Impact of Blended Approach on Students' Academic Achievement at Intermediate Level in the Elective Subject of Education

Rahila Anjum[*]
Muhammad Naeemullah[**]
Sufi Amin[***]

Abstract

The study was to analyze the impact of the Blended Approach on Student's Academic Achievement at intermediate level in the elective subject of Education. The pretest, post-test research equivalent group design was selected for the collecting of data. The total students studying in the 11th class in Islamabad Model College for Girls F 6/2 Islamabad were served as available population of study for experiment. Sixty students of 1st year class were selected as sample of the study and then on the footing of pretest, they were being equated and distributed into two groups by applying paired random sampling method. There were thirty students for treatment and thirty students for control group, Teacher made pretest and posttest were taken. Treatment group was taught with Blended Approach and control group was taught with the Traditional Teaching. The pretest, post- and the retention test scores were tested at 0.05 level. It concluded that the Blended Approach was more efficient to Traditional approach in student's academic achievement. So, it was extremely recommended that the Blended approach should be implemented at the higher secondary students for teaching the subject of Education.

Keywords: blended approach, student's achievement, experimental study, traditional teaching, posttest

* PhD scholar, Department of Education, Northern University Nowshera, KPK, Pakistan. Email rahilaprofessor@gmail.com
** Associate professor of Education and Head of Education Department, Northern University Nowshera, KPK, Pakistan.
Email becpakistan@gmail.com
*** PhD scholar, Department of Education, Islamic International University, Islamabad, Pakistan. Email sufiamin777@yahoo.com

Introduction

There are different meanings of blended learning; however, the most widely recognized is what perceives a blend of exclusive and perceptual situations.
Graham (2004) clarifies that emerging face to face direct environment classified by person's collaboration, data and correspondence innovation-oriented environment called synchronous, and content-oriented technique are all part of the Blended learning.

The Blended Learning was a strategy to teaching that merged online learning materials and the opportunities for the interaction of online with the traditional face to face classroom based teaching methods. That required both the teacher and student physically, with the elements of the students control over time, place, and pace. In blended approach teaching was done in the form of showing videos, online resources, projectors, multi-media and giving activities in the classroom under the guidance of teacher.

Wood (2009) abridges the advantages of hat approach as follows:
(i)   Enhancing learner's connection with cooperation
(ii)   Increasing pupils' learning and execution
(iii)   Different subject methodologies for effective teaching.
(iv)   Developing free students, a wellspring of moment criticism, efficient and inspiration to students (Sharma & Barrett, 2007).
(v)   Improving pupils' learning outcomes and remove instruction imparting values. (Dziuban, Hartman & Moskal, 2004)
(vi)   Increasing the space of class and decreasing the stuffed classes (Gould, 2003).
(vii)   Allowing establishments to give more work at pinnacle request for sometimes thus augmenting the sparse assets by expanding adaptability in planning.
(viii) Decreasing cost of papers and copies of print material. It must be confirmed that the learning materials of prescribed out lines, courses or books must be easily accessible in hybrid or blended classes.

Individualized instruction might have best outcomes when online e learning and conventional traditional strategy are combined in the same situation in a class. This blended strategy with the online content provides excellent features to class and permits students for active and lively interaction. It is not only helping for student but also for diverse learners. Blended approach is an approach that unites effective and social chances

and activities for class by providing interactive learning environment in term of online learning for an individual of diverse students.

Martyn (2003) gives recommendation that a fruitful mixed e-learning condition is comprised of an underlying vis-à-vis meeting, week by week online appraisals and synchronous talk, synchronous dialogs, email, web index and a last up close and personal gathering with a delegated last assessment.

Web-based or e-learning is a sort of medium communication and computer assisted learning (Bates, 2005) allows the pupils to learn crossway setting while keeping the ball and chain in learning area.

E-Learning is another important terminology used for blended learning (McNaught, 2011). There is somewhat insignificant assessment and academic literature regarding Blended Learning (Threlkeld, 2017). As the technology affordances and allocating resources are expanding and made easy, the range of academic research is improving as it is being applied more often (Sohrabi & Iraj, 2016). It has been observed that there is not enough research done about blended learning and the academic literature regarding blended learning is insufficient. (Heimly, 2016; Sohrabi & Iraj, 2016).

