to learn only academic contents, they also need to know how to keep learning and make it effective and innovative by applying critical-thinking and problem-solving skills, communication skills, creativity and innovation skills and collaboration skills.

Bonk (2015) opined that the 21st century educational systems must be both functional and systematic in order to make them useful to the society. These innovations in school systems are due to the nature of our learners who are digital natives who speak computer languages,

learn with computer and manipulate the computer the way that suits their learning styles. In educational sector, social media platforms such as Zoom, YouTube, Facebook, Skype, WhatsApp, Imo App, Blogs etc. Serve as support tools for improved teaching and learning. Social media platforms have gained a global recognition and superiority for learning since it has the potentials of expanding the scope of learning.

Statement of the Problem

There are several levels of innovations and changes in the educational system with the aim of improving performance, but despite these innovations and changes there are some challenges that are still confronting the practice of teaching and learning in classrooms. Therefore, teaching preparations and activities should be done and organized to augment class time with regular chances to engage learners in effective learning. The teaching of English Language in Polytechnics is becoming boring to students who are digital natives, with the increasing use of the internet; learners are no longer interested in the old-fashioned classroom activities and need to be exposed to new and innovative teaching strategies. The activities of the 21st century teaching strategies encourages the use of digital tools for teaching and learning. However, recent developments have shown a marginal decline in students' academic performance in English Language of National Diploma II students in School of Engineering, Delta State Polytechnic, Otefe- Oghara, Nigeria between 2018- 2022. Based on these observations, the researcher is interested in finding out what could be responsible for this poor academic performance. Could it be lack of facilities in schools for the teaching of English Language? Could it be the teaching strategies used by lecturers in teaching English Language? Therefore, this study investigated effect of Community of Inquiry (CoI) on polytechnic undergraduates' performance and interest in English Language: A case study of Delta State Polytechnic

Aim and Objectives of the Study

The aim of this study was to investigate the effect of Community of Inquiry (CoI) on polytechnic undergraduates' performance and interest in English Language: A case study of Delta State Polytechnic. Specifically, the study sought to:

1. Determine the effect of Community of Inquiry (CoI) on the pre-test and post-test mean performance scores of students in English Language.
2. Determine the mean performance of students taught English Language with Community of Inquiry (CoI) and those taught with conventional method of teaching.
3. Determine the effect of Community of Inquiry (CoI) Instructional Strategies on the mean performance of male and female students in English Language.

Research Questions

1. What is the effect of Community of Inquiry (CoI) on the pre-test and post-test mean performance scores of students in English Language?
2. What is the mean performance of students taught English Language with Community of Inquiry (CoI) and those taught with conventional method of teaching?
3. What is the effect of Community of Inquiry (CoI) Instructional Strategies on the mean performance of male and female students in English Language?

Hypotheses

1. Community of Inquiry (CoI) instructional strategy has no significant effect on the students' pre-test and post-test mean performance in English Language

2. There is no significant difference in the performance of students taught English Language using Community of Inquiry (CoI) and those taught with conventional method of teaching.
3. There is no significant difference in the mean scores of male and female students when taught English Language using Community of Inquiry (CoI) instructional strategy.

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 National Diploma II students who are offering the course Use of English 2 (GNS 102.1) for the 2022/2023 academic session in School of Engineering which is one hundred and eighty (180) students. The sample size of this study consists of one hundred and eighty (180) students using census sampling technique. This sampling technique was adopted due to the small nature of the study population. The instrument for the study was English Language Performance Test (EPT) 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 0.85 was obtained. The data collected were analyzed using mean and standard deviation to answer research questions. The null hypotheses were tested using t-test analysis at 0.05 alpha level.

Data Presentation and Analysis

Research Question 1
What is the effect of Community of Inquiry (CoI) on the pre-test and post-test mean performance scores of students in English Language?

Table 1.1: Analysis of pre-test and post-test mean performance scores of students taught with English Language Community of Inquiry (CoI) teaching strategy

		Pre-test		Post- test		
Method	N	$\bar{x}$	Std Dev	$\bar{x}$	Std Dev	Mean Gain
COI	180	40.52	13.71	75.18	7.56	34.66

Analysis of students' pre-test and post-test performance mean scores shown in table 1.1 above revealed that during the pre-test students in experimental group had (mean =40.52; SD= 13.71), and in post-test they had (mean=75.18; SD=7.56) with a mean gain of 34.66 after the administration of the instrument. This implies that students performed better during the post-test after being exposed to the Community of Inquiry instructional strategy than the pre-test.

