

Blended Learning Effectiveness: A Quasi-Experimental Study on Students' ESP Achievement

Naajihah Mafruudloh¹, Nur Mafissamawati Sholikhah², Rahima Fitriati³
Universitas Muhammadiyah Lamongan, Indonesia¹
Universitas Muhammadiyah Malang, Indonesia²

Abstract

Blended Learning, a mixture of face-to-face (FTF) and online learning, has gained its popularity in the English language teaching context. However, examining its efficacy in English for Specific Purposes (ESP) remains scarce. To fill this gap, this study implemented BL in an Indonesian ESP classroom and examined its effect on students' learning attainment and the challenges they encountered. Drawing on the data garnered from pre- and post-tests, it was unveiled that using BL promoted the students' learning outcomes given the statistical evidence was 0.000 which means lower than 0.05. Three main challenges of blended learning implementation were also identified, namely limitation of proper media, time allocation, and instructional aspect. This study encapsulates that the use of Blended Learning could promote students' English language skills. This study recommends that future studies be carried out involving more participants and more varied ESP classes to gain more robust results.

Keywords: *Blended learning, ESP, Students' achievement*

INTRODUCTION

Technological innovation is becoming popular and helpful teaching media nowadays, especially the use of screen, such as computer or gadget. It provides many advantages of many ways in teaching and learning activities, namely developing effective learning experiences, aggregating its access and flexibility, and minimizing the cost of learning. Given these advantages to the pedagogy, it is likely that teachers combine technology (e.g. computer and Internet) with the traditional or face-to-face teaching (Bryan & Volchenkova, 2016). Computer and the Internet become inseparable because computer as one of teaching and learning media needs to be connected to the Internet to be more advantageous. The Internet permits people to engage in a multi – party conversation online, showing its effectiveness in most of the studies (Rathbone et al., 2020). The use of technology such as computer and Internet which is combined with face-to-face learning is referred as a blended learning.

Blended learning has gained its popularity as it offers more flexibility allowing students to access materials from anywhere while enjoying face-to-face learning. One of common examples of blended learning is the use of Learning Management Systems (LMS). Generally, LMS is an online software application to deliver educational content, assess the students, track and report their progress in classroom pedagogy (Sharma & Vatta, 2013). The implementation of LMS emphasizes on the assignments rather than on the use of the interaction feature among teacher and learners. Particularly in Indonesia, there is the second type of blended learning which is termed as a flipped classroom model. It occurs when the lecture which is normally done in class will be done at home, while homework which is supposed to do at home will be completed in the class. Students will be given the lesson to learn through online presentation or clips before the class and they will have the assessment offline through face-to-face meeting in the classroom.

There were some arguments regarding with the effectiveness of blended learning. In addition, blended learning in language teaching guides the language instructors in understanding their teaching practice. It also enhanced the learners' experience to learn new languages by offering an efficiency in the communication and language practice (Tawil, 2018). Moreover, Laili and Nashir (2018) also found that the result of their research indicated a significant effect of teaching English in blended learning by using Edmodo at the nursing class. It was proved by a value significant number of t-test table, the result was 0.000 which means lower than 0.05. Another similar finding is Ghazizadeh and Fatemipour's (2017) experimental research in testing reading skills. He employed the

reading section of the Preliminary English Test (PET) and compared the result of before and after the treatment of using blended learning. The results indicated that blended learning has a statistically significant positive effect on the reading proficiency of Iranian EFL learners. Thus, the abovementioned studies indicate that blended learning can be adopted as one of teaching method in the English language classes to facilitate the learning process especially in reading skill.

In particular, previous research findings have documented several teaching and learning problems in the place where the study conducted. Based on the interview in Mafuudloh's (2020) study, the educators stated that ESP students have different level of ability and comprehension in English, so there is a need to improve students' comprehension in learning ESP. Meanwhile, another practical challenge of the implementation of online learning in the university was similar common problems as every Indonesian educator experienced, poor internet connection and limited data plan (Utomo & Ahsanah, 2022). Therefore, the implementation of blended learning can be a resort to overcome those constraints, increasing English ability of ESP students and offering face-to-face meeting to minimize technical problems.

There are numerous examples of teaching ESP for common majors, for example English for Mathematics, English for International Relations, English for Management, English for Accounting, English for Medical, English for Nursing, and many more. Specifically, teaching ESP using blended learning has gained positive perceptions from the students. An example of this is the implementation of blended learning in English for Mathematics has deepened their materials mastery and promoted independent learning (Malasari et al., 2020). In health-related major, English for Nursing Purposes (ENP) is needed to improve English communication skills, nurse-patient relationships, and nursing care for foreign patients (Lu, 2018). This is in line with Ali and Watson (2017), stating that inability to communicate effectively with patients has hindered the nurse to understand and assess the queries and complaints appropriately. English communication skills are also highly necessary for individuals who are going to be hospital leaders to contribute to health services development efforts in Indonesia. However, the implementation of blended learning in Hospital Administration class to improve English mastery is still limited in Indonesia as Hospital Administration major is not found in every university in Indonesia. Therefore, an investigation in implementing blended learning to Hospital Administration class is needed to carry out with three following research questions:

1. How did the educator implement blended learning in ESP of Hospital Administration class?
2. Does blended learning have a statistically significant effect on teaching English for Hospital Administration students?
3. What are the problems faced by the students in blended learning?