Barrett and Sharma (2007) emphasize that Blended Learning is important in taking the apparent world into a class that augments inspiration and enthusiasm for learning. Phillips (2019) underlines Blended Learning as mixed electronic-learning which would be an appropriate methodology to join on the web work engines for prescribed content list, featuring a few pieces of the course substance that ought to be moved to the online condition (gathering, email, web condition), without offering the entire courses on the web. In any case, it is imperative to set up balance amongst the traditional and web-based situations, on benefits of two important strategies. The system of education is important for a country. Higher secondary education level has also a great place and plays pivotal role in learners' grooming. The Blended teaching is a modern approach which combines the traditional education along with the E-learning and web-based teaching to maximize the learner's skills, development and growing accessibility of students to online sources in order to gain learning experience, blended learning can be an important component in a learner's life. This approach assures the students interaction in learning to meet the learning outcomes. The blended approach meets the learner needs in all respects.

Review of Literature

The Blended Learning is applied in structure of instruction; however, some seems to be uncertain about this term. A very few researchers are as yet investigating when they come to know about blending or, "what is meant to be blended?". A few of them explain the general importance about this term or raised a definition found in close proximity of their importance.

Heinze and Procter (2006) stated that blend indicates a mixture, together to be better for up gradation or can be an equation to look into or to make any congruity. Student's achievement gets a characteristic significance characterized with "learn "In this scenario. The general significance of learning is to find out primarily design of inferring learning contained blended components, or thought to a merger among different examples.

Blended teaching focused on activities and problem-solving skills, which required higher-order thinking skills. It enhanced student's understanding and perception. Its enhanced student's engagement and increases social interaction with student to student and teacher. It relied on group working guided by the teacher. Students' role was active in blended teaching and students were not passive listener as in traditional teaching.

Wood (2009) portrays blended learning as all in all minimal framework that mixes conventional learning style with online e-learning, figuring out how to give bearings to guide the students in every learning phase on one cutting of edge methodologies for the benefits of teaching innovation to plan a new instructional circumstance. Blended learning is one of the instructor's crafts and abilities to consolidate between differed assets and exercises inside learning conditions in homeroom, and the executives that empower students to cooperate and develop thoughts and fabricate aptitudes.

According to Dwiyogo (2015) there is no ideal strategy for all unique indicating procedures considering the way that each innovation has inclinations and impairments in the development of advancement in learning methodology in late past experimental studies in modern countries. As an important source of learning, printing development has a versatile favored point of view since it might be taken wherever without the force. Though a PC has shrewd good situation, for instance, pictures, contents, movement, film, and can be changed over to the propelled mode, yet the versatility is limited depending upon the power. Henceforth, all kinds of progressions have inclination for exceptional learning targets and characteristics of a particular field. Furthermore, a learning strategy in simple can be fruitful, but it may not be for progressively raised amount

or the different way. Along these lines, the different learning systems for different properties are required.

Rusman (2009) simplified the Conveyed Learning frameworks and Conventional Learning Frameworks which in turn focused on innovations in Blended Learning. In view of above-mentioned definitions by specialists, the Blended learning can be interpreted as a learning consolidation or join into up-close and personal with ICT. Finally, the innovative technique (Blended Learning) is called as a learning strategy that made direct coordination with web based resources. The Blended Learning is meant for learners who aim up-close and personal learnings and cannot endure electronic learning. By mixing the learning strategies, learners and instructors can meet particularly through web-based findings which can be learnt anywhere and at any time of the day at. By using the Blended Learning, learners are depending upon like better materials and are more energetic by participating in recognizing, so that it can boost the learning outcomes. Web-based learning or e-learning present in blended learning is stated as an expansion of the usual classrooms exercise applying face-to-face learning. Blended learning seems to be figuring out the way of utilization of data innovation where e-learning is used as medium for learning and to enhance the learner's zeal to consider some more appealing and current methods. Blended Learning process might be more practical in the light of facts that the learning process which is mainly performed by regular or some visa-à-vis would be facilitated by e-learning or web-learning with data novelty, a learner can receive parameters from the trainer through the Blended learning. Blended Learning thought to be a reciprocal learning process in the absence of up-close and personal learning. Blended learning inspires learners in classroom activities filled with more shift. The learning process using Blended Learning techniques could take place after school time, chiefly in e-learning sessions. Learners are the central part in the Blended Learning. They learn easily and freely on their own. The environment created by blended learning techniques can be stated as more dynamic for learners in the process of education. The use of blended learning by joining in collaboration with up-close, personal and e-taking require enthusiasm from the instructor and learners to achieve the objectives.

