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The impact of blended learning approach on achievement of senior secondary students

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Abstract
The purpose of this search was to regulate the impression of blended learning approach on the achievement of senior secondary students. This research used experimental analysis methodology with a randomized control group pretest-posttest design. The investigation was completed with 63 students joining information and communication technology course, where 32 of whom were in the control group and 31 of whom were in the experimental group. In the experimental group, the teacher used a blended learning approach, while in the control group, the course was taught based on the traditional teaching model. Data gathered from the result of the learning target test with some predesigned questions. The research presented that the learning result of the experimental group is higher than the learning result of the control group. Based on the result of this research, it can be concluded that the blended learning approach contributed more to the achievement of senior secondary students.

Keywords: Blended Learning, Instructional Model, Students' Achievement

Introduction
Instructional model is a very important element which will have an effect on the effectiveness and efficiency of teaching and learning method. Associate in Nursing tutorial model serves an honest master plan for teaching. Besides, it's a conjointly abstract framework that describes a scientific procedure in organizing learning experiences to realize bound learning goals and is a guide for the academics in designing and implementing learning activities. To implement a tutorial model, academics offer varied learning aspects to realize learning objectives. Moreover, the tutorial model encourages students to induce involve in teaching and learning method. By doing that, student targeted learning is complete.

The speedy development of Information and Communication Technology (ICT) offers different views within the learning method. Typical or ancient learning isn't any longer used by the teacher. The academics are needed to use a range of strategies that offer a lot of opportunities to be told by utilizing varied sources. The implementation of ICT in learning may amendment the teacher paradigm of learning from teacher targeted learning into student-centered learning.

The use of technology in education has a crucial role and it ought to be applied within the learning system. On the opposite hand, there's still a learning method that is finished by emphasizing the strategy of lecture and memorizing. By victimization this recent methodology, the students have less expertise in obtaining data within the learning activities. Data technology-based learning is one in every of technology utilization in education and teaching systems. One in every one of the technologies which will be enforced is the internet. During this global era, it's straightforward for the teacher and therefore the students to seek out the net affiliation owing to the spread of Personal Computer and therefore the existences of internet affiliation.

Internet technology supports the educational method through online learning (e-learning).E-learning is distant learning environments during which net and network technologies are used for presenting and receiving the content used. E-learning ensures the flexibleness and potency that cannot be found in a room setting. It's allowed the coed to learn everyplace and each time. Moreover, learning isn't solely supported technology however conjointly it's a method of interaction between academics, students and learning resources. Is done by

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Online setting. Though e-learning has many blessings, there are conjointly several limitations of online learning setting. It cannot replace learning within the classroom. Face to face learning provides the social interaction that is required for learning. In different words, face-to-face processes are vital and they shouldn't be left behind in learning.

The two tutorial models, online and ancient (face to face) model have many advantages and downsides. It's higher for the teacher to mix the 2 teaching models. The mixture of e-learning and ancient face to face learning could integrate into teaching and learning method. It's referred to as blended learning.

Blended learning is that the combination of ancient (face-to-face) and online learning thus that instruction happens each within the room and online. Blended learning integrates the blessings of online learning with some advantages of face to face learning. Then, it maximizes the potency of room coaching and provides higher reinforcement in the web-based parts. Through blended learning, the scholars had ready for the course within the room and it is additional economical as a result of the scholars could see their academics and their friend that they may not do throughout room interaction. Because it combines the 2 blessings of tutorial models, blended learning has appositive impact on the educational method.

Some researchers expressed that blended learning will enhance students' learning outcomes, improve students' motivation, and it's an effective manner for achieving learning objectives. Blended learning conjointly spends the lower price for training and it's going to enhance the students' learning expertise.

On the opposite hand, the formula for organizing a well-blended learning course isn't easy. The academics encourage re-thinking and designing courses that afford students additional, and it needs the teacher to follow the way to teach by victimization blended learning within the classroom to urge the great result. In short, applying the blended learning as an instructional model can take the teachers' serious effort so as to urge most profit.

Recently, the utilization of blended learning as a learning model has inflated particularly in colleges. However, this learning model can also be employed in high faculties. This study tried to determine the impact of blended learning model on senior high school students 'achievement.

Method
In this study applied the scientific method. The randomized control group pretest-posttest design was used. Students were divided into 2 teams, experimental group, and control group. Each of the teams got a completely different treatment. In the experimental group, the teacher used a blended learning model (part online, half face to face), whereas up to speed group traditional learning model was used.

In the experimental group, students were educated regarding blended learning and that they were introduced a way to use online learning. On-line learning was designed by Moodle, a Learning Management System (LMS). During this internet, before login to the system, students got to register themselves by making associate degree account on an e-learning website, which can provide online educational stuff (e.g. Google Classroom, Moodle, Edmodo, etc.)

To follow up on learning activities, students were asked to login by Moodle their own account. On-line learning was a style to support face to face learning. During this online learning, the teacher could offer lesson materials, quizzes, assignments, and discussion forum. Then, students will follow all the training activities provided by the teacher on the internet educational page.

The population during this study consisted of all of the scholars listed within the information and communication technology course at the secondary grade adolescents. Choosing the sample used a sampling technique. There were 31 students within the experimental group and 32 students within the control group.

