

EFFECT OF PROBLEM-BASED LEARNING ON STUDENTS' ACQUISITION OF ACCOUNTING SKILLS: IMPLICATION FOR CURRICULUM IMPLEMENTATION IN PUBLIC SECONDARY SCHOOLS IN RIVERS STATE

Juliana Isa Mohammed, Ph.D

*Department of Educational Foundations, Faculty of Education
Rivers State University, Port Harcourt*

E-mail: juliana.isa@ust.edu.ng GSM: 08036737471/07051215651

And

Leonard Azubuikwe Ogaram, Ph.D

*Department of curriculum studies and Instruction
Federal College of education (Technical) Omoku, Rivers State*

E-mail: leonard.fct@gmail.com GSM: 09117537455

Abstract:

This study investigates the effect of Problem-Based Learning (PBL) on students' Cash Book Performance skill among Senior Secondary 2 Schools Students in Port Harcourt Metropolis, Rivers State. One research question and one null hypothesis guided the study. The null hypothesis was tested at 0.05 level of significance. The design of the study was quasi-experimental design of pretest, posttest non-randomized control group. Population of the study was 2000 students. A sample of 99 students was purposively selected from two intact groups. Instrument for data collection was "Accounting cash book Performance Test" (ACBPT) validated by three experts with a reliability coefficient of 0.75. Mean was used to answer the research questions while analysis of covariance (ANCOVA) was used to test the null hypothesis. Findings revealed that students who were taught financial accounting using PBL performed better with higher post-test scores than those taught using Discussion method, but there was no significant difference in the mean performance scores of students in experimental and control group. This is because even though there was difference in the mean score of both group, the gap was not much to be considered statistical meaningful. The study concludes that problem-based learning method (PBL) enhances curriculum delivery and better equips students' with financial accounting skills and it was recommended amongst others that Teachers should ensure the use of PBL in teaching Financial Accounting for effective student's acquisition of Accounting skill.

Keywords: Problem-Based Learning (PBL), Accounting Skills Acquisition, Curriculum implementation.

Introduction

Functional pedagogy is one that help to modify the behaviour of its recipients to become better citizens and thus contribute positively to the society. One of the goals of education in Nigeria, according to the National Policy on Education by the Federal Republic of Nigeria (FRN2013); is the development of appropriate skills, mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society. Such knowledge, skills and attitude are acquired through the training provided in school subjects such as Financial Accounting. Financial Accounting is defined as the classification and recording of monetary transactions and presentation of the financial results of the activities of an entity for decision making (Thomas & Ward, 2014). For Asaolu (2005), it is a subfield of accounting that provides users with financial data from an organization for unbiased evaluation and decision-making. Such benefits of financial accounting could be tapped if students are taught to acquire the concepts of financial accounting.

The knowledge of Financial Accounting is necessary for every individual and business endeavor. This is because financial accounting deals with records of one's income and expenditure which is very vital in any serious business. This is why Francis (2014)] posited that every individual irrespective of the class requires the knowledge of financial accounting in handling day-today activities. Objectives of financial accounting at the senior secondary school level according to National Examination Council NECO (2002) are:

1. To enable Senior secondary school students appreciate the basic roles, functions and principles of accounting.
2. To lay proper foundation for further study of accountancy and allied courses at higher level and
3. To enable the students understand basic accounting principles, practice and their applications to modern business activities.

Furthermore, the Ghanaian Senior High School (SHS) Financial Accounting curriculum summarizes the aim of teaching financial accounting to the Ghanaian SHS students to include; (a) identifying the use of financial information need and financial reports internally and externally; (b) gaining requisite skills for using accounting as a tool for planning, organizing, controlling and financial decision-making process; (c) applying basic accounting principles in financial statement reporting in modern businesses and using manual, mechanical and computerized system; (d) developing kills for understanding, analyzing and interpreting financial statements/ reports for making informed and sound management decisions; and (e) developing attitudes for thoroughness, neatness, orderliness and accuracy in financial record keeping (Ministry of Education MOE,2010)

Financial accounting as a subject in secondary school placed its emphasis on skill acquisition and competency at work place. The curriculum, is designed according to the demands of the society. It includes; ICT skill and Business skills. Financial Accounting therefore arms senior secondary school students with specific skills, knowledge and

appropriate certificate that enable them pursue a chosen trade or career, as well as provide training that enable students acquire specific skills for self-reliant, wealth creators and provider of employment (FRN,2013). This goes to point out that some business skills have been integrated into the Financial Accounting curriculum for students' acquisition. Skill acquisition is practical knowledge acquired through repetitive activities that is obtained through training and retraining. Ezeyi and Ochoma, (2020), defined Skills Acquisition as a specific form of learning or training in a particular field or function so as to become expert in it. It is seen as a means of eradicating poverty and hunger by creating avenue for employment, thereby creating job opportunities and wealth creation. Skill acquisition ensures that students are able to apply theoretical knowledge in a practical setting, making them more employable upon graduation (Adegboye, 2021)

