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Blended Learning Instructional Strategy for Enhancing Students' Academic Performance in Physics Practicals in Port Harcourt Metropolis

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ABSTRACT
The quest to improving secondary school student performance in Physics practical using Blended Learning Instructional Strategy (BLIS) lead to this study. The research design adopted for the study was a quasi-experimental, randomized pretest – posttest experimental design. The population of the study comprised all SS2 Physics students in Port Harcourt metropolis in Rivers State. One hundred and fifty four (154) senior secondary 2 students (SS2) from two purposively selected Secondary schools made up the sample for the study. Two groups namely, the experimental group and control group were used for the study. The experimental group was taught practical physics Blended Learning Instructional Strategy (BLIS) while the control group was taught practical physics using the Conventional (real handling of apparatus) Teaching Method (CTM). Two (2) research questions and two (2) null hypotheses however guided the study. The instrument used in the study was Physics Practical Achievement test (PPAT). The PPAT was an adapted past WASSCE questions. The data generated were analyzed using mean and standard deviation to answer the research questions while Analysis of Covariance (ANCOVA) and t-test inferential statistics were used to test the hypotheses at 0.05 alpha level. The null hypothesis H_{o1} was rejected as a result of significant difference between the performance of the two groups indicating that Blended Learning Instructional Strategy (BLIS) was more effective in enhancing students' performance in Physics practical than conventional teaching method. Hypothesis H_{o2} stands accepted, showing that Blended Learning Instructional Package is devoid of gender bias. Based on these findings it was recommended that trainings, seminars and workshops should be organized for the secondary school teachers on the use of blended learning instructional strategy and online learning in the teaching of various subjects especially Physics (Physics Practical). The study also recommended that secondary schools should be equipped with adequate computer systems and internet facilities to enhance the use of Blended learning.
Keywords: Students' Performance, Physics Practical, Blended learning Instructional Strategy

INTRODUCTION

Science has developed into one of the greatest and most influential fields of human endeavor. Today, different branches of science investigate almost everything that can be observed or detected and science as a whole, shape the way we understand the universe, planet, ourselves and other living things). Science has become an integral part of human culture. Countries that ignore this significant truism are risking the potential aspiration of their future generation. It is therefore worthy to note that development of any nation depends, to a large extent, on the level of scientific education of her citizens.

Physics is a science subject that deals with the fundamental constituents of the universe, the forces they exert on one another, and the effects of these forces. Till date, physics is still the most basic of all sciences, yet, it is such one with the lowest population of teachers and learners. Physics is an important subject for economic,

scientific and technological development. Empirical studies from the field of Physics Education Research (PER) have outlined essential suggestions about physics curriculum which are generally accepted and believed to widen the knowledge and increase the horizon of understanding of physics by learners.

Among the essential suggestions are:

(1) The method of teaching physics should be guided discovery instead of the traditional lecture method used in teaching the subject. This was recommended due to the fact that, learning efficiency and effectiveness take place during explanation, experimentation and discussion;

(2) There should be interaction between the Physics teacher and the students. In this case, it is believed that if genuine and helpful interaction exists between the teacher and students, the students will be able to inform teachers what they find difficult in Physics thereby reducing the difficulties they (students) encounter. These features are essential because it is believed that if they are dully and critically followed and applied in any given situation and at any given time, teachers will be able to make physics easy to comprehend by learners.

National education policies are geared towards creating generally scientific literate citizens. Specifically, the National Policy on Education of Nigeria clearly stated in its aims and objectives that the learner would be given opportunity to acquire basic practical skills for self – reliance and employment, Federal Government of Nigeria (2004). In realization of this laudable objective, practical activities should be an integral part of the teaching and learning of science in secondary schools because it proffers first-hand knowledge of science concepts. One thing that is certain is that science educators agree about the values of practical activities in science teaching.

Physics as a science subject is the study of physical properties of matter and its interaction with energy. It is typically an experimental subject; principles and concepts generated from physics are very useful in interpretation of natural phenomena in sciences. This means that effective practical activities in physics are important because they enable learners build a bridge between what they see, hear, handle, feel and touch (which has to with their psychomotor domain) and scientific ideas that account for their observations (which has to with their affective domain). No meaningful physics principle or concept can be taught without adequate practical activity accompanying such presentation using appropriate practical apparatus. The laws of physics are founded on experiments and that experiments are an integral part of a physics education. Therefore, in explaining to a child concept in physics, one must not be solicitous to fill him with abstract information, but one must be careful that the child understands what he learns". This reflects a strong view of relevance of practical activities and how science teaching should be directed. It is expected that upon completion of the secondary school physics programme, the learner should have acquired essential scientific skills and attitude as a preparation for the technological application of physics.

