Effect of Project-Based Method on Students' Academic Performance in use of Library instruction in Adamawa State University, Mubi-Nigeria

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ABSTRACT

This study embarked on determining the effect of project-based teaching method on students' performance in Use of Library Instruction in Adamawa State University, Mubi. The objective of the study was to determine the effect of project-based method on students' performance in Use of Library Instruction. One research question and two hypotheses guided the study. Librarians/lecturers, students and researchers on pedagogy in Use of Library Instruction are beneficiaries .This study is limited to the effect of Project-base method on the students' academic performance in Use of Library Instruction, in Adamawa State University, Mubi. Bruner constructivism theory on learning was adopted as the framework for this study. A literature review on project-based technique and Use of Library was conducted to illuminate the study. Quasi-experimental research design was adopted. The population of 1250 fresher students and the sample of 64 fresher students of two intact classes from Department of Biological Science were used. The pretest and posttest of examination questions were administered. The examination questions as the instrument titled Library Instruction Achievement Test (LIAT) was complemented with documentary evidence of students' previous examination records. Percentiles and T-test were used to analyse the data. The result of the findings shows significant effect of project-based method on students' achievement in Use of Library Course. Project-based method was found also to be effective and can be employed to improve teaching/learning experience in Use of Library Instruction and utilization of library resources. It is therefore recommended that Use of Library Instruction lecturers should employ project-based method in teaching/learning to produce efficient and proficient library users.

KEYWORDS: Library instruction, use of library, teaching/learning methods, Project-based method, students' academic performance, Bruna's Theory of Constructivism.

Introduction

Students today face manifold information resources and are continuously challenged in their efforts to effectively locate, identify, access and use quality information in their studies. Lack of know-how, surplus information and/or information anxiety, present a substantial challenge for students. However, Librarians working together with their academic colleagues, play a key role in helping students develop the necessary skills to navigate an increasingly complex

and diverse information environment of copious information resources. Thus creating the appropriate learning environment and contexts in which students can develop skills that allow and/or inform them to effectively find, evaluate and use information is imperative.

Since teaching/learning methods facilitate teaching/learning and promote academic performance, project-based teaching method is hereby tested to illuminate its effect on students' academic performance in Use of Library, to uncover its potential attribute to learning. The ability to explore information effectively, in this information age, needs effective information literacy instruction and learning that harness proficient use of library resource.

Nkanu (2007) opined that every hour of lecture received by students should be complimented by at least two hours of study time using the library resources. This implies that the use of library resources cannot be overemphasized. Although libraries and librarians are known to be helping library users in locating information to be used through Library Instruction Course or other library services, most students continue to have trouble in using the library resources. Ugah (2007) and Edem, Ani and Ocheibi (2009), observe that obstacles to information access and use in developing countries include lack of awareness of the available resources; physical inaccessibility; information explosion; bibliographic obstacles; environment; poor infrastructure; decline budgets and rising cost; staff; and crime; are problems militating against effective utilization of library. Some of these problems can be addressed from the classroom level if users have skills and expertise required to locate, access and utilize information resources proficiently.

Very importantly studies have shown that other teaching methods required to achieve effective teaching/learning in Use of Library are obtainable. One of these teaching strategies is project-based approach. To achieve the objective of teaching information literacy, like in any other subjects, effective teaching methods are needed, to expose students, to knowledge and experience that will help them in the development of practical skills in the use of library. According to Kocchar (2007) the best curriculum and the most perfect syllabus remain dead unless quickened into life by the right methods of teaching. This research therefore focuses on effect of project-based teaching method on students' academic performance in Use of Library and its influence in making learning in Use of Library Instruction productive.

The theoretical framework that this study hinges on is constructivism theory. The constructivism theory by Bruner posits that learning is an active process in which learners construct new ideas or concepts based on past and current knowledge (Bruner, 1966). Constructivism theory, like project-based learning consents that learning takes place in the context of solving real-world problems by students. This study hinges on constructivist theory of learning because project-based learning like constructivism theory is a student-centered. Students are active agents of learning, just as project-based method and constructivism both emphasize. And also information literacy parallels with project-based which requires active learning to experience skills and proficiency for use of library and information resources.

