

Effects of Computer-Based Teaching Strategy on the Academic Performance of Financial Accounting students in Nigeria

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Abstract:- The aim of this study was to investigate the effects of computer-based teaching strategy on the academic performance of Financial Accounting students in Nigeria. There seems to be an increasing concern among teachers of financial accounting on how to teach the subjects effectively with traditional method following the observation that in financial accounting, students have an average performance in senior secondary school examinations, because of a lack of understanding about the use of innovative teaching approaches for improvement of the quality and standard of teaching where teachers do not attend workshops, seminars and conferences. Therefore, as a result of the rapid development of information and communication technology, the use of computers in accounting education has become inevitable and the best example of the integration of technology is the Computer-Based teaching strategy to enhance the students' academic performance excellently and to be well maximized. The study's pre-test, post-test, and control group were designed in a quasi-experimental approach type. The students in this study were all Financial Accounting students in Ekiti State's co-educational public senior secondary schools. One hundred and twenty SSS I Financial Accounting students were sampled for the study. To collect data for the study, a researcher-created instrument known as the Financial Accounting Achievement Test (FAAT) was utilized. Face and content validity were used to determine the instrument's validity, and the test-retest technique was used to verify the instrument's reliability. Using Pearson's Product Moment Correlation analysis, a reliability coefficient of 0.75 was obtained. For the general questions stated, the data was analysed using mean and standard deviation, while t-test statistics and Analysis of Covariance (ANCOVA) were used to test the hypotheses formulated. The results revealed that there is no significance difference between the mean scores of financial accounting students exposed to computer-based teaching strategies and control group. At the 0.05 level of significance, all hypotheses was tested. The results showed that using a computer-based teaching method enhances students' performance in Financial Accounting. Based on the findings, it was recommended that Financial Accounting teachers should enhance the instructional process by deliberate use of Computed-based teaching strategy in the learning process in order

to facilitate the high level of students' achievement in Financial Accounting. Curriculum planners should incorporate Computed-based teaching strategy into its implementation to impact knowledge to the students towards enhancing better attitude of the students towards Financial Accounting and facilitate higher achievement in the subjects.

Keywords:- Computer-Based, Teaching Strategy, Academic Performance, Financial Accounting.

I. INTRODUCTION

The world is fast becoming a global village as a result of the development in Information and Communication Technology (ICT) (Mostafa et al., 2017). The instrument in the globalization era is the Computer which mediated instruction is increasingly becoming the fact of everyday life particularly in the developed and developing countries such as Nigeria. According to Dean, (2020) stated that computer is a machine learning which accepts data (inputs) processes it and brings out the required output as information to the users to perform some challenging tasks by learning from interacting with the environment. Also, it can be used for playing games, typing of documents, communication, solving all arithmetic problems and teaching subjects such as accounting in senior secondary schools when analysing data and to make the balance of accounts to be accurate (Rader et al., 2018).

There seems to be an increasing concern among teachers of financial accounting on how to teach the subjects effectively following the observation that students have average performance in financial accounting in senior secondary school examinations (Oladapo et al., 2019). Available data in Ekiti State Ministry of Education on Students' academic performance in financial accounting in 2013, 2014 and 2015 collated by researchers in the ministry revealed that the level of performance in the financial accounting subject in senior secondary schools in Ekiti State is below average. The standard could probably be traceable to the intervention of the governor to increase the number of teachers teaching financial accounting in senior secondary schools in Ekiti State.

Therefore, Yusuf et al., (2020) revealed that the conventional method of chalk and talk has been used for educational purpose over the years which has led to students in senior secondary school offering Economics as a subject's average academic performance in Nigeria. This has also affected the academic performance of financial accounting students to remain on the average in schools in Ekiti State. However, there is a need to step up the performance of students more so that we live in a nation which appears bedeviled by financial challenges partly caused by improper accounting of financial resources through frauds, embezzlements and misappropriations. If students have a very good knowledge of financial accounting from the secondary school level, there may be a change in the situation (Wanyama et al., 2018).