Financial Accounting curriculum, when well implemented, enhances skill acquisition thereby eradicates extreme poverty. Financial accounting curriculum implementation is the various steps involve in teaching financial accounting subjects in secondary school such as discussion method, excursion, etc. It is the various steps undertaking in achieving the desire objectives as stated in the National Policy on Education at secondary school level (FRN, 2013)

Curriculum implementation is very important because all that has been planned will be translated into action. If it is well done, the expectations from education will be realized. On the other hand, poor implementation will lead to non-achievement of the stated goals. The successful implementation of the curriculum is a function of adequate facilities, funds, quality of available manpower, in-service programmes and other stakeholders. That is, the available human and material man-power contribute to effective implementation of the curriculum.

Teaching financial accounting therefore, requires teachers to adopt better instructional strategies such as participatory approaches to help enhance students' skill acquisition (MOE, 2010) and —avoid rote learning and drill-oriented methods of teaching Such participatory teaching strategies include peer tutoring, guided discovery, and problem-based learning (Eze, 2014). The advantages of employing these participatory teaching approaches are that they make the learner involved actively in the lesson and also learn using their ideas to solve problems (Inuwa, Abdullah, & Hassan, 2017). In that regard, Dar and Ezeagba (2014) indicated that, for the government to ensure quality accounting education, it must engage the service of qualified and experience teachers who will introduce practical accounting lessons. Among the different types of participatory approaches that has been discovered, problem-based learning (PBL) is efficient (Savery, 2006) in helping students overcome challenging topics such as cash book. Therefore, this study aim to address this problem by investigating whether the adoption of the Problem-Based Learning method can significantly enhance students' acquisition of core accounting skills.

The Problem-Based Teaching (PBT) method emerges as a potent student-centered alternative for student's subject skills acquisition.

Problem-Based Learning (PBL) is a student-centered pedagogical approach in which learners engage with a complex, real-world problem at the very beginning of the learning process, before any formal instruction on the topic. Originally developed in the 1960s at McMaster University's medical school, PBL has since been adopted across various disciplines, from engineering and law to humanities and social sciences (Barrows, 2000). Unlike traditional lecture-based methods, PBL uses the problem as the catalyst for learning; students, typically in small groups, identify what they need to know, engage in self-directed learning, and then apply that knowledge to solve the problem (Hmelo-Silver, 2004).

Problem-Based Learning (PBL) is defined according to Savery (2006) as a student-centered pedagogical approach in which students learn about a subject by working in groups to solve an open-ended, real-world problem. The problem is presented before any formal learning has occurred, acting as the catalyst for the acquisition of new knowledge and the development of problem-solving skills. Savery emphasizes that PBL is a curricular instructional strategy, not just a teaching technique. Roberts, Nganga, and James (2022) explained problem-based learning as an approach in teaching where students are actively involved and prepared as independent learners and problem solvers. He added that students should be taught the proper skills and strategies that will benefit them all their lives. Savery (2006) believe that the use of PBL (a) increases students'performance in adapting to and participating in change, (b) helps students deal with problems and make reasoned decisions in unfamiliar situations, (c) helps students reason critically and creatively, (d) helps students appreciate the other person point of views; collaborate working well in teams or groups, recognizing one's strengths and weaknesses, and taking the necessary corrective action. In PBL, the function of the teacher is to promote learning and students do self-regulated and directed learning (Barut, Soares, Araujo & Kanet, 2016).

The importance of this method lies in its profound impact on developing not just knowledge, but the essential skills required for success in the 21st century. The significance of PBL extends far beyond simple knowledge acquisition. It goes to; fostering Deep, Integrated Knowledge acquisition, developing critical thinking and problem-solving skills, enhancing self-directed, lifelong learning skills, cultivating collaboration and communication skills, increasing intrinsic motivation and engagement

Empirical studies have established that such innovative teaching strategies that have the potential of proffering solutions to students' poor performance in Accounting are PBL (Bergstrom, Pugh, Phillips & Machlev, 2016). Breton (2000) compared the effects of two different teaching methods used concurrently on two comparable classes of accounting theory. The first class used the traditional lecture with assignments and examinations, and the second applied the PBL approach. The study found that, in an accounting education context, PBL methods produce better academic results than traditional lectures. However, this study did not look at students' performance in cash book accounts when taught with PBL. Similarly, Sugeng and Suryani (2020) also looked at how to enhance students' learning performance in financial management using PBL. The study found PBL a better innovative approach to improving students learning performance than the conventional

approach. Sugeng and Suryani (2020) concluded that PBL should be used in improving students learning and performance.