Driscoll and Carliner (2009) cited that utilization of blended learning can blend or integrate a learning program in some alternate organization to achieve as universally useful. Instructors, additionally get ready before conveyancing of learning materials. In order to notwithstanding transferring of learning materials in the Moodle, there must be some

educational aptitude of instructors to liven-up the captivating process in up-close, personal and web/remove learnings.

According to Rusman (2009) blended learning is a blend of various methodologies, in which the instructor should have the capacity to join at least two strategies for methodology in figuring out how to accomplish the goals present in learning process. One of the models among these is a mixture of online learning approaches and up close and personal all the while. Blended learning, half and half learning, coordinated learning, multi-technique learning, or blended technique learning are on the whole references to a similar idea and system of learning, which in turn utilize two separate styles of collaboration. There are numerous meanings of blended adapting, however the most widely recognized is what perceives a blend of physical and virtual conditions.

Similarly, Graham (2004) describes the assembly of up close and personal situations, which are defined by human collaboration, data and resultant innovation-based settings, found offbeat, content based provide free environment to work.

Ashsan (2015) demarcates the connection between blended learning and customary getting hang of e-learning.
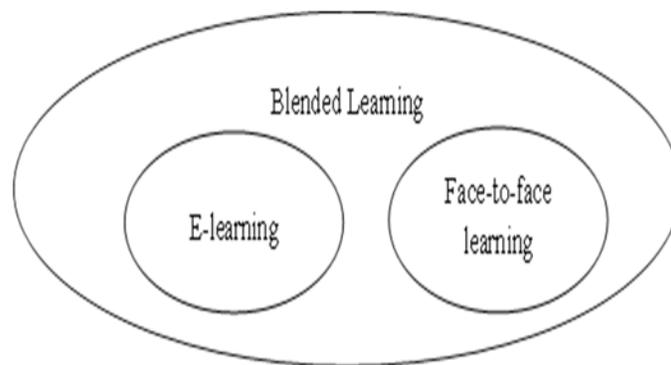
Figure 1: The connection in face to face and online and also in the Blended strategy.

Reay (2001) stretch out this definition to incorporate "different mixes of advancements, areas or academic methodologies.

According to Garrison and Vaughan (2008) the blended learning is " keen mixture of the up-close, personal with internet learning encounters" underlining the requirement for image on conventional methodologies and for upgrading learning and instructing in this new territory.

Graham, Allen, Ure and Bonk (2003) stated three mostly specified definitions as:

(i)   Joining instructional modalities (delivery methods)
(ii) Combination of instructional skill.
(iii) Blend of web and face-to-face guidance (Reay, 2001).

Al Fiky (2011) communicated that Blended approach revamps informative settlement with the features. For instance, going from tending to pupils centered getting the hang of student enhancing, teacher student, student content, student outside resources association, joining appraisal frameworks for instructors and students, supporting course organization works out (e.g., correspondence, assessment, convenience, stepping and analysis), and supporting the game plan of information and advantages for students.

According to Heterick and Twigg (2003) depicts purpose of the Blended is to discover a symmetry of the learning and teaching frameworks that were classical fitted specially in upgrading the learner's academics. Another evident was for Blended Learning could be progressively reasonable and profitable when it appears differently in relation to a typical classroom display. Past researches indicates that students taught through blend of techniques gained better on posttest in experimental study.

Statement of the Problem

Main aim of research was to judge effect of Blended Teaching approach on student's academic achievement at higher secondary level in the subject of Education.

Objectives of the Study

The objectives of the research were as below:
1. To observe whether Blended Teaching Approach is more efficient than conventional teaching methods with respect to student's academic achievements in Education subject.
2. To evaluate impact of Blended Teaching and classical teaching techniques on student's achievements at Higher Secondary level on retention test in Education Subject.

Hypotheses

Below mentioned null hypotheses were being tested for attaining objectives.

H_{01}: There is no significant difference found in mean score of treatment group and controlled group on Pretest.

H_{02}: No significant difference is found there in mean score of treatment group and controlled group on Posttest.

H_{03}: No significant difference was found there in mean score of treatment and controlled groups on the Retention Test.

H_{04}: No significant effect of Blended Approach was found on Student's Academic Achievement at Higher Secondary Level**.**

H_{05}: There is no significant difference found amongst mean score of treatment group in pretest, posttest and retention test.

Method and Procedure

Population
The total learners studying in the 11th class in Federal Government Colleges of Islamabad served as the population of the study. There were total 3418 students in 11th class in Federal Government Colleges Islamabad (Source FBISE, Federal Directorate of Education, 2018). Accessible and target population of study were all students of 11th class in selected college for experiment. 200 students of education subject were selected. Sixty students were selected randomly for forming group for experiment.