Research Question 2

What is the mean performance of students taught English Language with Community of Inquiry (CoI) and those taught with conventional method of teaching?

Table 1.2: Analysis of students' academic performance in English Language taught with Community of Inquiry teaching strategy and those taught with conventional teaching method.

		Pre-test		Post- test		
Methods	**N**	**x̄**	**Std Dev**	**x̄**	**Std Dev**	Mean Gain
CoI	90	42.21	13.32	82.62	16.31	40.41
Conventional Method	190	37.47	14.12	51.23	17.65	13.76

Table 1.2 showed the mean and standard deviation of students' academic performance in English Language. The table revealed that during the experimental group (Community of Inquiry) group had (mean =82.62; SD= 16.31) and mean gain of 40.41 while the conventional method group had (mean=51.23; SD=17.65) and a mean gain of 13.76 after the administration of the instrument. This implies that Community of Inquiry outperformed the conventional method of teaching group.

Research Question 3

What is the effect of Community of Inquiry (CoI) Instructional Strategies on the mean performance of male and female students in English Language?

Table 1.3: Analysis of performance in English Language of male and female students using Community of Inquiry (CoI) instructional strategy.

		Pre-test		Post-test	
Gender	**N**	**x̄**	**Std Dev**	**x̄**	**Std Dev**
Male	78	35.44	10.45	61.22	25.78
Female	102	48.32	12.28	68.27	19.95

The result shown in table 1.3 above revealed that the performance mean score of male students taught English Language. During the pre- test male students had (mean=35.44; SD=10.45), and in the post- test (mean=61.22; SD=25.78 while the female had (mean=48.32; SD=12.28), and in post- test (mean=68.27; SD=19.95) respectively. Therefore, the female students had a higher performance in English Language than the male students.

Hypotheses

Hypothesis 1: Community of Inquiry (CoI) instructional strategy has no significant effect on the students' pre-test and post-test mean performance in English Language

Table 1.4: z-test of difference in the use Community of Inquiry (CoI) teaching strategy in teaching English Language and students' performance.

Method	N	Mean ($\bar{x}$)	SD	Df	p-value	z-cal	z-cri	Decision
Pre-test	90	55.44	18.35					
				178	0.002	6.43	1.62	Reject Ho
Post-test	90	65.42	17.61					

The hypothesis in table 1.4 showing the student's pre-test and post-test mean scores in English Language with Community of Inquiry (CoI) teaching strategy which was tested at 0.05 level of significant. The calculated value revealed .002 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. There is a significant difference in the effect on the students' pre-test and post-test mean performance in English Language.

Hypothesis 2: There is no significant difference in the performance of students taught English Language using Community of Inquiry (CoI) and those taught with conventional method of teaching.

Table 1.5: Z-test of difference in the use Community of Inquiry (CoI) teaching strategy and Conventional Teaching Method in teaching English Language.

Methods	N	Mean ($\bar{x}$)	SD	Df	p-value	z-cal	z-cri	Decision
Community of Inquiry	90	71.92	13.34					
				178	0.001	8.37	1.625	Reject Ho
Conventional Method	90	63.28	16.64					

The hypothesis in table 1.5 showing the students mean scores of students' performance in English Language with Community of Inquiry (CoI) teaching strategy and Conventional method in the post-test was tested at 0.05 level of significant. The calculated value revealed

.001 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. There is a significant difference in the performance of students taught English Language using Community of Inquiry (CoI) and those taught with conventional method of teaching.

Hypothesis 3: There is no significant difference in the mean scores of male and female students when taught English Language using Community of Inquiry (CoI) instructional strategy.

Table 1.6: Z-test of difference of male and female students' performance taught English Language with Community of Inquiry (CoI) teaching strategy.

Gender	N	Mean ($\bar{x}$)	SD	Df	p-value	z-cal	z-cri	Decision
Male	78	55.42	16.36					
				178	0.002	5.52	1.63	Reject Ho
Female	102	73.61	14.54					

The hypothesis in table 1.6 showing the students mean scores on student's performance in English Language with community of inquiry (CoI) approach of teaching in the post-test was tested at 0.05 level of significant. The calculated value revealed 5.52 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. There is a significant difference in the mean performance scores of male and female students when taught English Language using Community of Inquiry (CoI) instructional strategy

DISCUSSION OF FINDINGS

The hypothesis in table 1.4 showing the student's pre-test and post-test mean scores in English Language with Community of Inquiry (CoI) teaching strategy which was tested at 0.05 level of significant. The calculated value revealed .002 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. There is a significant difference in the effect on the students' pre-test and post-test mean performance in English Language. The finding is in agreement with that of Haridiana (2015) investigated the effect of the community of inquiry on students' performance in reading comprehension and self-learning in the English Language. Results showed that students in the treatment group who learned with the community of inquiry had higher achievement than those in the control group who learned with the conventional method.