In spite of importance of physics as a requirement for many specialized science and technology courses at the university, it is sad to note that students' performance at the secondary school level in the subject is not encouraging (Adesina, 2011; Gambari, 2010) The West African Examinations Council (WAEC) and National Examinations Council (NECO) have repeatedly reported poor performance in physics (NECO, 2011; WAEC, 2012). This problem has major implications on university admission for instance; schools no longer produce adequate number of qualified candidates in science-based courses for university admission. In addition, it prevents the educational system in Nigeria from producing required number of qualified scientists and technologists (Chukwu, 2000; Rafiu & Adetona, 2006).

Figure 1 presents a chart on science students' performance at senior secondary school level.

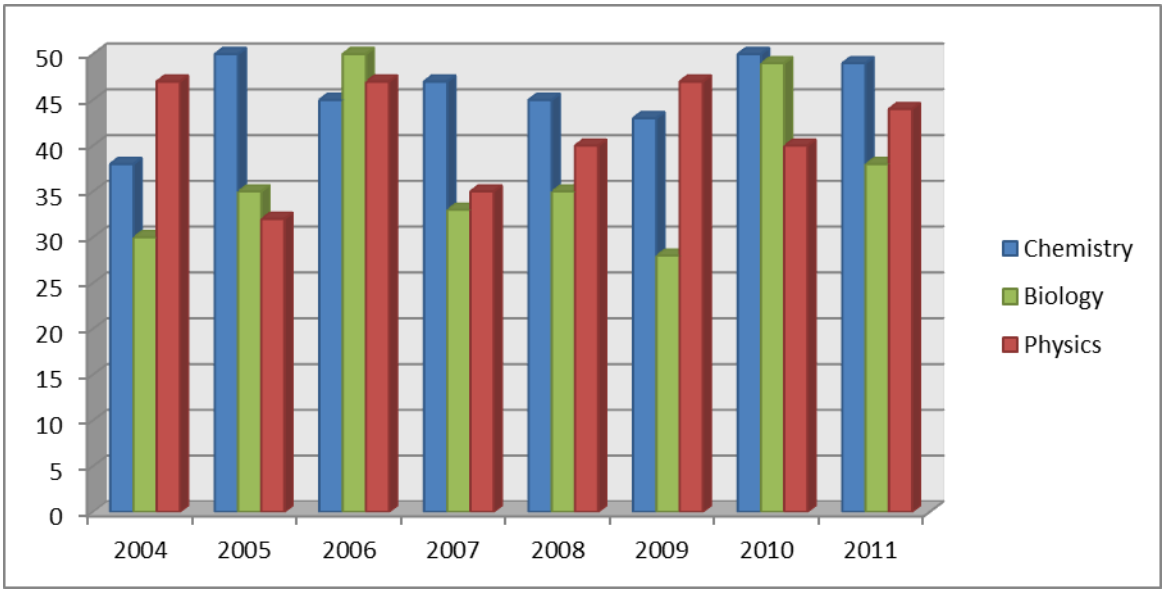

Figure 1. Performance of science students at May/June WASSCE (2004 – 2011)

Figure 1 indicates that the percentage of students that passed physics at credit level had consistently been less than 50% (West African Examination Council Report, 2012). Researchers have identified causes of students' poor performance in science subjects to include poor teaching methods, abstract nature of science concepts, lack of qualified teachers, poor infrastructure and inadequate laboratory facilities, teacher-centred instruction, and non-availability and utilization of instructional materials (Adesina, 2011; Bajah, 2000; Gambari, 2010; Jegede, 2007). Based on relevant literature from physics experts and West African Examinations Council (WAEC) Chief Examiner's reports on physics, 28 topics were identified as difficult or problematic topics in physics at Senior Secondary School (SSS) level in Nigeria (Bamigbala, 2000; Salami, 2003; Okpala and Onocha, 1988). However, Mechanics which is a major branch of physics has the largest number of difficult concepts. More than 30 percent of WAEC physics questions were from mechanics (Rafiu and Adetona, 2006), The poor performances in physics recorded on the concepts of mechanics are majorly in the area of: elasticity properties of solid, kinetic theory, simple harmonic motion, projectiles motion, relative density of a solid, properties of matter, equilibrium of forces and mechanical energy.

Over the years, students' achievement in physics has prompted educational researchers to continuously make relentless efforts at identifying mitigating factors that might account for the observed poor performance. Some research studies suggest that factors inside and outside the classroom affect students' achievement and interest. Orleans (2007) asserts that the key factor in what comes out at the end of schooling is what goes on in the classroom. This scenario has relegated scientific inquiry, knowledge, literacy and practical experiences expected of the learners to the background promoting rote learning and memorization of scientific principles. It is quite unfortunate that the current trend of students' performance in physics as a result of lack of laboratories and scientific apparatus for higher rate of content retention, creativity, originality of thought and the inability to report appropriately practical activities has adversely affected student performance in physics.