An objective takes a look at as an analysis instrument in a variety of multiple selections was conducted to collect knowledge. Before the tests got, an effort take a look at as well as fifty queries were established. After analyzing the question things that embody the validity, problem index, discrimination index, and irresponsibleness, there have been 35 queries were accustomed accomplishment take a look at.

Then, each team got a similar pretest and knowledge obtained were analyzed to appear at the students' initial ability. What is more, every group was treated otherwise. At the top of the learning, every 2 teams can equally give posttest to examine the results of the training model that has been given. The info obtained were analyzed to understand the normality and homogeneity. Finally, a t-test for freelance samples was conducted.

Result and Discussion
Based on the test were given to both of the sample groups (experimental group and control group), the average scores of learning results after performing required statistical techniques in control group were 58.3 (mean value) for pretest and 72.9 (mean value) for posttest, while in experimental group the average scores were 57.8 (mean value) for pretest and 82.5 (mean value) for posttest.

These results are presented in a graphical manner canbe seen in the figure below.
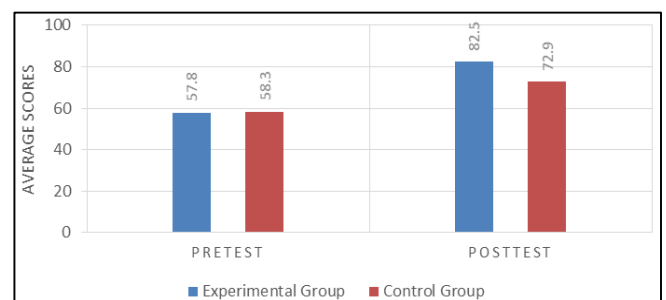
Fig 1: Student learning outcomes

To explore the consequences of a blended learning approach in terms of achievement of students, in comparison to the traditional approach, this study conducted a *t*-test examination for the independent sample.

A hypothesis test was established to scores of the pretest. The results obtained are presented in Table 1.

Table 1: The result of the independent-test for pretest

Groups	N	$\bar{x}$	SD	df	t	Sig
Control	32	58.3	7.215	61	301	0.764
Experimental	31	57.8	6.340			

Based on the outcome on the above table, it can be interpreted that there was no significant difference (*t* (61) =

301, sig >0.05) between the control group and experimental group scores. It states that the students in the control group and the experimental group had similar levels of knowledge. In the end, the posttest score of the two groups was analyzed. The result was obtained and it is presented in Table 2

Table 2: The result of the independent-test for posttest

Groups	N	$\bar{x}$	SD	df	t	Sig
Control	32	72.9	7.328	61	5.657	0.000
Experimental	31	82.5	6.117			

From the above table, it concludes that there was a significant difference (t (61) = -5.657 and sig <0.05) between the score of the control group and the experimental group. It can be concluded that the students in the control group had lower levels of learning achievement than the experimental group.

The present investigation was to determine the impact of blended learning on the achievement of senior secondary school students. In this instructional model, learning activities can be done online and face to face learning, it takes advantages of both two teaching-learning models. By merging these two models, effective learning can be attained. In this investigation, the submission of material was done through online learning so that face-to-face learning can run effectively and efficiently. Learning can be possible anytime and anywhere. It also decreases the workloads of teachers and they have more time to work with other material. Moreover, the blended learning approach helps in achieving the learning objectives of the students. This result is similar to the resembles studies.

Blended learning approach encourages the students to learn more actively and effectively. They have the opportunity to learn at their own pace. They can prepare themselves for the course before going to the class and it can understand student-centered learning and reflect the value of 21-century education. The investigation showed that the students who attended the traditional teaching course had lower achievement scores than those who attended the blended learning course. The study results are in line with other researchers, who also claimed that blended learning effective for increasing the performance of students. Most of those studies also found that blended learning improves the academic achievement averages of the students.

The present investigation was not only giving concern about how to adjust the web-based learning and face to face learning, but also give attention to content to be provided. Blended learning can assist teachers to provide several formats of learning material. Then, it can increase the motivation of student and they can get a new experience inthe learning process. The other relevant investigation also stated that the blended learning approach can help in enhancing the motivation of the students. In this investigation, content was presented in various formats such as text and also video format. Each learning topic was provided with a quiz as an evaluation. Last, discussion forums were also offered as a communication and sharing media between students and teachers and among fellow students.

Conclusion
The aim of a recent investigation was to determine the impact of blended learning approach on the achievement of students. The scores got from the learning objective test that applied to the control and experimental group was compared. There is a difference in the learning results of students, where the average learning results of the control class are lower than the experimental class. The other finding was found that there is a significant increase in student learning outcomes on information and communication technology subjects after using a blended learning approach. Based on the finding of the research, revealed that the blended learning approach contributed more to the achievement of students than traditional learning approach did. Blended learning can be used as an alternative learning approach for teachers in order to support the learning achievement of students. To implement this approach, teachers should build-up their computer and internet literacy rate. The school has an important rule to deliver training or workshop for the teachers in applying this approach. This investigation is still restricted to information and communication subject, it is hoped that further investigation will be led for other courses and also it is suggested to give a concern about how to blend professionally between face to face and web-based instruction.

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