Sample (Randomization)
Sixty higher Secondary level students were further divided through paired random sampling technique in two groups that were blended teaching and traditional teaching on the basis of pretest scores.

1.1 The Design of the Study
The Pretest and the Posttest Equivalent Group Design applied to the study adopted by Farooq and Tabassum (2017). The following design had symbolically been expressed:

$RE = 0_1 T\ 02$

$RC = 0_3 - 0_4$

$dRe = 0_2 - 0_1$

$dRc = 0_4 - 0_3$

$$D = dRe - dR$$
C=Control groups
O1 & O3 = pretest observation
O2 & O4 = posttest observation

1.2 't' stands for treatments

1.3 Test Validation
A committee comprised of the teaching staff and experts of the Education subject of Northern University Nowshera was formed. They were evaluated and made revision of validity of the content in all test items. The whole series of the test were equipped with all textual materials that were instructed to participant's desired strength.

1.4 Reliability of the Test
Islamabad College for Girls F6/2 was selected for pilot study in the 1st week of August, 2018 and twenty-five students studying Education were nominated for this purpose in XI. Obtained data was gathered from pilot testing by applying split half reliability method and spear man formula in which the coefficient of reliability 'r' had been tested at 0.5 level. The Reliability co-efficient technique was applied for the collections of research.

Research Instrumentation
The below mentioned instruments were used for data collection.
1) A Pretest was taken to examine the achievement level of students before conducting the experiment.
2) A Posttest was held in order to evaluate student's academic achievements after the treatment.
3) After one month of treatment, Retention-test was taken to assess the memory knowledge of learners.

Data Collection

Two different techniques were employed in methodology of teaching and two instructors having equal qualification in academics and almost same experience of teaching for both treatment and control groups were hired. One of them was appointed for teaching classical teaching methods for the control and other appointed for the treatment of the teaching of blended teaching approach only for two months. The students were sampled through pretest mean score by adopting paired random sampling. When

treatment was over. Soon after a posttest was taken to assess the difference between treatment and controlled group. A gap of one month was given to conduct retention test. The main purpose of those tests was to determine academic scores of selected participants.

Data Analysis

To examine and illustrate the collected data, the mean, the standard deviation, and test of significance as t-test were applied and observed at 0.05 level in order to calculate the treatment effects treatment group ANOVA was applied.

H_{01}: There is no significant difference found in the mean score of treatment group and

Control group on Pretest.

Table 1
Significant difference in scores in term of Means for treatment and control groups in Pretest.

Group	N	Mean	SD	SE_D	t-value	df	Effect size
Experimental	30	48.23	11.291	2.78	0.047	58	Very
Control	30	48.1	10.253				Small
df = n1+n2-2				Table value of *t* at 0.05 = 2.001			

According to table 1 the figured t value (0.47) found lesser than from the table value (2.001) at 0.05. So, the null hypothesis, there is no significant difference found in the average scores of traditional teaching group on pre-test, was accepted.

H_{02}: No significant difference is found there in medium scores of treatment and control groups on Posttest.

Table 2
Difference in the Mean score for treatment and control groups in Posttest

Group	N	Mean	S D	SE_D	t-value	df	Effect size
Experimental	30	76.37	11.73	3.022	6.52	58	Very
Control	30	56.63	11.68				Large
df = n1+n2-2				Table value of *t* at 0.05 =2.001			

The table two revealed that figured t-value 6.52 found bigger than the value (2.001) in the table at the level of 0.05. Thus, no difference exists between Mean Score on Post-Test of Experimental and Control Group, was rejected. It revealed that blended approach is more effective than traditional teaching method.

H_{03}: There is no significant difference found in mean score of treatment group and controlled group on Retention Test.

Table 3
Significant Difference in scores in term of Means for treatment and the control groups in retention test

Group	N	Mean	S D	SE_D	t-value	df	Effect size
Experimental	30	66.57	14.24	3.01	3.565	58	Very large
Control	30	55.8	8.409				

df = n1+n2-2   Table value of *t* at 0.05 =2.001

According to table 3 the figured t value (3.565) found lesser than from the table value (2.001) at 0.05. So, there is no significant difference found between the average scores of classical teaching group on pre-test before experiment and on post-test after experiment, was accepted.

H_{04}: No significant effect of Blended Approach was found on Student's Academic Achievement at Higher Secondary Level**.**

Table 4
Significant Effect of Blended Approach on student's Academic Achievement at Intermediate level.