Nevertheless, Dias et al., (2017) affirmed that the method of computer-based teaching strategy has the potential of motivating the students by turning them to active participants in learning especially in financial accounting on how to use Microsoft excel, spreadsheet to solve mathematical problems and drawing of accounting tables with computer. Thus, the students would become creative with a strong sense of understanding and critical thinking of financial accounting. Thereby, Nazarenko and Kolesnik, (2018) posited that the use of traditional methods by teachers could be as a result of lack of awareness of new methods for the improvement of the quality and standard of teaching where teachers do not attend workshops, seminars and conferences. Whereas, this indicates that with the awareness of using new method of pedagogy will facilitate the students' knowledge and the learning environment through the implementation of technological tools in the classroom.

Information technology (IT) as a synthesis of technological technologies, is now at the core of this transition, which allows the computer becomes the best computing tool for information that has changed how people live, work, play and study (Whyte, 2019). In this information age, education sector becomes one of the most important areas that have not been ignored by the information technology (IT) to transform the spectrum of the educational landscape specially at the secondary schools (MacLachlan et al., 2018). Although, Nigeria is almost two decades behind in embracing the use of computers and other modern tools secondary schools' classroom. In addition, the use of computer program displayed a higher degree of student engagement than the conventional approach environment, and these technological methods were shown to be highly successful in enhancing learning among the students (Beserra et al., 2014). "While information technology has invaded and dominated High Schools teachers in the developed societies, its incursion into Secondary Schools in Nigeria has been painfully slow. Nigeria ranks lowest among prominent African countries in the use information Technology among teachers in secondary schools (Adedoyin, 2010).

Raja and Nagasubramani, (2018) observed that great emphasis is placed on the computer-based technology laboratories in the educational curricula of the developed countries and it has been recognized that the use of ICT often makes the students more responsible towards their work, when they organize their assigned jobs through digital portfolios or projects. Particularly, once the students take part in an experiment for the first time, they generally find such an experience interesting in its own right as a cognitive game of sorts, and therefore they are self-motivated to take part (Carenys et al., 2017).

Conversely, previous researches viewed that incorporating ICT in the classrooms allows virtual learning environment in the schools using interactive whiteboards helps in fostering instantaneous communication between the teachers, which aids in increasing collaboration between the educators over the internet stream (Laban et al., 2017). Though, one of the aims of technology course is to train individuals capable of keeping up the fast developing and changing the world and capable of utilizing the recent technological discoveries in every field.

Khedhaouria and Jamal, (2015) identified that the main purpose of ICT consists just in the development of human mental resources, which allow people to both successfully apply the existing knowledge and produce new knowledge. Thus, the collective and rigid nature of learning and the passive nature of the learning associated with the use of radio, television and film do not contribute any innovative changes to traditional methods in education system and information and communication technologies are being used in the developed world for instructional functions (Escueta et al., 2017).

Moreover, Cloete, (2017) indicated that it has also created countless opportunities and challenges for millions of individuals, at the very least, epistemological access to the educational context of information technology which requires students and their teachers to become electronically literate as well as conventionally literate and numerate. Similarly, they should be able to handle information technology at a level appropriately to different fields of study and be equipped to employ it properly to promotes their cognitive development. Therefore, this access to the use of technology could be deemed ineffective at certain stage of schooling as a consequence of lack of motivation to bring computer technology for the progress of the students in the learning process (Francis, 2017).

This study thereby, seeks to critically examine the effects of computer-based teaching strategy on the academic performance of financial accounting students that can be used to solve the problem of average performance of students in financial accounting subjects. If a change is to be brought about in the academic performance of senior secondary school students in Ekiti state, there is need to examine the effects of computer-based teaching strategy by bringing in computer and ICT which will focus more on the student and allow creativity in every of the teaching and learning school program me to be maximized.

II. METHODOLOGY

Research Design

A research quasi-experimental design was adopted along with pre-test, post-test, control group. The design is represented diagrammatically thus:

Experimental Group 1	O ₁	X ₁	O ₂
Control Group	O ₃	X ₂	O ₄

O₁ and O₃ represent the pre-test for group 1 and 2 respectively, O₂ and O₄ represent the post-test for group 1 and 2 respectively, X₁ represents the treatment via computer-based teaching strategy and X₂ denotes the treatment via control group.

Sample and Sampling Techniques

The total population of the students was 2,981. The population for this study comprised all SS1 financial Accounting students in the co-educational public senior secondary schools in Ekiti State. The sample for the study consisted of 120 SS1 Financial Accounting students. The selection of the sample involved the use of multistage sampling procedure. In the first stage, two (2) local government areas in Ekiti State were chosen using a simple random selection approach. The second stage involved using a simple random sample approach to choose a co-educational senior secondary school from each local government. The third stage involved selecting 30 male SS1 students and 30 female SS1 students as participants from each school using a stratified random sampling technique. One school was used for experimental group while the second school served as the control group.

