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Utilization of Interactive Board in the Teaching and Learning of **Depreciation Accounts in Senior Secondary Schools**

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ABSTRACT

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The study is on the utilization of interactive board for the teaching and learning of depreciation accounts in Senior Secondary Schools. The study was carried out in some selected secondary schools in educational district V of Lagos state. The purpose of the study was to determine the effectiveness of the interactive board in the teaching and learning of depreciation account. The study also looked at the constraints in the utilization of the interactive board for teaching depreciation account. Two hypotheses and two research questions were raised for the study. 138 respondents (75 experimental and 63 control) participated in the study. They were assigned to experimental and control groups, respectively. One instrument was used in this study: the Achievement Test on Depreciation (ATD), the reliability of the instrument was tested through a test retest method and reliability index of 0.87 was obtained. The Depreciation Account Lesson (DAL) was presented to the experimental group through the interactive Board, while the conventional lecture method was used for the presentation of the depreciation account lesson to the control group. The results obtained showed that learners exposed to the utilization of the interactive board for learning depreciation account performed significantly better than the control group $[F(1, 135) = 251.02 \ p < .05]$. The results also showed that the interactive board is an effective tool for learning depreciation accounting. The study concluded that the interactive board helped to develop cognitive dimensions, reinforcing learning and also encouraging **Keywords:** organization of activities. It was therefore recommended that teachers should be trained and Academic equally encouraged to acquire ICT skills. Teachers should also utilize modern instructional Depreciation, materials for classroom teaching and it should be innovative. board and utilization.

INTRODUCTION

The increasing presence of computers in schools, businesses, and homes is a trend that will continue to evolve in coming years. Attendant to the increased emphasis on the use of computers is the proliferation of choices regarding other devices utilizing technology in instruction. One area of particularly intensive development is that of presentation devices and systems. As presentation devices gain popularity with teachers and trainers, there is an increased demand for software that lends itself to use in this medium.

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Research leading to best practices for the use of technology in instruction should point the way to choices for which hardware and software to purchase and how to use new technology in creative and exciting lessons to which students will respond positively (Jimoh, 2014).

In the context of global policy, global society, and the global economy, each and every country is seriously thinking of heightening the degree of quality in its system of education. Globalization has permitted technical progress in the communication field, which enables users to access and exchange information at anytime and from any place in the world. Technology plays a vital role in education. In today's competitive world, children require skill sets that go beyond subject knowledge and necessitate concentration. assimilation, and retention.

In recent years, skills regarding information and communication technologies (ICTs) have gained incremental importance for education, employment and communication. ICTs have become significant tools to access information, educate individuals and conduct inter-instructional activities regardless of time and location (Mobbs, 2012).

Technology has changed dramatically, and the advancement has affected almost every aspect of our lives. However, there is a great need to discover if technologies, when utilized, will enhance education and the learning process. A classroom environment where technology is used in innovative ways could lead to improved learning and teaching (Wishart & Blease, 1999).

The interactive board is one example of such emerging technologies. The interactive board allows teachers and students to relate to technology in a manner that was not previously possible. The touch-sensitive board allows users to interact directly with applications without having to be physically in contact with the computer, which is projecting the image onto the board, providing two-way interaction between the teacher or student and the medium. This level of interaction allows a wider range of participation by the student, leading to an increased state of engagement in the learning environment, as declared by Bryant & Hunton (2010).

A depreciation account is a topic in financial accounting that requires skills. Skill subjects require students' exposure to enough practical work by the teacher to enable them to have a basic understanding of the subject matter. According to Umunnah (2012), accounting education is viewed as an area of study needed to equip youths with the knowledge, skills, and attitudes necessary for efficient financial calculation required for occupational competence and economic selfreliance. He further stated that for every business establishment, be it government offices, private companies, banks, or other financial institutions, the importance of accounting work cannot be over emphasized. Hence the necessity of using appropriate media and methods, particularly changing from the lecture method of teaching to the use of the interactive board, which allows students' participation in the teaching and learning process. This is because students' practical experience in the teaching/learning process should match the role accounting plays in the industry. The concept of financial accounting has been defined by the American Institute of Certified and Public Accountants, thus Accounting is the art of recording, classifying in a significant manner and in terms of money, transactions and events that are, in part at least, of financial character and interpreting the results thereof. From the definitions, the study of accounting is a discipline that is regulated by professional ethics that all those who want to study it must strictly adhere to (Ovevemi, 2016). Therefore, these attributes and laid down principles should be taught to

students at the secondary school level. It is safe to say that it is only effective and functional teaching that can achieve this objective.