The hypothesis in table 1.5 showing the students mean scores of students' performance in English Language with Community of Inquiry (CoI) teaching strategy and Conventional method in the post-test was tested at 0.05 level of significant. The calculated value revealed .001 which is less than 0.05 level of significant. This therefore implies that the null hypothesis

is therefore rejected. There is a significant difference in the performance of students taught English Language using Community of Inquiry (CoI) and those taught with conventional method of teaching. The study agreed with the findings of Cheng-Hsuan (2019) who reported that Students in the Community of Inquiry classroom environment have significant increase in performance and interest than those who in the traditional learning environment.

The hypothesis in table 1.6 showing the students mean scores on student's performance in English Language with community of inquiry (CoI) approach of teaching in the post-test was tested at 0.05 level of significant. The calculated value revealed 5.52 which is less than 0.05 level of significant. This therefore implies that the null hypothesis is therefore rejected. There is a significant difference in the mean performance scores of male and female students when taught English Language using Community of Inquiry (CoI) instructional strategy. The finding of the study is in line with the finding Sam (2016) who reported that male students perform significantly better than female students in Financial Accounting.

Contributions to Knowledge

The paper on effect of Community of Inquiry (CoI) on polytechnic undergraduates' performance and interest in English Language: A case study of Delta State Polytechnic has made a whole lot of contributions to the body of knowledge. specifically, the paper has reveal the hidden potentials in Community of Inquiry (CoI) when it is properly used by instructors for teaching and learning. The implication of using Community of Inquiry (CoI) on the learners is improved academic performance in their various field of studies.

CONCLUSIONS

Community of Inquiry (CoI) instructional strategy is one of the emerging strategies with great educational possibilities and is being incorporated by various disciplines in education at different academic levels. It combines digital information with physical information in real time and with user participation which enables a learner to be actively participating in their learning process with the aim of knowledge creation.

Recommendations

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

1. Lecturers should adopt the use of Community of Inquiry instructional strategy in teaching English Language in the polytechnics for improved academic performance by students.
2. Polytechnic lecturers should be trained on how to use the current and innovative teaching strategies in the field of education for self-efficiency in the profession.
3. Students' gender should also be considered by lecturers since the study has revealed it as a factor that can predict performance among learners before adopting any teaching strategy for maximum academic productivity.

References

Akyol, Z. (2011). The impact of course duration on the development of community of inquiry. *Interactive Learning Environment* 19(3) 2011-2015.

Anderson, M. & Gaarrison, S (2016). *Technological, pedagogical and content knwoeldge*. Retrieve from http://itctevangelistic.com technological-pedagogical contentment knowledge.

Anderson, M. (2016) *Technological Pedagogical and Content Knowledge*. Http://icteevangelist.com/technological-pedagogical-and-content-knowlege

Bonk, Y. (2015). *Educational Psychology Trends and Status in America*. *New Russel Foundation Press*

Cheng-Hsuan, L. (2019) Impact of an augmented reality system on students' learning interest and performance for a health education course. *International Journal of Management, Economics and Social Sciences* 2019, 8(3), pp. 195 – 204.

Etukudo, N. R. (2018). Teachers' enactment of content literacy strategies, in Secondary science and mathematics classes. *Journal of Adolescent and Adult literacy,* 56 (2), 151-161.

Federal Government of Nigeria Annual Report 2014

Ghani, N (2016). *Equity and Information Communication Technology (ICT) in Education-* Google Books Result. Retrieved on 16-011-2021 Harcourt: Harcourt: Paragraphics publishers, Nigeria

Heridiana, J (2015) *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) (pp 316-317)

Ice, l. N & Ginns, P (2007) Quality in blended learning: Exploring the relationship between online and face-to-face teaching and learning. *The internet and   Higher Education 10 (1) 53-56.*

International Society for Technology in Education (ISTE) (20017). The national- educational technology standard and performance for students.

Prensky, E, (2001). How digital native learn: Implication for teaching and learning. *American Journal of Education, 9 (4):11–19.*

Sam, O. E. (2016). Teachers' commitment: A potent mechanism for quality assurance in teacher education in Nigeria. In M. L. Maphila, R. Brijra, A. M. Wokocha; S. Nwokeocha; and D. Ogum (eds). *Africa Forum of Teaching Regulatory Authority Teaching and Learning In Africa Conference Proceedings*, 224-256