Research Instrument

The instrument for this study is Financial Accounting Achievement Test (FAAT) collected for the research, in which section A of the instrument (FAAT) consists of bio-data of the students which include their gender and class. Section B of FAAT (financial accounting achievement test) consisted of 25 multiple choice questions with four options. To ensure the validity of the instrument, the face and contents validities were ensured by the Financial Accounting teachers in secondary schools, experts in Vocational and Technical Education, Test, measurement and Evaluation. Modifications, corrections were made and vetted by the researcher's supervisor to check the items and ascertain whether they are adequate to measure what they are supposed to measure. The reliability of the instrument was determined through test-retest method. The instrument (FAAT) was administered to 30 students outside the sample of the study. A correlation coefficient of 0.75 was obtained and this was considered significant. Therefore, the instrument was found reliable to be used for this research.

Experimental Procedure

The procedure for the research took the researcher through three stages, namely the pretest stage, the treatment stage and the post treatment stage. The research procedure included three stages: a pretest, a treatment, and a post treatment stage. Stage I: This is the pre-treatment stage, where the researcher obtained permission from the school

principal, and orientate the research assistant for the administration of pretest on both the experimental and the control group. Stage II: The treatment stage. Treatment was thereafter given to the experimental group exposed to computer-based teaching strategy in the class lessons for a period of 4 weeks while the control group was taught with their normal class lessons for the same period. Stage III: At the end of the four weeks, Financial Accounting Achievement Test (FAAT) was administered the second time on both the control and the experimental group to obtain the post test score. The post-test instrument was administered on both the control and the experimental group after which the Financial accounting achievement test (FAAT) was collected and scored accordingly.

Analysis of Data

Descriptive and inferential statistics were used to analyze the data. Mean and standard deviation were the descriptive statistics utilized to answer the study questions while inferential statistics such as t-test statistics and Analysis of Covariance (ANCOVA). Hypotheses 1- 4 were analyzed using t-test statistic while hypotheses 5 was analyzed using ANCOVA. At the 0.05 level of significance, all hypotheses were tested.

III. RESULTS

Results revealed that the pre-test mean Financial Accounting scores were not significantly different. Students in the computer-based learning method and control groups had similar pre-test performance mean scores in Financial Accounting which implied that the level of academic performance of students in Financial Accounting schools in the two groups before the treatment was generally very low. This could be due to the teaching methods of strategy being used by teachers in teaching Financial Accounting in senior secondary schools in Ekiti State. This finding seems to be in line with Anao, (2003) evidences, which claim that most secondary school instructors lack the necessary abilities to effectively employ technology in curriculum implementation which enhances the conventional teaching method that still dominates in secondary school pedagogy. This finding however, agreed with Aggarwal, (2006), who found significant effects in the performances of students taught using the conventional method of Assignment and Lecture Teaching methods given in the lesson concerned to the student must train them in self- learning and to acquire the presentation skills of the learners. Hence, the results further reveal, there was significant difference in the post-test average scores of Financial Accounting students exposed to the use of computer-based teaching strategy and the group not so exposed in accounting. This implies that the students taught using computer-based teaching strategy performed better in financial accounting than those students taught with the conventional method. Computer-based teaching strategy is effective because it involves active participation in the learning process which allows students to be active in the classroom.

IV. DISCUSSIONS

The study's findings are presented below in relation to the research questions and hypotheses: Based on the current findings, using a computer-based teaching method would increase student performance in Financial Accounting. Thus, the result revealed that, those exposed to computer-based learning method had highest post achievement average score, closely followed by those in the control group while the subjects in the control group had the least post-achievement average score. The observed difference could be attributed to the effects of treatment (computer-based learning strategy) administered on the subjects, which showed that, the treatment was effective.

Research Question 1

-What level may the introduction of computer-based teaching method enhance students' financial accounting performance? The average scores on students' performance in Financial Accounting were computed and compared before and after they were exposed to a computer-based teaching approach and control. Table 1 and Figure 1 show the result outcomes.