Teaching involves students working smartly with a view to inducing, inspiring, and facilitating learning for the purpose of accomplishing set instructional objectives. Meziobi (2013) and Okam (2015) observed that the idea behind teaching methods includes the utilization of appropriately selected curriculum resources, content and learning experiences, motivational strategies, an application of learning theories, and a demonstration of knowledge of developmental psychology in the teaching-learning process.

BENEFIT OF TECHNOLOGIES IN THE CLASSROOM

As technology continues to grow, it has become more accessible to teachers and students; the variety of technology that is available in schools is increasing as well (Frank, Lei, & Zhao, 2010). Technology offers teachers the opportunity to engage students with new ways to learn. Technology as well as computer-based instruction has given teachers potentially powerful and meaningful ways to provide instruction to students (Gast, Mechling, & Thompson, 2013).

Integrating technology into diverse content areas can be motivating and encouraging for students to learn the instruction being taught. Many schools have incorporated a diverse amount of technology into use for every subject, such as numerous types of software, desktops, laptops, handheld computers, peripheral technologies, Internet resources, multimedia technologies, and e-learning systems (Frank, Lei, & Zhao, 2011). The growth of technology has been so enriching and accessible that it has moved into classrooms and brought new changes to how the curriculum is taught. There are several technologies that are used in classrooms and implemented into lessons to benefit teachers and students. These include laptops, iPods, podcasts, iPads, and the interactive board.

Barron, Harmes, & Kemker (2012) investigated the integration of laptop computers into the classroom, in which research proved that using laptops helped students' skills with technology dramatically develop. When integrating laptops or any other form of technology, it can be beneficial to their knowledge of the technological device and their actual learning of the content. Barron et. al. (2012) explained modeling responsibility by giving students the opportunity to fix problems with the laptops and demonstrate careful treatment of the laptops. Encouraging students to solve their own computer problems will help them with their independent problem-solving skills.

Fink, Kolar, & Sebatini (2007) also researched laptops within the classrooms and found the students performed significantly higher in class participation and needed less time to do homework. Technology can offer engagement

and can help students stay on task. Results from Barron et al. (2012) indicated that technology integration with teaching instruction increased academic achievement for the students. The integration of technology can provide students with more interest and motivation to do well with school work or projects. Both Barron et al. (2012) and Fink et al. (2007) found that students had a better understanding of the general value and significance of computers as they created work. The more access students have to technology, the more comfortable and willing they will be to use technology. Baron et al. (2012) and Fink et al. (2007) also concluded that teachers must be committed to making good use of technology with their students. If teachers are persistent in integrating technology into their daily instruction, students will learn to look forward to mastering the use of those technologies. Implementing technology into classroom instruction can promote student engagement and enthusiasm.

Barron, Harmes, & Kemker (2012) reported how the enthusiasm with students was very high and the teacher became an advocate for effective integration of technology. When the teacher advocates for the technological device being used, it is more likely students will do well at using the device in the classroom. Fink et al. (2007) also showed a comparison with Baron et al. (2012) in their findings, reporting that class dynamics were consistently better when using laptops in the classroom. Students become excited when learning how to use a new technological device and become motivated to work with the device. In contrast, Baron et al. (2012) examined teachers' beliefs about the incorporation of technology, such as laptops, and found that, in general, the teacher was positive about the experience; however, they found that students' lack of fine motor skills was an issue. It is important that teachers present a positive attitude about using technology in the classroom. If students see teachers becoming annoyed or frustrated with the device, they may view that as negativity and not want to experience those same situations. Fink et al. (2012) found that students did adapt fairly quickly to the use of computers; yet again, their fine motor skills were not strong enough to use the track pad and they did not have the appropriate typing skills to use word processing efficiently. It is important that teachers work with students if they are struggling with their fine motor skills. This may be a new experience for students, and you do not want them to feel discouraged. Fink et al. (2012) explained how the laptops were a very effective tool for the classroom. However, the effectiveness of the laptops is based on the material being taught and how comfortable the instructor is with teaching the skills to use a laptop. Making sure students understand how to use laptops or any other technological device is imperative. Taking time to model and using step-by-step processes will help students be successful with technology.