Librarians are faced with challenges of meeting the needs of students that will augment their ability to use library effectively and proficiently. So, effective teaching/learning environment must be created, to make effective and proficient information users in universities and around. The likelihood of success in using each information service depends on knowledge that the service exist, and the logical dependencies between one service and the other (Heine, Winkworth and Ray 2000). Hurst and Leonard (2007) assert after examining the sources cited by two groups, that those who receive library instruction do better than those who did not. This statement is suggestive. It indicates that the library instruction session demonstrates to the students, resources of information available and how they can be accessed and used.

Modern information technology provides easy and fast access for everyone. Recent large-scale and growing document made available to users demands for new modes of access to modern library collections. The ability to retrieve information in the form of print sources is no longer regarded as the only basic concept of library use. ICT have changed the way people interact with information resources. Bara-Ita, Peritz and Wolman (2003) related a survey on Israeli University use of electronic journals and databases. Their major findings were that the use of electronic sources is widespread among respondents as more than 50% found the electronic services indispensable. Odini (1999) remarks that user of databases from University of Sheffield have some considerable advantages over manual users, though manual sources still have some qualities which make them valuable. The sources of information availability on databases are perhaps from course content, syllabi, library staff, colleges, conferences, workshops, computer literature, etc. It is apparent that library instruction has a great deal of influence on proper library use that will stand the test of time, if it applies effective teaching/learning methods.

Members of staff of Abdurrahman Ghaji Library (A.G. Library), Adamawa State University (ADSU), Mubi, have been involved in the teaching of Library User Education to enable students use the library proficiently since 2003/2004 academic session. The goal is to encourage active learning and future self-sufficiency in information access, retrieval and use of information resources. The course is titled: "GST 102-Use of Library, Study Skills, Information and Communication Technology." A compulsory two credits unit course, which is enshrined in the General Studies Unit (GST) prospectus and students' handbook. The course is administered to fresher students. It is taught during second semester of each academic session (Adamawa State University, Mubi, 2008). This agrees with Galler, Giguere, Locke and Darwert (1997) who summed up the essence of library instruction to students that, students who have received instruction on library catalogue skills would be able to use the library collection, select between type of resources, evaluate materials for currency, think general to specific, broad to narrow and laterally, use keywords and indexes, et cetera, as to achieve effective use of library resources.

Statement of the Problem

Over the years, educational researchers have investigated many factors considered to affect students learning. At the heart of this inquiry is the belief that teaching methods make a difference. There are continuing debates about how much the teaching method affects learning and academic performance. Dodd 2007; Jacob 2008; and others identified some effective teaching methods, among which is Project-based method. This investigation filled in the need to uncover the rewarding influence and effect of Project-based method on students' academic performance in Use of Library instruction.

It is expected that students of ADSU, who were taught use of library, should be capable users and successful patrons of the library. But instead, there is massive failure in GST 102 and underutilization of library provisions. It is in this regard that the researcher assumes that ineffective teaching methods, were perhaps employed, that resulted into deficient learning experience that culminates to unskilled and incapable use of library materials. This study therefore investigated the effect of project-based method on students' performance in Use of Library Instruction in Adamawa State, University, Mubi, Nigeria.

Objectives of the Study

The objective of this study is to investigate and determine the influence of project-based method on students' academic performance in the Use of Library in Adamawa State University.

Research Question

What is the students' level of academic performance in the Use of Library Instruction in Adamawa State University?

Hypotheses

Ho_1. There is no significant difference in performance between experimental group and control group of the Use of Library students, using project-based method.

Ho_2. There is no significant effect of project-based method on students learning in the Use of Library in Adamawa State University, Mubi.

Methodology

Research Design

Quasi-experimental design was adopted for this study in order to determine the influence of problem-based learning on students' academic performance in Library Instruction Course. The quasi-experimental design is chosen in that the nonequivalent control design deals with research in teaching (Sambo 2005). The design is used on outside laboratory setting of true experimental design. Here natural and intact classes were adapted to experiment. Quasi-experimental design is often dependent upon the natural setting in which the researcher finds himself/herself. It explores the opportunity of collecting data in situation where nature has performed, or is performing her own experiment.