Table 1: Effects of computer-based teaching strategy on

Group	N	Pre-test		Post-test		Mean Difference
		Mean	SD	Mean	SD	
Computer-based learning strategy	40	4.35	1.41	22.60	2.13	18.25
Control	40	4.92	2.77	8.95	3.10	4.03

students' performance in Accounting

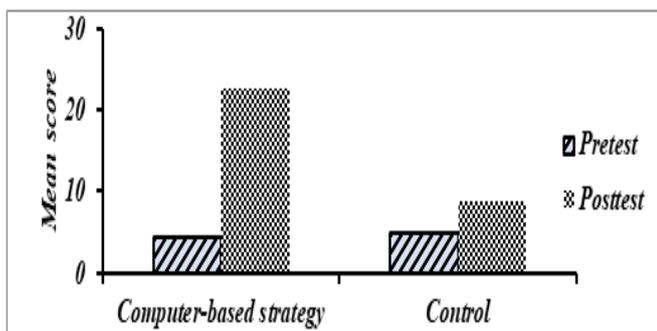


Figure 1. Computer-based Learning Strategy

Table 1 and Figure 1, reveals that students exposed to the computer-based learning method had a mean score of 4.35 in Financial Accounting before to treatment, whereas those in the control groups had a score of 4.92. Students taught utilizing a computer-based learning method had a mean score of 22.60 in Financial Accounting after treatment compared to their peers who had a post-test mean score of 8.95. Therefore, it shows that using a computer-based teaching approach to teach Financial Accounting students will increase their educational outcomes.

V. CONCLUSION

According to the conclusions of this study, using a computer-based teaching approach to teach and learn Financial Accounting is effective. Hence, the study findings are consistent to that of (Kareem, 2015) who examined the effect of computer assisted instruction on students' academic achievement and attitude in Biology in Osun State and discovered a significant difference in performance of students taught Biology using computer assisted instruction and those taught using traditional methods. This study's findings also accord with Barnstein, (2006) observations that effective teaching techniques should be as participatory as feasible, with a collection of small group activities using appropriate and informative research studies. Hence, the following recommendations were made.

- Financial Accounting teachers should enhance the instructional process by deliberate use of Computed-based teaching strategy in the learning process in order to facilitate the high level of students' achievement in Financial Accounting.
- School administrators should conduct seminars and workshops for students to encourage the development of a good approach toward financial accounting.

LIMITATIONS AND FUTURE STUDIES

The study was carried out on the effects of computer-based teaching strategy on the Academic Performance of Financial Accounting students in senior secondary school in Ekiti state. However, the following suggestions are made for future studies.

1. There is need for similar research to be carried out to embrace other social science subjects such as Economics, Geography, and Commerce among others.
2. To further confirm the generalizations developed in this study, the study might be performed in other states in the south west of Nigeria.
3. The research may possibly get coordinated in private school and compared to a public school.

REFERENCES

- [1]. Adedoyin, T. (2010). Information Technology Productivity Tools for Managing the Accounting Function. *The Nigerian Accountant*, 43(4), 30–36.
- [2]. Aggarwal, J. C. (2006). *Principles, Methods and Techniques of teaching*. Vikas Publishing house PVT LTD.
- [3]. Anao. (2003). Using the computer in enhancing the accuracy of the trapezoidal rule. *Nigeria Journal of Computer Literacy*, 3(1), 67–71.
- [4]. Barnstein, C. C. (2006). *An Introduction to the Pronunciation of English*. Ibadan: Macmillan Publisher Limited.
- [5]. Beserra, V., Nussbaum, M., Zeni, R., Rodriguez, W., Univeridad, P., & Paulista, E. (2014). *Practising Arithmetic Using Educational Video Games with an Interpersonal Computer*. 17, 343–358.