Using an interactive board in classrooms has become quite popular in recent years. An interactive board is an interactive white board that displays images from a computer monitor with the surface being used as a giant touch screen (Mowbray & Preston, 2013). The computer can be controlled from the Interactive Board by touching the interactive board screen with your finger or one of the electronic pens incorporated into the board. The ability of the interactive board technology allows one to present information within a group arrangement, in which all students can see the images on the board due to the large interactive Board (Gast, Krupa, & Mechling, 2012). The interactive board is an exclusive device that gives students the chance to collaborate with one another to create projects and ideas while being able to present them to the entire class. The benefits of the interactive board include: pressing icons to hear pre-recorded sounds; watching simulations and viewing graphics; capturing text or areas of screen and annotating with the pen; saving notes or drawings for future use; and engaging students with educational multimedia activities (Mowbray & Preston, 2013). The interactive board offers numerous applications for students to help create an engaging and motivating atmosphere where students feel comfortable participating. Gast, Mechling, & Thompson (2013) conducted a reading study with the interactive board and reported students learning and reading the words significantly better. Students were more excited and intrigued to be able to read words from a interactive board as opposed to conventional flash cards. The interactive board gives students the excitement and motivation to learn through animation and color. Campbell & Mechling (2014) reported a study that consisted of teaching letter sounds with the interactive board and found that the students acquired some letter sounds targeted for other students. All students can see that with the interactive board being very visual and big enough for all students to see, all students can learn words at different times. Gast, Mechling, & Thompson (2013) and Campbell & Mechling (2014) reported that the interactive board allowed the students to simultaneously see, say, hear, and touch the letter sounds to benefit their learning of the words. Observational learning can be a significant benefit of using the interactive board with students. Campbell & Mechling (2014) also found that students could hear and see their classmates or teacher read letter sounds, and the target letter sounds for each student served as an observational letter sound for the other students. The interactive board allowed students to read one another's target words by presenting instruction with the interactive board. This not only kept the students engaged through the class lesson, but it also helped students read at higher levels than expected target words by presenting instruction with the interactive board. This not only kept the students engaged through the class lesson, but it also helped students to read at higher levels than expected.

METHOD AND DESIGN

The research design used in this study is the quasiexperimental research design, since it made use of intact class, without randomization and consists of two groups: experimental and control groups, pre-test and post-test were administered to both groups.

The experimental group comprised of students exposed to teaching and learning with the aid of interactive boards, while the control group comprised of students exposed to conventional lecture methods.

Four schools were purposively selected for this study. All the schools selected were mixed schools, that is, schools comprising male and female students and 138 students made up the sampled population. They were schools that have presented students for SSCE for at least five consecutive academic sessions.

The Depreciation Achievement Test (DAT) consist of 20 items of multiple choice questions, the instrument was given to expert for content validity before using a test retest

method to test the reliability of the instrument and 0.87 reliability index was obtained.

The researcher made use of the school teachers as part of the research assistance, the pre test was administered before the treatment and after the treatment a post test was administered to both groups.

The students scores obtained was analysed using ANCOVA, since we made use of intact class, there was no randomization of students in both experimental and control groups.

DATA ANALYSIS

Research Question One:

Is there a statistically significant difference in the achievement of students taught depreciation account using interactive board and lecture method?

Research Hypothesis One:

There will be no statistically significant difference in the achievement of students taught depreciation account using interactive board and lecture method?

Table 1: Mean Scores of Students in the Experimental and Control Class

	Mean	SD	Ν
Experimental	21.72	5.13	75
Control	9.80	3.71	63

 Table 2: Analysis of Covariance (ANCOVA) on the Achievement Post-Test Scores of Students with Pretest Achievement as

 Covariate

	Type III Sum of	f			
Source	Squares	Df	Mean Square	F	Sig.
Corrected Model	4989.967ª	2	2494.984	125.513	.000
Intercept	2935.840	1	2935.840	147.691	.000
Pre_Achiv	119.868	1	119.868	6.030	.015
Strategies	4989.858	1	4989.858	251.021	.000
Error	2683.569	135	19.878		
Total	44228.000	138			
Corrected Total	7673.536	137			

Tests of Between-Subjects Effects

The ANCOVA associated with strategies on achievement F (1, 135) = 251.02 p < .05 attained statistical significance. The null hypothesis that states that there will be no statistically significant difference in the achievement of students taught accounting using interactive board and lecture method is rejected.