Population and Sample

The target population for this study was all fresher undergraduates that offered the Use of Library Instruction Course. All undergraduate students are potential users of the library, but fresher students are the ones given lessons in Use of Library Instruction. Using the purposive sampling technique therefore the fresher students of the University totaling 1250 were used as the focused population of this study.

Faculty of Science was randomly picked of the three faculties (Faculty of Social and Management Sciences, Agriculture Science, and Pure Sciences). Biological Sciences was subsequently picked by a course lecturer. So it followed that two departments, thus: Departments of Botany (experimental group) and Zoology (control group) with 34 and 30 fresher students were picked respectively, as the sample for the study.

The fresher students were selected (purposively) because information literacy class is given to them as GST 102 course. It is titled: "Use of library, Study Skills, Information and Communication Technology" (a two credit unit's course).

Since literatures have shown that, this design is often used in classroom experiments when experimental control groups are such naturally assembled as intact class. Gay (2000) also asserts that for causal-comparative studies and many of the experimental studies a minimum of 30 subjects per group is generally recommended; the two intact classes (control and experimental groups) were deemed appropriate for this study.

Research Instrument

The research instruments are the questionnaires i.e. pretest and post test of researcher's self designed examination questions that are excerpted from the students' end of semester GST 102 examination questions and syllabus. The examination questions covered the topics selected for this research purpose (library catalogues and classification) from the syllabus of GST 102- Use of Library Instruction.

The instrument was pilot tested on fresher students to update its validity and reliability. The advice of the supervisor and the course lecturers of Use of Library Instruction were considered and used to improve the validity and reliability of the instrument. Split-half test confirms that the questions were reliable since the 40 students two halves were pretested and post-tested and the correlation was 0.62.

Procedure for Data Collection

A letter of request was taken to the Management of Adamawa State University, Mubi, for permission to carry out the research which was approved. English was the medium of communication during the class work.

The researcher familiarized with students of Use of Library class. The experiment took the following steps; as five weeks were used for this research work, during which the pretest was administered by giving experiment and control groups the examination questions (questionnaires). The researcher collected the answer sheets and scored the students. The researcher conducted a library user education class with project-based teaching method. The administered

posttest examination questions were collected and scoring of the examination was done accordingly.

Method of Data Analysis

Percentile was employed to illuminate the student's performance of the three sessions that harnessed the researcher's need for this study, in order to address the research question of this study. T-test was also used to analyze the findings on the effect of project-based method.

Response Rate

Sixty- four (64) students i.e. 98% out of the sixty-five (65) students of Biological Science (Botany and Zoology) of fresher students were used as experimental and control groups for the study.

Research Question

What is the students' academic performance in Use of Library in Adamawa State University for three sessions?

Table 1. Summary of Students Examination Scores for Three Sessions

Year/ session	A (70-100)	B (60-69)	C (50-59)	D (45-49)	E (40-44)	F (0-39)	Total
2007/8	15	25	235	123	277	200	875
2008/9	1	41	140	177	192	339	912
2009/10	2	30	154	179	193	1025	1583

The table 1 above shows the summary grades of students' academic performance in Use of Library course for the three academic sessions. 200 students which is 23% of 875 students of 2007/8 failed the course; While 339 students which is 37% of the 912 students of 2008/9 did not pass the course. 1025 students which are 65% of the 1583 students can not make it during 2009/10. This alone can be a pointer as to why students cannot proficiently utilize the library. This escalates the worry as to why this massive failure in a course that should enhance a life-long problem solving lessons. An extraneous subject that attracts one's attention from the above table is the gradual increase of students' population and the increasing failure of students. This may call for another investigation which is beyond this research scope.