Group	N	Mean	S D	t-value	df	Effect size
Pre-Experimental	30	48.233	11.29	14.53	29	Very large
Post-Experimental	30	76.366	11.73			

df = n-1   Table value of *t* at 0.05 = 2.045

Table 4 demonstrated that calculated t value of 14.53 found bigger than the table value (2.045) at 0.05 level. Hence, there is no significant effect in the mean score of blended approach on the academic achievement at higher secondary level, was rejected and we might be concluded that difference in the mean score on the posttest of the experiment group had been seen significant at 0.05 level statistically. Thus blended approach is more effective after treatment.

H_{05}: No significant difference was found there amongst mean score of treatment group in pretest, posttest and retention test.

Table 5:
ANOVA showed the treatment effects among the mean score of Experimental group pre-test, post-test and retention test.

Group	N	Sum	Mean	V	SS_b	SS_w	MS_b	MS_w	F-value	F-crit	Effect
Pre-Exp	30	1447	48.23	127.4							
Post-Exp	30	2291	76.36	137.6	12236	13571.7	6118.1	155.99	39.2	3.101	significant
Retention-Exp	30	1997	66.56	202.8							

Degree of freedom df_b=2, df_w=87   F-critical level=3.101

Table 5 explained about the calculated F value of 39.2 found bigger than the table value (3.101) at 0.05 levels. Therefore, there is no significant difference among the mean score of experimental group pre-test, post-test and retention test, was rejected and we might be concluded that there is difference among mean scores of pre-test, post-test and retention-test of the experimental group had been seen significant at 0.05 levels statistically.

Discussion

Teaching is a dynamic activity. Teachers use different types of teaching approaches to increase the academic performance of the students. In Pakistan majority of the teachers use lecture method in their teaching at higher secondary level. Student's involvement in Traditional teaching is missing due to which the required performance of the students cannot be achieved. The Blended Learning Approach is a new modern approach that

focuses on the student's involvement in teaching learning process. Blended Approach is an innovative strategy that combines face to face teaching with online sources under the supervision of a teacher in classroom. The major objective of the study was to investigate The Effect of Blended Approach on the Academic Achievement of Higher Secondary Level Students in the Subject of Education.

The results of the present study revealed that there was no significant difference between the academic performance of the experimental and control group in pretest (table 1). In post Test the students that were taught through Blended learning approach gained greater scores as compared to the students taught through Traditional Teaching Approach (Table 2). These findings are consistent with Viet Anh Nguyen (2017) has stated in his article the impact of on-line learning on student's learning outcomes in Blended learning course varied deployments of actions collectively and mutual interaction put great effect on student's performance than on routine-based teaching. The study found that in retention test the experimental group performed very well. (Table 3). Ismail Ibrahim Herb (2013) study showed the similar result. According to his experimental study the writing ability through Blended learning approach enhanced in retention including Teacher's book Student's Book and Multi Media Resources.

The present study concluded that in pretest high achievers' performance was equal for both the groups (Table 4) while in posttest the experimental group showed excellent performance as compared to control group (Table 5) Martinsen Bry (2017) has drawn similar conclusion that provides the opportunities for clear instruction for Blended teaching instructors and learners to support their on-line tasks to high achievers. Learner's insights of the lesson unit can be a strong preference in planning and implementing the Blended Learning.

Conclusions

The practice of blended approach in the subject of education had been found more advantageous in comparison with traditional approach.

Blended learning approach found more valuable approach of education for pupils. Pupils are most benefited from blended learning approach in their retaining as compared to traditional approach.

The application of blended approach in organization was acceptable over close association among the goals of the national education and public skills supported by that education method.

Blended approach guaranteed pupils' energetic collaboration in instructional practice be indebted a boundless compact for pupils.

Recommendations

The report testified an extensive range of constructive results throughout the implementation of blended approach. Consequently, teachers may employ blended approach to foster the academic achievements of the pupils.

The study calculated the student's achievements only. Consequently, additional study may be required to determine the application of blended approach for various conditional variables as boldness regarding subjects, self-confidence, contemporary associations, societal skills and scholastic motivation for a multiplicity of subjects.

1. This study was delimited only to 60 students. Additional researches may be concentrated with a bigger sample to investigate new confirmations on the impacts and advantages of blended approach.
2. This study had been managed in girls' school in Islamabad. Additionally, similar study can be organized among boys' school.