The implications of the above entails students' lack of good practical knowledge and mastery of the requirement needed in the final senior certificate examination. With all these multifaceted problems, how can Nigeria train efficient scientists, let alone promote scientific literacy in her citizens which is indispensable to development, without experimentation using the appropriate scientific tools? How can we, like Japan, Russia, the United States of America etc, separate ourselves from the nomenclature "third world country" if there are no avenues for encouraging practical activities in our secondary schools which is the platform for scientific consciousness and development? Science will remain an abstract pursuit to learners so long as they are not exposed to its real application in daily lives. Technology will never be appropriate if students are not afforded means of contextualizing it. This should earnestly begin by the use of appropriate science equipment so that the learner can establish generalization based on a particular principle or concept.

Students need practical experiences to enable them understand some abstract concepts in physics, therefore, effective use of laboratory equipment and facilities will improve the mastery of physics concepts. However, most of the public secondary schools in Nigeria are faced with challenges of lack of functioning laboratories and inadequate laboratory equipment which limits the teacher to perform a simple laboratory activity. Apart from the problem identified previously, another factor militating against the effective laboratory experiment is the cost of carrying out experiments in the laboratory, arranging the equipment and laboratory activities are

laborious and much time consuming. Checking students' performance during the laboratory activities can be tasking and laborious especially when dealing with large number of students.

When taking these challenges into consideration, looking for appropriate alternatives is inevitable, hence, the use of Blended learning instructional strategy in supporting the laboratory methods can be a logical one.

Blended learning Instructional Strategy

Conceptual Framework

The information technology revolution has led to rapid expansion across a wide range of areas in the modern world. This has made it an essential requirement for schools, universities and other educational institutions to identify potential benefits from these changes so as to improve teaching and learning environments as well as cope with an ever increase demand for education and training. One of the innovations of technology is the internet. The internet is formed by enjoying two words that imply an international network: (international) and net (network) (Salamh, 2005). The educational system has also benefited from the advantages brought by the internet. The internet, which offers learner access to information and the opportunity of written, audio and video communication, has entered into a very rapid development process all over the world.

New internet bases education techniques have removed traditional place and time obstacles and have provided students access to information whenever and wherever they want (Murphy, 2003). That the leaner can access the information without being dependent on time and place has made the internet an indispensable part of education courses/subjects offered using the technological tools can be considered as a form of enriched education, and this includes web-based online course and other kinds of internet-supplemented course (Scida and Saury, 2006). Salamh (2005) posits that web-based education is a new education model which can be used to support the acquisition of the new information skills and for the enrichment of students leaning habit and experiences.

Many education techniques such as presentations, discussions, demonstrations, answer-questions, brainstorming, case study, cooperative leaning, problem centered leaning can be conducted in a web-based environments. This way is possible for the leaners to gain experiences such as researching, writing, observing, listening and preforming tasks (Picciano, 2006). It could be argued that as a result of the increasing prevalence of computer and the internet in particular, online learning-teaching environments are rapidly becoming more widespread.

However, online teaching-learning environment lack many advantages that face-to-face environment have, which led to the motion of blended learning. Ross and Gage (2006) reported that online higher education student tend to be less satisfied with totally online courses when compared to traditional courses. Therefore, a combination of online learning and traditional learning environment could be much more useful in solving educational problem and meeting educational needs (Murphy, 2003). Furthermore, Graham, (2006) argues that blended learning was developed for its potential advantages in offering a more effective education, convenience and access to teaching-learning environment.

In international literature, blended learning is referred to as hybrid learning and mixed learning and it is used in very different ways by many researches. Throne (2003) defines blended learning as an education model which can integrate e-learning which has improved in parallel with new and technologic development with traditional learning which provides the integration in the classroom. Graham (2006) also defines blended learning approach as a combination of face to face with computer mediated instruction. While Young (2002) describes blended learning as a method of instruction that combines online with face to face learning activities that are integrated in a planned, pedagogically valuable way and where some of the face to face is replaced by online activities. Blended learning is a new type of education prepared for a certain group by combining the positive aspects of different learning approaches. Blended learning will provide a big convenience for the course to achieve its target by combing the face to face interaction in traditional learning and time; place and material richness provided by web-based learning.

Theoretical Framework

The Blended learning design is a pedagogical foundation built on solid learning theories. Blended learning can be associated with two different learning theories: *The Cognitive Learning Theory and Constructivist Learning Theory.*

Cognitive Learning Theory: The cognitive learning theory is a cognitive framework that emphasizes the learner's schema as an organize knowledge structure that is designed to interpret information. The underlying theme identified in the cognitive learning theory is the idea of how to interpret information and construct meaning through the organization and structuring of knowledge acquisition. Knowledge acquisition can be identified as the outcome of interaction between new experiences and knowledge that has already been obtained. In regards to blended learning, when teachers apply a cognitive approach to the curriculum they are

able to focus, understand, and apply concepts in terms of their relationships. Learners are able to understand the connections made between concepts, the breakdown of information and the rebuilding of new information.