Table 2: Summary of Experimental Group Post Test Scores

Item	A (70- 100)	B (60-69)	C (50-59)	D (45-49)	E (40-44)	F (0-39)	Total
Experiment group	6	11	9	5	1	2	34

The scores of the experimental group above showed only 5% failure as against 23%, 37%, and 65% failure of the three sessions. This counts for better

academic performance in Use of Library course. It is obvious that Project-based method is superior method to the methods employed in the previous teaching/learning experience.

Table 3: T-Test Effect of Project-Base Teaching Technique on Students' Academic Performance in Use of Library Instruction Course.

SN	GROUP	N	$\overline{\text{x}}$	SD	DF	TVALUE	P-VALUE	DECISION P<0.05
1	Experiment project-based	34	52.5	16.2	53	-7.85	0.000	S
2	Control	30	26.87	9.40				

S-significant

Table 3 shows the calculated T-value of -7.85. Experimental group of project-base approach indicates the mean (x) of 52.5 and standard deviation (SD) of 16.2 with degree of freedom of 62, while the control group has a mean of 26.87, standard deviation of 9.40. Since the P-value of 0.000 is less than 0.05, there is influence of project-based teaching approach on students' academic performance. Therefore, the null hypothesis is rejected.

Discussion

The finding of this study shows that there is significant influence of project-based learning technique on students' academic performance. There is significant effect since the P-value 0.000 on students' academic performance in Use of Library is lower than0.05 level of significance. This finding agrees with studies of Thomas (2000) and Mills and Treagust (2003). In their studies comparing project-based learning to conventional instruction, their research yielded results similar to those obtained, including significant effects on problem-solving skills, conceptual understanding, and attitudes to learning, and comparable or better student performance on tests of content knowledge.

The study also revealed that there is need for students to be actively involved in learning the Use of Library as that gives them the opportunity to learn at their pace and ask relevantly provoking questions from the learning activities. This agrees with the suggestion of Aguolu (1982) that library user education is an inevitable vital tool to promote library use and accessibility to library stock.

Obviously librarians' usage of more relevantly effective teaching methods and techniques will add value to their job as information managers and instructors. Effective teaching/learning will result to efficient use of library resource. Librarians should be conversant with different teaching methods and use the most appropriate to harness and enhance effective use of library to minimize underutilization of library materials. Project-based approach have P-value of 0.000 against <0.05 level of significance. Such a method can certainly be used to improve effective teaching/learning and indeed improve proficiency in using library provisions. Academy and its constituents have always called for positive change in the way teaching and learning are carried out in education, and change is happening on many campuses and in many classrooms (Oakleaf, 2009). Library instruction

must keep pace with these trends. We must begin to look beyond traditional measures toward new and different ways of teaching/learning Use of Library or information literacy. Problem-based method is just one of the pedagogy that illustrates attendance of effective influence in teaching/learning experience improving students' academic performance in Use of Library Course.

Assessing students' learning is rapidly gaining focus of institutions of higher education. If libraries and librarians intend to remain relevant on campuses, they must demonstrate their contributions to the mission of the institution by becoming involved in diversifying teaching methods and improving student learning in Use of Library Instruction. Oakleaf (2009) buttresses this point when he states that through assessment, academic librarians can demonstrate how information literacy instruction contributes to student learning and development. In order to leverage the full power of assessment, librarians need to adopt conceptual frameworks of assessment and teaching methods that will enable them to facilitate teaching/learning, increase instructional quality, and answer calls for educational accountability. One such framework is the Information Literacy Instruction Assessment of effective teaching methods and academic performance of Use of Library Instruction students. This provides a systematic process for documenting and improving both librarians' instructional ability and student information literacy skills.

Conclusion

Results from the study agreed with the literature relating to project-based method and Use of Library Course. Although the university's curriculum is not a project-based curriculum, the application of project-based method has impacted students' academic achievement in Use of Library Instruction in similar way described in other studies. This study indicates that there is significant effect of project-based learning on students' academic performance in Use of Library Instruction in Adamawa State University. It is hoped that librarians and libraries will become more involved in application of project-based method; researching and reporting in the field of Use of Library Instruction and the influence of teaching/learning method.

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