References

Al Fiky, A. I. (2011). Blended Learning: Educational Design, Multi-media, Creative Thinking. Amman (Jordan): Dar Athaqafa for publishing and distribution.

Bates, A. W. (2005). *Technology, e-learning and distance education.* 2nd ed. United States: Routledge Martyn, M. (2003). *The hybrid online model:* Good practice, Educause Quarterly 2003(Nov): pp.18-23.

Driscoll, S. B. & Carliner, J. A. (2009). Towards an enhanced learning management system for blended learning in higher education incorporating distinct learners' profiles. *Educational Technology & Society* 17(x), 307-319.

Dwiyogo, WD. (2015). *Analisi Kebutuhan Pengembangan Model Rancangan Pembelajara.* Berbasis Blended Learning (PBBL) Untuk Meningkatkan Hasil Belajar Pemecahan Masalah.

Dziuban, C., Hartman, J., & Moskal, P. (2004). *Blended Learning.* EDUCAUSE Center for Applied Research bulletin.

Farooq, R. A. & Tabassum, R. (2017). *Understanding Research in Education.* Revised Edition. Majeed Books, Rawalpindi: Pakistan.

Garrison, R., & Vaughan, H. (2008). *Blended learning in higher education:* Framework, principles and guidelines. San Francisco: Jossey-Bass. Global perspectives, local design, pp.3-21. CA: Pfeiffer Publishing.

Gould, T. (2003). *Hybrid classes: Maximizing institutional resources and student learning.* Proceedings of the 2003 ASCUE Conference, Myrtle Beach, South Carolina.

Graham, C. R. (2004). Blended learning systems: Definition, current trends, and future directions. In: *The handbook of blended learning:* Global perspectives, local designs, ed. C.J. Bonk and C.R. Graham, 3–21. San Francisco: Pfeiffer.

Graham, C. R., Allen, S. and Ure, D. (2003). *Blended learning environments:* A review of the research, literature. Unpublished manuscript, Provo, UT.

Heimly, F. S., & Bertheussen, B. A. (2016). Speilvendteklasseromkanbidratilbedreakademiskepres tasjoner i høyereøkonomiskutdanning. *Uniped*, *39*(01), 47-60.

Heinze, A., & Procter, C. (2006). Online communication and information technology education.

Heterick, D. & Twigg, B. *(2003).* Examining the Effectiveness of Blended Learning on a Fundamental Subject at Tertiary Level: An Empirical Study.

Ismail, I. H. (2013). *The Effectiveness of a Blended Learning Program on Developing and Retention of Palestinian Tenth Graders' English Writing Skills the* Islamic University- Gaza Deanery of Graduate Studies Faculty of Education Department of Curriculum & Instruction

Ja'ashan, M. M. N. H. (2015). Perceptions and Attitudes Towards Blended Learning for English Courses: A Case Study of Students at University of Bisha. *English Language Teaching*, *8*(9), 40-50.

Martyn, M. (2003). *The hybrid online model:* Good practice, Educause Quarterly 2003(Nov): pp.18-23

McNaught, C. (2011). The best of both worlds: Effective hybrid learning designs in higher education in Hong Kong. In: Kwan, R., Fong, J., Kwok, L. F. and Lam, J. (2011) *Hybrid learning,* pp.1-9. New York: Springer

Phillips, C., & O'Flaherty, J. (2019). Evaluating nursing students' engagement in an online course using flipped virtual classrooms. *Student Success*, *10*(1), 59-72.

Reay, J. (2001). Blended learning a fusion for the future. Knowledge 18. *Management Review* 4 (3): 6

Rusman, S. (2009). Blended learning enters the mainstream. In C. J. Bonk & C. R. Graham (Eds.), *The handbook of blended learning:* Global perspectives, local designs (pp. 3-21). San Francisco: Pfeiffer.

Sharma, P. & Barrett, B. (2007). *Blended Learning:* Using technology in and Beyond the Language Classroom. Oxford: Macmillan Education.

Sohrabi, B., & Iraj, H. (2016). Implementing flipped classroom using digital media: A comparison of two demographically different groups perceptions. *Computers in Human Behavior*, *60*, 514-524.

Threlkeld, H. D. (2017). *Flipped Learning: Understanding the Flipped Classroom through the student experience* (Master's thesis).

Viet Anh Nguyen (2017). *The impact of online learning activities on student learning outcome in blended learning course*. University of Engineering and Technology, Hanoi, Vietnam.

Wood, D. S. (2009). *Blended learning strategies:* Selecting the best. SSWP.1610.0810