Problem Based Learning is anchored on Constructivist Learning Theory (Piaget, 1969). The constructivist learning theory, is one theoretical framework that helps explain why problem-based learning works (Bada, 2015). It is predicated on the idea that learning happens when students actively contribute to developing meaning and knowledge rather than merely absorbing information. The fundamental tenet of constructivism is that learners build knowledge as they build new knowledge on top of prior learning. PBL is firmly rooted in constructivism, as students build their accounting knowledge by solving authentic problems.

However, a persistent concern among educators and policymakers is the perceived gap between the theoretical knowledge imparted in accounting classrooms and students' ability to apply this knowledge to solve practical, unstructured financial problems. The predominant pedagogical approach in many Nigerian secondary schools, including those in Rivers State, remains the traditional, teacher-centered method. This method often emphasizes rote memorization of principles and mechanical recording of transactions, which may not adequately foster the critical thinking, cash book solving skill, and decision-making skills that are the hallmarks of accounting competence.

Problem-Based Learning (PBL) has been identified globally as an innovative instructional strategy that can bridge this theory-practice gap. By engaging students in collaborative, real-world scenarios, PBL is theorized to enhance deep understanding, improve knowledge retention, and cultivate professional skills. While studies in other disciplines and geographical contexts have demonstrated the efficacy of PBL, its specific impact on the acquisition of core accounting skills—such as ledger preparation, financial statement interpretation, and cost analysis—within the unique educational landscape of Rivers State secondary schools remains largely unexplored and empirically unverified. Preliminary observations and reports from most public secondary schools indicates recurring underperformance in accounting in both internal and external examinations, with students often struggling with application-based questions. This suggests a potential deficiency in the current teaching methodology. Therefore, a critical problem exists: it is unknown whether the integration of Problem-Based Learning can significantly improve students' acquisition and application of accounting skills compared to the conventional teaching methods.

Furthermore, without conclusive local evidence, curriculum planners and implementers in Rivers State lack the necessary empirical basis to make informed decisions regarding a potential pedagogical shift towards PBL. This uncertainty hinders curriculum modernization and limits the potential for improving educational outcomes in accounting. Consequently, this research seeks to address this gap by investigating the specific effect of Problem-Based Learning on the acquisition of accounting skills among secondary school students in Rivers State.

Objectives of the Study

The objectives of this study is to examine the effect of the Problem-Based Teaching method on the acquisition of accounting skills among students in Rivers State. The specific objectives are:

1. To determine the mean difference in the Accounting cash book Performance Test" between students taught using PBT and those taught using the conventional discussion method in public secondary school in Rivers State

Research Question

1. What is the mean of Accounting Cash Book Performance test between students taught using PBT and those taught using the conventional Discussion method in public secondary school in Rivers State?

Research Hypothesis

There is no significant difference in the Accounting Cash Book Performance Test between students taught using PBT and those taught using the Discussion method in public secondary school in Rivers State

Research Method

The study adopted a Quasi-experimental design, specifically the pre-test, post-test, non-equivalent control group design. Experimental Groups: were taught three column cash book accounting topics using the Problem-Based Teaching method. Control Group: were taught the same topics using the Conventional Discussion Method. The population of the study was 2000 students offering Financial Accounting in public secondary schools in Port Harcourt Metropolis. A multi-stage sampling technique was employed. Stage one was Purposive Sampling. 2 schools that registered Financial Accounting students for West African Examination Council (WAEC) and National Examination Council (NECO) that are close to the researcher was selected. Thereafter, Balloting was used to assign one schools to the experimental group and the other control group. Finally, intact SS2 accounting class was adopted from each school, giving a total sample size of 99 students (47 in experimental and 52 in control group). The instrument for Data collection was titled "Accounting cash book Performance Test" (ACBPT), a researcher-designed test. It consist of two sections: Section A: Demographic data of students. Section B: was 20 items objectives structured questions designed to measure three column cash book problem-solving skills. The test was face-validated by experts in Curriculum Studies, accounting education and measurement and evaluation. A reliability coefficient of 0.75 was established using the Cronbach's Alpha method.