Constructivist Learning Theory: According to Garrison and Vaughn (2008), the theoretical foundation for blended learning suggest that blended learning is predicated on the recognition of unifying the public and private worlds, information and knowledge, discourse and reflection, control and responsibility with the process of learning outcomes. The Constructivist theoretical perspective holds the assumption that understanding is gained through an active process of creating hypotheses and building new forms of understanding through activity. Constructivism is a framework that views learning as the product of passive transmission rather than a process of active construction whereby the learners construct their own representation of knowledge based upon their prior knowledge and experience. Constructivist requires learners to demonstrate their skills by applying their own knowledge when solving real-world problems. The constructivist model involves learner-centered instruction. According to Koohang (2009), "the design of learning activities in a constructivist model includes collaboration, cooperation, multiple perspective, real world examples, scaffolding, self-reflection, multiple representations of ideas, and social negotiation. The learning assessment elements consisted of instructor assessment, collaborative assessment, self-assessment and the instructor's role consisted of coaching, guiding, mentoring, acknowledging, providing feedback, and assessing student learning."

Empirical Studies

Blended learning approach in teaching and learning has become a matter of considerable interest to science teachers all over the world. As opposed to pure e-learning which refers to using only electronic media to learn, blended learning supplement traditional face-to-face teaching and learning environment with different kinds of technology-based instruction. Bielawaski and Metcalf (2003) report that blended learning focuses on optimizing achievement of learning objectives by applying the right learning technologies to match the right learning styles to transfer the right skills to the right person at the right time. Yigit et al. (2013) also used blended learning model to optimize learning in teaching Algorithm and Programming course in Computer Engineering Education in Süleyman Demirel University Computer Engineering Department. In their comparative study, blended learning is achieved through Learning Management System (LMS) of university. Evaluation was based on students' homework, midterm and final exam grades of the students. Results of the study showed in blended learning education, education was more effective; students' achievements were better than expected in comparison to traditional education, however; algorithmic thinking abilities of students who enrolled in the Algorithm and Programming Course in blended and traditional education
were close. Zhang, Song and Burston (2011) examined the effectiveness of vocabulary learning via mobile phones and compared two groups of students at a Chinese university. While one group of students studied a selected list of vocabulary via text messages, the other group of students worked on the same list through paper material. When students' test results were compared, their findings revealed that "students can learn vocabulary more effectively short-term via mobile phones than with paper material". Similarly, Khazaei and Dastjerdi (2011) made a comparative study on the impact of traditional and blended teaching on EFL learners' vocabulary acquisition. The study aimed to explore the application of SMS to the blended method of teaching L2 vocabulary. Students were evaluated on their recognition and recall of vocabulary items. The results revealed that the students who received the learning content through blended teaching approach had better test results than the group of students who received the learning content in the traditional way. Based on the research findings, they confirmed "the significant supplementary role of Mobile-Assisted Language Learning (MALL) in the teaching of new vocabulary items.

There are very few empirical studies in the literature which found blended learning instruction had no impact on students' academic achievements. Alshwiah (2009) investigated the effects of a proposed blended learning strategy and analyzed students' attitudes toward the English language at Arabian Gulf University. The sample was divided into two groups: control group and experimental group. Findings indicated no significant difference between two groups regarding achievement or attitude towards English Language. Similarly, Chang et al. (2014) conducted a study to examine the effects of blended e-learning on electrical machinery performance. Participants were two classes of 11th graders majoring in electrical engineering. The participants were randomly selected and assigned to experimental group or the control group. The experiment lasted for 5 weeks. The results showed that there were no significant differences in achievement test scores between blended e-learning and traditional learning.

Purpose of the Study

The major task in this study focuses to improve secondary school student performance in Physics practical using Blended Learning Instructional Strategy. Specifically, the objectives of the study are to:

1. Ascertain the impact of the usage of Blended Learning Instructional Strategy on students' performance in Physics practicals

2. Determine whether gender has influence on the performance of students in Physics practicals when taught using Blended Learning Instructional Strategy.

Research Questions

1. What is the difference in the mean achievement scores of students in Practical Physics taught using Blended learning instructional strategy (BLIS) and those taught using conventional teaching methodology (CTM)?

2. What is the difference in the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS)?

Hypotheses

$H_0$1: There is no significant difference between the mean achievement scores of students taught Practical Physics using Blended learning instructional strategy (BLIS) and those taught using conventional teaching methodology (CTM).

$H_0$2: There is no significant difference between the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS).

METHODOLOGY

Research Design

The study adopted pre-test, post-test quasi experimental control group design as recommended by Kerlinger (1973). Two groups, experimental and control groups were used in the study. The two groups were pretested using Physics Practical Achievement Test (PPAT) before treatment in order to determine the entry level equivalence in ability of the two groups. The experimental group was taught using Blended Learning Instructional Package (BLIP) while the control group was taught using Conventional (real handling of apparatus) Teaching Method (CTM). After the treatment, Post test was administered to the subjects of the two groups to determine the efficacy on the use of Blended Learning Instructional compared to Conventional (real handling of apparatus) Teaching Method employed in the teaching of the concepts. The same test was administered as pre-test, and as post-test.