RESEARCH QUESTION TWO

Is there a statistically significant difference in the achievement of male and female students taught accounting using the interactive board and the lecture method?

Null Hypothesis Two

There will be no statistically significant difference in the achievement of male and female students taught accounting using the interactive board and the lecture method

Table 3: Mean Scores of Male and Female Students in the Experimental and Control Class

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		Mean	SD	Ν
Experimental	Male	22.23	4.81	39
	Female	21.17	5.47	36

Total				75
Control	Male	8.87	3.38	30
	Female	10.64	3.85	33
Total	63			

 Table 4: Analysis of Covariance (ANCOVA) on the Achievement Post-Test Scores of Male and Female Students with

 Pretest Achievement as Covariate

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3.011ª	2	1.505	.026	.974
Intercept	4620.523	1	4620.523	81.320	.000
Pre_Achiv	.112	1	.112	.002	.965
Gender	2.902	1	2.902	.051	.822
Error	7670.526	135	56.819		
Total	44228.000	138			
Corrected Total	7673.536	137			

The ANCOVA associated with gender on achievement F (1,135) = 0.05 p > .05 failed to attain statistical significance. The null hypothesis that states that there will be no statistically significant difference in the achievement of male and female students taught accounting using interactive board and lecture method is not rejected.

Tests of Between-Subjects Effects

SUMMARY OF RESULT

- i. The interactive board has an effect on the teaching of depreciation accounts in senior secondary school.
- ii. Gender has no effect on the teaching and learning of depreciation accounts in senior secondary schools using Interactive Board.
- iii. There is a significant difference between the performance of learners taught depreciation account with the Interactive Board and those taught with the white board and talk method.
- iv. Gender is a factor in the utilization of interactive boards for teaching and learning. depreciation account for senior secondary schools

DISCUSSION OF FINDINGS

Research by Gerard and Widener (2014) found that the interaction in the classroom was being supported by the interactive board. In addition, it also helped with the presentation of new concepts. Research by Solvie (2011) revealed that the Interactive Board was a novel and created enthusiasm for learning in the students. Further, Solvie (2014) discovered that "Visual display in the form of diagrams, websites, and pictures, as well as the use of colors and shapes to highlight text, prompted engagement (in Interactive Technologies Inc., March 2006, p.4)." Additional U.S. studies focusing on the attitudes of middle-school students and teachers towards Interactive Boards indicate a strong preference for the use of Interactive Boards in the classroom. The results of Beeland's (2012) study indicated

that interactive whiteboards can be used to increase student engagement during the learning process in the classroom.

The understanding that student engagement is vital to learning a growing collection of international research proves that interactive boards encourage student engagement in the teaching and learning process. In a classroom in which students' voices are honored, the teacher gains access to information about students' perspectives and subjective experiences that promotes responsiveness to students' educational, social, affective, and physical needs (Erickson & Shultz, 2013; Weinstein, 2015).

Educators can use digital resources while maintaining active interaction with the entire class and encourage a higher level of student interaction in both teacher-directed and groupbased exchanges (Gerard & Widener, 2013). Perhaps one of the biggest challenges of integrating ICT into learning environments is maintaining active interaction with students. Rohrkemper (2012) emphasized the importance of interactions with others, as well as with tasks, in working through problems with difficult learning.

South Texas Community College (2012) reported the findings of a survey of 609 high school students in Texas, measuring the amount of use and perceived value of IWBs. The survey found that interactive whiteboards were considered to have helped learning "a little" or "a lot" by 92% of the students.

RECOMMENDATIONS

The researcher, by virtue of his experience in conducting this study, would like to put forward the following suggestions and recommendations:

- a. Teachers have to start by acquiring basic ICT skills.
- b. Teachers should prepare themselves for the use of technology such as the Interactive Board in particular and ICT in general in the classroom.

- c. Teachers should have a clear idea of how a traditional classroom is different from a classroom equipped with a Interactive Board.
- d. Teachers should share ideas, resources, and experiences to help develop professionally.
- e. Teachers should improve their computer knowledge and skills in order to reduce challenges in the classroom.
- f. Teachers should be aware of learners' needs and their different learning styles. They should be accommodated in the classes.
- g. Teachers should read about interactive board pedagogy innovation in teaching and change in methods to meet the needs of 21st century learners.
- h. Schools should provide strong pedagogical support as well as technical support.

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