After obtaining permission from the authorities, having explained the purpose of the research, procedures involved and assuring the school authority that the information was strictly for research purpose , Pre-test of ACBPT was administered to both groups. The experimental group was taught using PBT for 2 weeks, while the control group was taught the same content using the discussion method within the same length of time. At the end of

the treatment, a post-test was administered on both groups using the ACBPT to ascertain their level of performance in three column cash book preparation. Data Collected for the study were analyzed using mean scores and standard deviation to answer the research question while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. Result of the pre-test and Post-test were used for data analyses using Statistical Package for the Social Sciences (SPSS).

Results

Research question 1

What is the mean of Accounting Cash Book Performance test between students taught using PBT and those taught using the conventional method in public secondary school in Rivers State?

Table 1: Accounting Skills Performance test between students taught using PBT and those taught using the conventional method in public secondary school in Rivers State

Groups	Pre-test		Post-test		Mean Gain	N
	Mean	SD	Mean	SD		
Experimental Group (PBL)	23.18	3.46	34.45	5.39	11.27	47
Control Group (Discussion Method)	22.79	3.46	32.33	10.63	9.54	52

Table 1 showed that the experimental group had mean gain of 11.27 which is higher than the 9.54 gained by the Control group. This means that the experimental group had higher posttest mean Accounting Skills Performance test scores than the control group. This shows that the experimental group performed better than the control group.

Research Hypothesis 1

There is no significant difference in the Accounting Skills Performance test between students taught using PBT and those taught using the conventional discussion method in public secondary school in Rivers State

Table 2: Analysis of Covariate (ANCOVA) on the performance of students in Accounting Skills Performance test when taught three column cash book using PBL and discussion method

Source	Type III Sum of Squares	df	Mean Square	F	P-value
Corrected Model	527.406a	2	263.703	3.829	.025
Intercept	861.793	1	861.793	12.512	.001
Pre-test	413.802	1	413.802	6,008	.016
Level	89.686	1	89.686	1.302	.257
Error	6749.762	98	68.875		
Total	19655.000	101			
Corrected Total	7277.168	100			

Table2 shows that the post-test means achievement of students in the experimental and control groups $F(1, 100) = 1.302, p > 0.05$. This means that there was no significant difference in the mean performance scores of students in Experimental and control group. Therefore, the null hypothesis was accepted.

Discussion

The summary of the result indicates finding of the study that showed that students taught three column cash book using PBL had higher mean post-test scores than those taught using demonstration method. In the area of hypothesis, the result showed that there was no significant difference in the mean performance scores of students in Experimental and control group. Therefore, the null hypothesis was accepted. This mean that both teaching methods can still serve students interest to certain extent. This is because the difference between the mean score of Experimental and control group was small, even though experimental group scored higher than the control group, the gap was not much to consider statistically meaningful. Again, low effect size may have influenced the no significance difference result of this study. Judging from the pre-test and post-test mean score, the teaching methods truly differ slightly in effectiveness which may result in statistically no

difference. This finding is in agreement with Eze et al (2016) whose findings revealed that students taught financial accounting using PBTM performed better with higher post-test scores than those taught using lecture teaching method. Also there was no interaction effect of treatments and gender on students' academic achievement and retention in financial accounting. Similarly, Breton (2000) study found that PBL methods of teaching accounting produced better academic results than traditional lectures. However, this study did not look at students' performance in cash book accounts when taught with PBL

Conclusion

Based on the findings of this study, it was concluded that problem-based teaching method (PBT) has the potential of improving students' skill acquisition in financial accounting. PBL moves beyond the transmission of facts to actively develop the competencies that are critical for Accounting skills acquisition and civic life. By engaging students in authentic problems, PBL fosters deep and integrated knowledge, sharpens critical thinking and problem-solving abilities, instills the capacity for self-directed lifelong learning, and hones collaboration and communication skills. As educational institutions strive to prepare students for a dynamic and unpredictable future, PBL stands as a powerful, evidence-based pedagogy that equips learners not just with what to know, but with how to think and how to learn.

Recommendations

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

1. Teachers should ensure constant and effective utilization of PBL for instruction in accounting to enhance student's acquisition of Accounting skill
2. School administration should provide opportunities for in-service training programme for Financial Accounting teachers in order to equip them with competencies needed in the use of PBL for instruction.
3. Curriculum planners should formally adopt PBL for instruction in for Financial Accounting subjects to ensure its wide application.