Population and Sample

The target population for this study consisted of all senior secondary (SS2) Physics students in Port Harcourt metropolis of Rivers State. Two secondary schools in the metropolis were purposively selected. Two intact classes were used in each of the two selected secondary schools. A sample of 154 students were selected. They were later sub-divided into experimental and control groups. The schools were selected based on the following criteria. The school must have presented candidates for senior secondary school certificate for not less than 10 years. The school must have a minimum of two qualified physics teachers with at least BSc (Ed) in physics, teaching the SS2 class. The school must have a well-equipped computer laboratory with internet facilities.

Physics Practical Achievement test (PPAT)

This is an adapted instrument. It aims at measuring the acquisition level of students in the Physics practicals. The PPAT was an adapted past West African Examination Council (WASSCE) Physics practical questions. It consists of three questions out of which a student is required to answer two. The first question focused on Mechanics, the second question is on Optics (light) while the third question centered on Electricity.

Blended Learning Package

This is a stimulus response. It consists of physics contents linked with website and which can be accessed through internet via computer systems. The package was validated by two experts in the Departments Educational Technology and Library study in Obafemi Awolowo University, Ile -Ife. Two experts in the same department went through the package. Based on their comments the package was reviewed and all the necessary adjustments were made to the package before finally used.

Training of Teachers and Students

Prior to the commencement of the treatment, both the student and the teachers have been trained on how to make use of the Blended Learning Package. Each student was assigned a username and a password to access the package on the sysetms. The subject teachers and other research assistants were duly trained for the purpose.

Data Collection Procedure

1. *The Control Group* was taught Physics with the use of traditional method of teaching. The traditional method used for the control group generally consists of teacher-centered, face to face learning environments in which the methods of lecturing and questioning are employed. In this case students and their teacher made used of laboratory apparatus to carry out the experiments in physics laboratory.

2. The Experimental Group: In accordance with online learning approach of the research, the experimental group was taught Physics through a website with various visual, animations and simulations specifically design for this purpose. The classes for the experimental group were held in a computer laboratory with one computer for each student. In this face-to-face learning process during the class, the instructor introduced an outline of the subject and illustrated it with visual in the website. After the students have been exposed to the learning

content, the students were assigned to perform the activities on the website outside the classroom environment to provide them with further details about the course subject, as well as with further various examples through the website. The student delivered their activities and assignment to the teacher through e-mail whenever they had questions about the subject or the assignments.