- [6]. Carens, J., Moya, S., & Perramon, J. (2017). Is it worth it to consider videogames in accounting education? A comparison of a simulation and a videogame in attributes, motivation and learning outcomes. *Cómo Citar Este Artículo*, 20(2), 118–130. <https://doi.org/10.1016/j.rcsar.2016.07.003>
- [7]. Cloete, A. L. (2017). Technology and education: Challenges and opportunities. *HTS Teologiese Studies/Theological Studies*, 73(4), 1–7.
- [8]. Dean, J. (2020). The Deep Learning Revolution and Its Implications for Computer Architecture and Chip Design. *Digest of Technical Papers - IEEE International Solid-State Circuits Conference, 2020*, 8–14. <https://doi.org/10.1109/ISSCC19947.2020.9063049>
- [9]. Dias, S. B., Hadjileontiadou, S. J., Diniz, J. A., & Hadjileontiadis, L. J. (2017). Computer-based concept mapping combined with learning management system use: An explorative study under the self- and collaborative-mode. *Computers and Education*, 107, 127–146. <https://doi.org/10.1016/j.compedu.2017.01.009>
- [10]. Escueta, M., Quan, V., Nickow, J. A., & Oreopoulo, P. (2017). *Education Technology: An Evidence-Based Review* (No. 2374; Vol. 120, Issue 129). <http://www.nber.org/papers/w23744%0ANATIONAL>
- [11]. Francis, J. (2017). The Effects Of Technology On Student Motivation And Engagement In Classroom-Based Learning. *Technology On Student Motivation And Engagement In Classroom-Based Learning*, 1–60. <http://dune.une.edu/theseshttp://dune.une.edu/theses/121>
- [12]. Kareem, A. A. (2015). Effects of Computer Assisted Instruction on Students' Academic Achievement and Attitude in Biology in Osun State, Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies, (JETERAPS)*, 6(1), 69–73.
- [13]. Khedhaouria, A., & Jamal, A. (2015). *Sourcing knowledge for innovation: knowledge reuse and creation in project teams*. 19(5), 932–948. <https://doi.org/10.1108/JKM-01-2015-0039>
- [14]. Laban M. Mutwiri, V. N. K. and M. M. K. (2017). Integration of Information and Communication Technology in Teaching and Learning: Assessments of Public Secondary Schools in Meru County. *African Journal of Education, Science and Technology*, 4(2), 102–118.
- [15]. MacLachlan, M., Banes, D., Bell, D., Borg, J., Donnelly, B., Fembek, M., Ghosh, R., Gowran, R. J., Hannay, E., Hiscock, D., Hoogerwerf, E. J., Howe, T., Kohler, F., Layton, N., Long, S., Mannan, H., Mji, G., Odera Ongolo, T., Perry, K., ... Hooks, H. (2018). Assistive technology policy: a position paper from the first global research, innovation, and education on assistive technology (GREAT) summit. *Disability and Rehabilitation: Assistive Technology*, 13(5), 454–466. <https://doi.org/10.1080/17483107.2018.1468496>
- [16]. Mostafa, J., Hashemi, S. A., & Sosahabi, P. (2017). *The role of ICT in learning – teaching process*. 72, 680–691.
- [17]. Nazarenko, A. V., & Kolesnik, A. I. (2018). Raising environmental awareness of future teachers. *International Journal of Instruction*, 11(3), 63–76. <https://doi.org/10.12973/iji.2018.1135a>
- [18]. Oladapo, B., Faith, O., & Ph, D. (2019). *Teachers' and students' rating of difficulty levels of senior school general mathematics topics in ekiti-south senatorial district, Nigeria*. 8(8), 15–25.
- [19]. Rader, E., Cotter, K., & Cho, J. (2018). Explanations as mechanisms for supporting algorithmic transparency. *Conference on Human Factors in Computing Systems - Proceedings, 2018-April*, 1–13. <https://doi.org/10.1145/3173574.3173677>
- [20]. Raja, R., & Nagasubramani, P. C. (2018). *Impact of modern technology in education*. 3, 33–35.
- [21]. Wanyama, G. A., Simatwa, E. M. W., & Okwach, T. O. (2018). *Research Article Contribution of School Administrators To Teaching-Learning Teaching Learning Resources in Enhancement of Students' Academic Performance in Secondary Schools in Kenya: an Empirical Study Across Secondary Schools of Emuhaya and Vihiga Sub*.
- [22]. Whyte, J. (2019). How Digital Information Transforms Project Delivery Models. *Project Management Journal*, 50(2), 177–194. <https://doi.org/10.1177/8756972818823304>
- [23]. Yusuf, A. W., Bako, R. B., Guga, A., & El-Yakub, S. U. (2020). Effect of Heuristic Teaching Approach on Students Performance in Economics in Senior Secondary Schools in Kano State, Nigeria. *Journal of Teaching & Teacher Education*, 08(01), 54–60. <https://doi.org/10.12785/jtte/080106>