REFERENCES

- Barrows, H. S. (2000). Problem-based learning in medicine and beyond: A brief overview. *New Directions for Teaching and Learning*, 1996(68), 3–12. <https://doi.org/10.1002/tl.37219966804>
- Breton, G. (2000). Some empirical evidence on the superiority of the problem-based learning (PBL) method. *Accounting Education*, 8(1), 1-12.
- Bergstrom, C. M., Pugh, K. J., Phillips, M. M., & Machlev, M. (2016). Effects of problem-based learning on recognition learning and transfer accounting for GPA and goal orientation. *The Journal of Experimental Education*, 84(4), 764-786.
- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16(3), 235–266. <https://doi.org/10.1023/B:EDPR.00000034022.16470.f3>
- Savery, J. R. (2015). Overview of problem-based learning: Definitions and distinctions. In A. Walker, H. Leary, C. E. Hmelo-Silver, & P. A. Ertmer (Eds.), *Essential readings in problem-based learning* (pp. 5–15). Purdue University Press.
- Thomas, A & Ward, A.M; (2014). Introduction to Financial Accounting, <http://www.baswaldo.com>
- Francis, P. (2014) Climate change and implication for senior secondary school financial accounting curriculum development in Nigeria. *Journal of Education and Practice*, 2014; 5(26): 153-157.
- NECO, (200). Regulations and syllabus for senior secondary school certificate examination. Minna: NECO, 2002.
- Eze, T.I, Ezenwafor, J.I & Obidile, I. J (2016). Effects of Problem-Based Teaching Method on Students' Academic Performance and Retention in Financial Accounting in Technical Colleges in Anambra State
- Adegboye, A. (2021). “Competency-based Education and the Nigerian Labour Market.” *Journal of Education Policy and Innovation*, 12(2), 45-62
- Hmelo-Silver, C. E. (2004). Problem-Based Learning: What and How Do Students Learn? *Educational Psychology Review*, 16(3), 235–266.
- Asaolu, A. (2005). *Financial accounting for schools and colleges*. Abuja: Spectrum Books Ltd.
- Bada, S. O. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. *Journal of Research & Method in Education*, 5(6). 66-70. DOI 10.9790/7388-05616670.
- Barut, M., Soares, M. A., De Araujo, A. P., & Kanet, J.J. (2016). Problem-based learning in accountancy: An empirical study. *International Journal of research and methods in education*. 6(6). 50-58. Doi:109790/7388-0606015058
- Bergstrom, C. M., Pugh, K. J., Phillips, M. M., & Machlev, M. (2016). Effects of problem-based

- learning on recognition learning and transfer accounting for GPA and goal orientation. *The Journal of Experimental Education*, 84(4), 764-786. <https://doi.org/10.1080/00220973.2015.1083521>
- Eze, M. I. (2014). *Comparison of peer tutoring and memorization strategies and students' achievement in manufacturers' final accounts in colleges of Education in Anambra State, Nigeria*. Master's Thesis. Retrieved from <https://materials.projecttopics.org/22410-comparison-of-peer-tutoring-and-memorization-strategies-on-students-achievement-in-manufacturers-final-accounts-in-colleges-of-education-in-anambra-state-nigeria>
- Federal Republic of Nigeria (FRN). (2013). *National Policy on Education* (6th ed.). NERDC Press.
- Inuwa, U., Abdullah, Z. & Hassan, H. (2017). Assessing the Effect of Cooperative Learning on Financial Accounting Achievement among Secondary School Students. *International Journal of Instruction*, 10(2), 31-46. <https://doi.org/10.12973/iji.2017.1033a>
- Ezeyi & Ochoma, (2020). Quality Assurance in teaching and examination of vocational and technical education in Nigeria. *African Journal of Studies in Education*. 11(1), 47-62
- Ministry of Education [MOE] (2010). *Teaching syllabus for financial accounting for senior high school 1-3*. CRDD. Accra.
- Roberts, A., Nganga, L., & James, J. (2022). Classroom examples: Problem-based learning in secondary education. *Open Access Library Journal*, 9(6), 1-16.
- Savery, J. R. (2006). Overview of Problem-based Learning: Definitions and Distinctions. *Interdisciplinary Journal of Problem-Based Learning*, 1(1), <https://doi.org/10.7771/1541-5015.1002>
- Sugeng, B. & Suryani, A. W. (2020). Enhancing the learning performance of passive learners in a Financial Management class using Problem- Based Learning. *Journal of University Teaching & Learning Practice*, 17(1), <https://ro.uow.edu.au/jutlp/vol17/iss1/5>