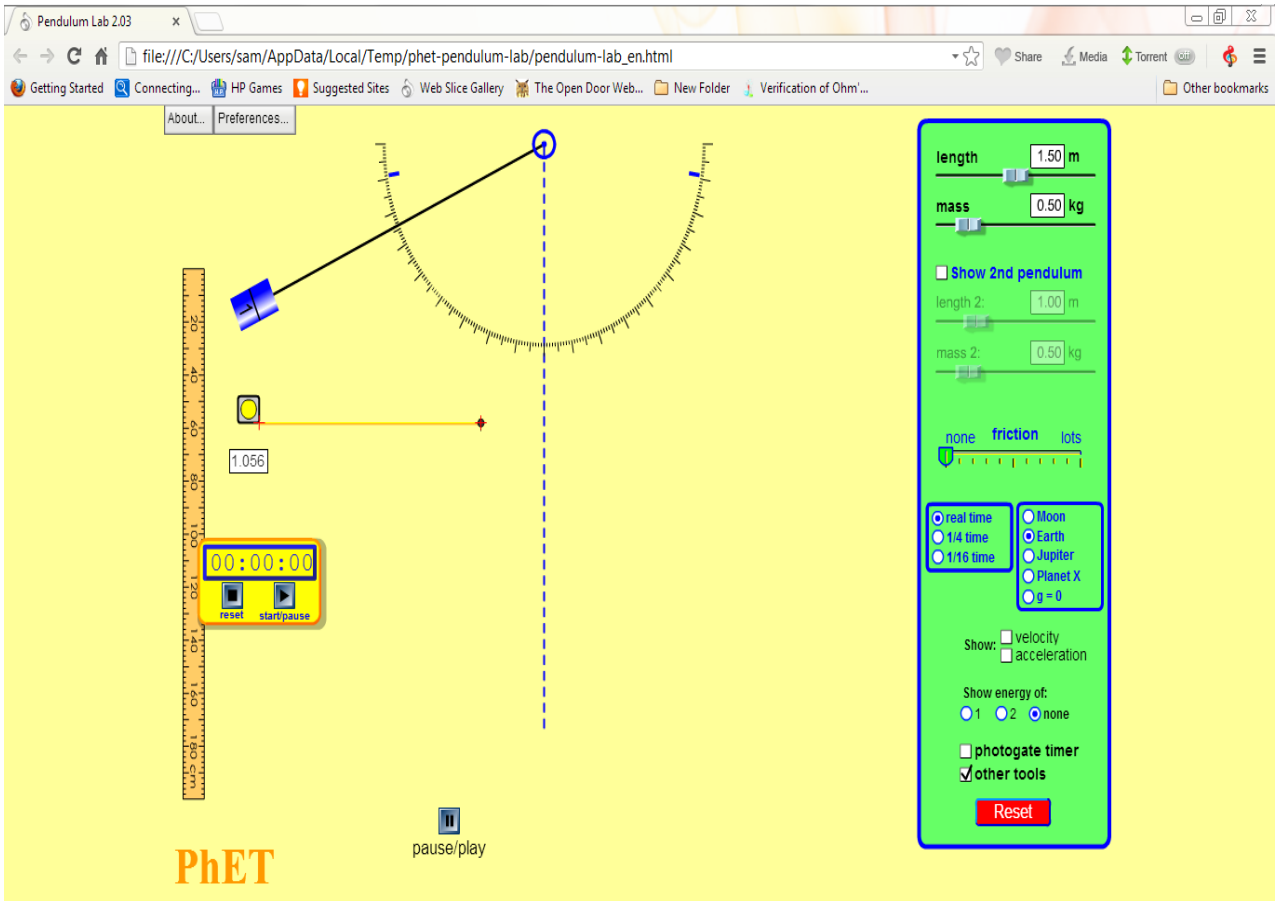

Figure 1.Screen shot of simulated pendulum lab. (Question 1)

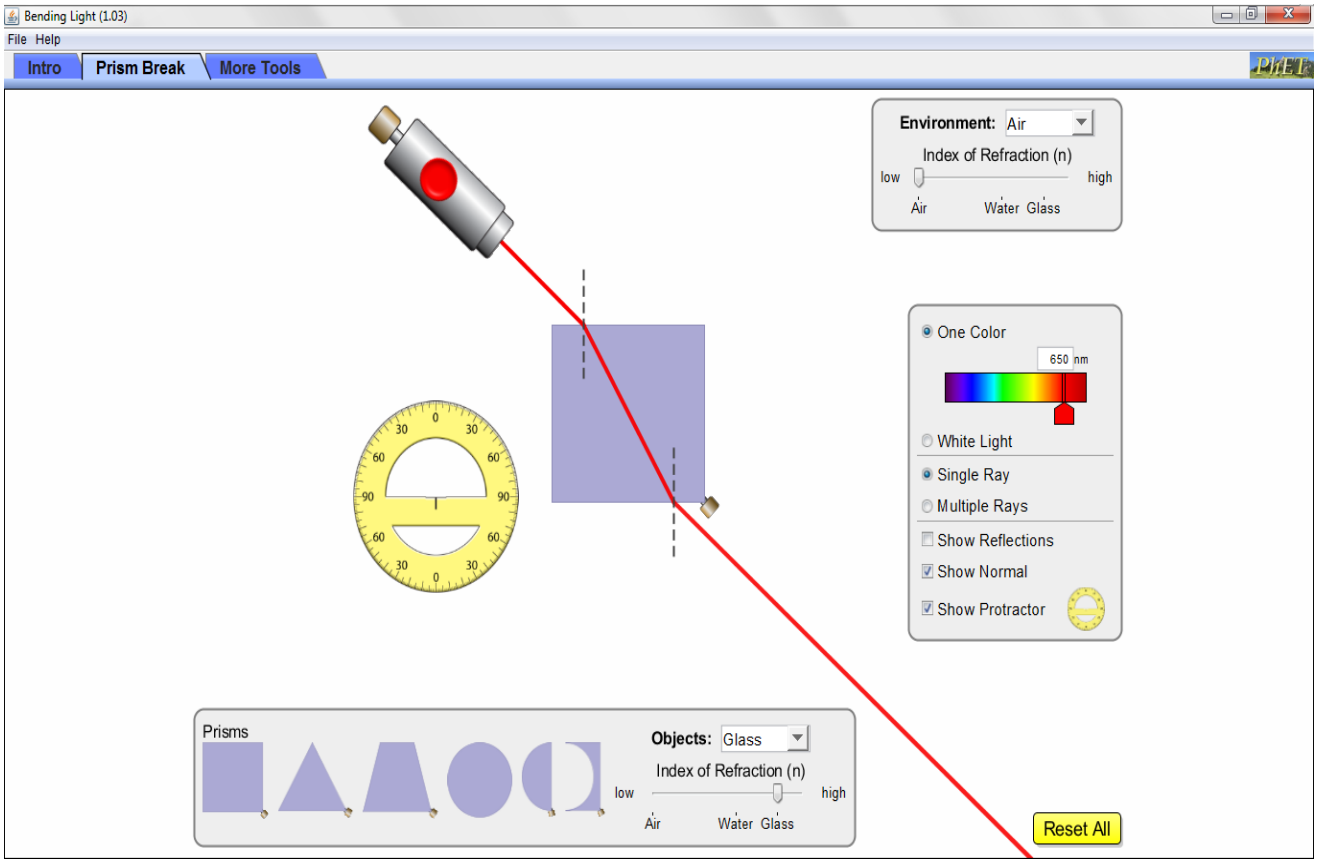

Figure 2.Screen shot of reflection of light through rectangular prism (Question 2)

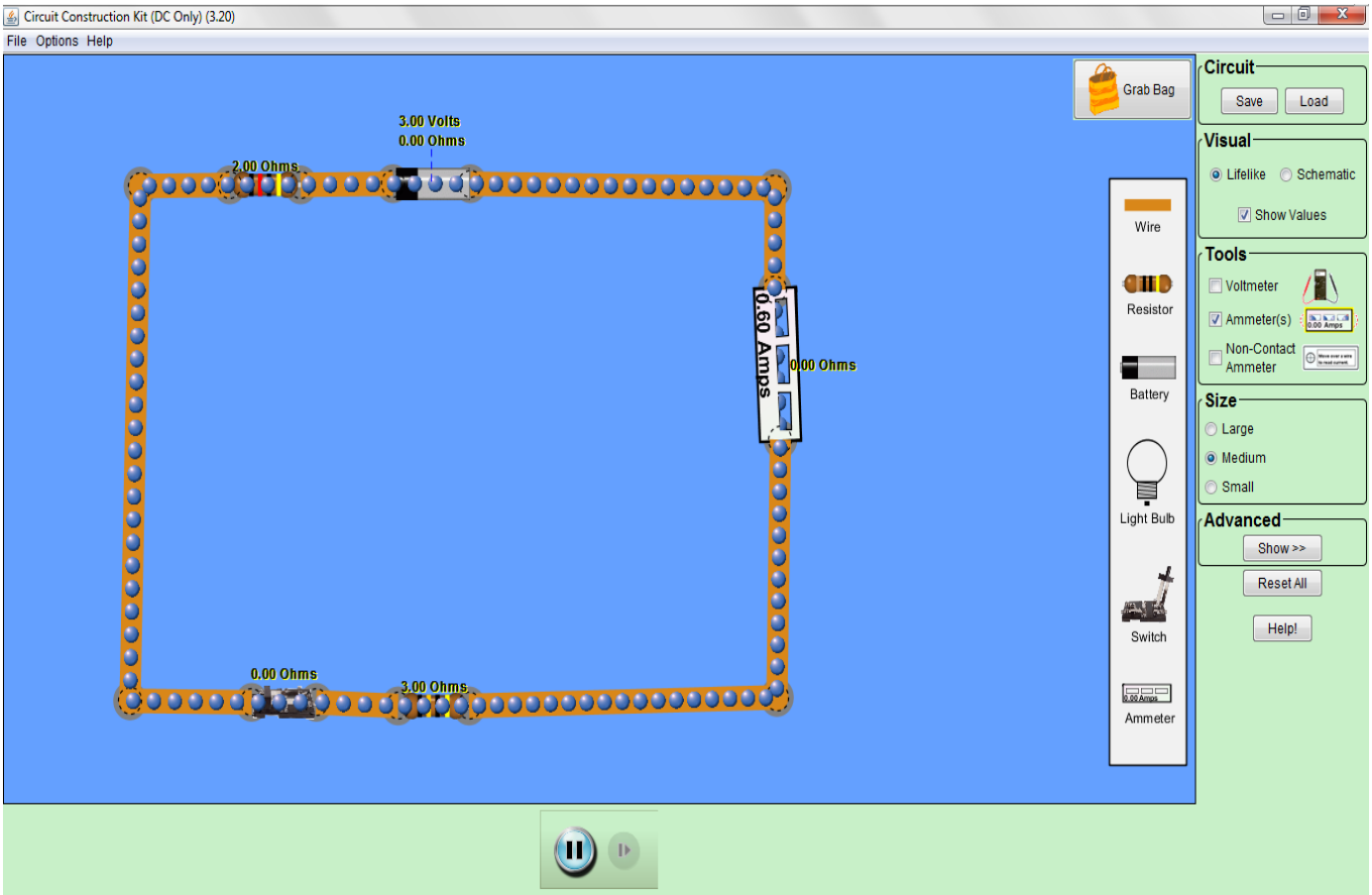

Figure 3. Screen shot of construction circuit kit. (Question 3)

Data Analysis

Research Question 1: What is the difference in the mean achievement scores of students in Practical Physics taught using Blended learning instructional strategy (BLIS) and those taught using conventional teaching methodology (CTM)?

Table 1: Mean achievement scores of experimental and control groups in pretest and posttest

Group	N	Pretest		Posttest	
		Mean	SD	Mean	SD
Experimental	90	28.98	10.22	40.40	9.47
Control	64	29.19	13.11	36.73	11.98

From table 1 above, the pretest mean score of experimental group was 28.98 while that of control group was 29.19. These suggest that both groups were almost of equal ability at the inception of the experiment. In the posttest, experimental group had a mean of 40.40 while the control group had a mean of 36.73. Apparently, the two groups achieved higher in the posttest than the pretest indicating that learning took place. However, the posttest mean score of the experimental was higher than that of the control group. More so, a lower standard deviation value of 9.47 in the posttest for experimental group indicates that there were fewer extreme scores in the experimental group than the control.

Research Question 2: *What is the difference in the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS)?*

Table 2:Mean achievement scores and Standard Deviation (SD) of Male and female students taught Practical Physics using Blended learning instructional strategy (BLIS)

Group	N	Mean	SD	Standard Error Mean
Male	48	41.52	9.83	1.41859
Female	42	39.12	8.99	1.38693

Table 2 shows that the mean and standard deviation for 48 male students are 41.52 and 9.83 respectively while the mean and standard deviation for 42 female students are 39.12 and 8.99 respectively. Consequently, a cursory look at the mean performance of the two groups shows that male students scored a bit higher than their female counterparts. Hence, male students taught using Blended learning instructional strategy (BLIS) scored higher than their female colleagues by a mean difference of 2.40

Hypothesis 1: There is no significant difference between the mean achievement scores of students taught Practical Physics using Blended learning instructional strategy (BLIS) and those taught using conventional teaching methodology (CTM).

Table 3 : ANCOVA analyses of students achievement scores in Practical Physics

Source	Sum of Squares	df	Mean Square	F	Sig.
CorrectedModel	502.571	1	502.571	4.486	.036
Intercept	222534.675	1	222534.675	1986.440	.000
BlenCont	502.571	1	502.571	4.486	.036
Error	17028.084	152	112.027		
Total	250285.000	154			
Corrected Total	17530.656	153			

From table 3 above, the first row tagged Corrected Model row gave an F value of 4.486 and this is significant at .036. Since 4.486 is greater than .036, this implies that at .05 level of significance, the F value of 4.486 is significant. Therefore, hypothesis 1 is rejected. This indicates that there is significant difference between the mean achievement scores of the experimental and control groups. Similarly, the sum of squares arising from Corrected Model row (502.571) when compared with the sum of squares arising from error (17028.084) indicates that the observed difference in the achievement of the experimental and control groups is due to the treatment administered in the experiment.

Hypothesis 2: There is no significant difference between the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS).

Table 4: t-Test Analysis of the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS)

Group	N	Mean	Std Dev.	Mean Diff.	df	t-cal	Sig.
Male	48	41.52	9.83	2.40	88	1.203	.05
Female	42	39.12	8.99				

Table 4 shows that the calculated t-value of 1.203 is not significant since it is less than the critical t-value of 2.00 at 0.05 alpha level. Hence, the null hypothesis of no significant difference stands accepted. The result is that there is no significant difference between the mean achievement scores of male and female students taught Practical Physics using Blended learning instructional strategy (BLIS)

DISCUSSION

Research question one sought to know the mean achievement scores of the students in both experimental and control groups in both pretest and posttest. Noteworthy is the fact that the mean pretest scores of both groups did not differ significantly. This suggests that both groups had similar entry behavior and achievement ability. Also, the wide gap between the mean pretest scores and the mean posttest scores showed that learning took place in both groups. However, the result indicates that there was significant difference between the achievement of the groups. Hence, the experimental group achieved higher than the control group.

Enty and Awe (2011) defined academic achievement as the gain in knowledge of students as a result of taking part in a learning activity or program. Going by this definition, we can say, with certainty, that the achievement of the students was as a result of the treatment administered to them. Moreso, extraneous variables were properly controlled. This implies therefore, that Blended Learning Instructional Strategy promotes higher achievement in Practical Physics than the conventional Teaching Methodology. Another finding from the analysis of data for this study is that there was no significant influence of gender on the achievement scores of students taught Practical Physics using Blended learning instructional strategy (BLIS).

CONCLUSIONS

Based on the findings of this study, it was ascertained that students taught Practical Physics using Blended Learning Instructional Strategy achieved higher than those taught with conventional teaching methodology. However, gender does not influence the achievement of students taught Practical Physics using Blended Learning Instructional Strategy. Hence, the package is gender friendly.

RECOMMENDATIONS

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

1. Teachers of Physics Practical should be educated on the use of Blended Learning Instructional Strategy.
2. Curriculum planners and other stakeholders in the educational industry should include the use Blended Learning Instructional Strategy of in the curriculum.
3. School administrators should provide conducive learning atmosphere for the use Blended learning instructional strategy.

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