LITERATURE REVIEW

The concept of Blended Learning

Blended learning is often expressed in a number of definitions. In general teaching, blended learning refers to a combined use of a face-to-face classroom teaching and an online learning (Graham, 2013). Hinkelman (2018) adds that online learning in blended learning is often related with computer technology which becomes a normal part of everyday practices. Blended learning is the learning which incorporates the strengths of synchronous and asynchronous learning, so this makes blended learning more comprehensive and inclusive. In terms of roles, blended learning is a method for learning in the age of knowledge, meaning that teachers do not play a sole role for delivering lesson to students instead of being facilitators, mentors, and even classmates for sharing ideas and knowledge with students (Zainuddin & Keumala, 2018).

The definition of blended learning often reflects to the integration of ICTs into the course to improve the students' performance in learning and enhance teachers' experience in teaching. However, Bath and Bourke (2010) emphasized that the concept of blended learning is not just about using technology in teaching and learning, but it more likely about finding better and suitable ways to support students in achieving learning objectives as well as providing them with the best possible experience for learning. Thus, the environments in a blended learning and face-to-face learning or only e-learning are surely not the same. Blended learning is the proper combination of the valuable aspects of online and face to face learning methods during an education process.

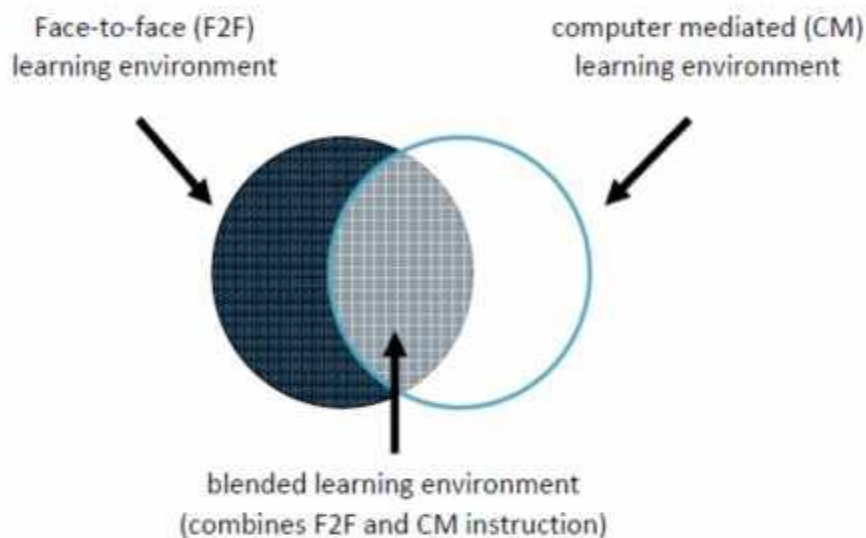


Figure 1. Blended Learning: a combination of F2F and Computer Mediated learning Environment

The common situation in a face-to-face environment is the presence of the students into the classroom, then they follow or listen to the teacher's explanation and complete the task. In contrast, in blended learning situation, students have already got the information concerning on the lesson before they come to the class. Advantageously, it enables students to reach a lot of sources regarding to the lesson in advance before coming into the classroom. The teachers use the classroom for the purpose of creating an environment of discussion with students. In blended learning, the teachers prepare the materials related to the lesson and upload it through several online platforms such as classroom *Whatsapp* group, LMS, etc. The students access the materials relating to the subject before joining the e-learning. Formerly, when they come to the classroom, they can discuss the materials that have not been understood with the teachers or they may ask to revise them again. The teachers examine what the students have learnt in the classroom. After the lesson, the students learn effectively by combining the information previously that obtained from the one that was clarified in the classroom. In other words, Eryilmaz (2015) stated that the students are more active in comparison with face-to-face education and e-learning. He adds that blended learning is not a key to success in education, of course. However, it is a means of providing quality and active education. When technological developments are considered, it is clearly stated that blended learning increases the quality of education and will be preferable learning approach.

It has depicted that blended learning has many advantages in teaching and learning. Blended learning has enhanced students' engagement and learning as it combines the traditional roles of teachers in the classroom with the familiar technology in teaching and learning (Pardede, 2013). Specifically, the implementation of blended learning in teaching ESP to non-English major learners has improved their attitude and motivation in mastering English as a Foreign Language and influenced students' English proficiency more than online or conventional learning methods (Kurucova et al., 2018; Lalima & Lata Dangwal, 2017; Mulyadi et al., 2019). Moreover, Vijayakumar and Viswanathan (2018) assert that this method significantly outperformed online learning in ensuring students' task achievement.

METHOD

Research design

This study aimed to investigate the effectiveness of blended learning on ESP of Hospital Administration class. A quasi-experiment was used in this research as the nature of quasi experimental study enables the researcher to manipulate the condition in teaching and learning process. Ary et al. (2010) stated that quasi experiment is the design where the researcher is able to control the treatment but is not able to randomly assign the subject of treatment. In light with this, the researcher gave treatments to the experimental group then analyzed the changes of the students' achievement compared to the control group. In addition, the control group was the group which had been taught without using the treatment. By doing so, the result can be drawn more accurately as it could compare the two results of before and after the treatment (Creswell, 2012; Sugiyono, 2014).

Quasi experiment design focuses on the treatment and outcome, so the data were taken from pre-test and post-test to examine whether blended learning can improve students' achievement in ESP subject. This is used because the researcher cannot artificially create group for the experiment due to prohibition of the research setting.

Setting and participants

This research was conducted in the English for Specific Purposes (ESP) context in one of the universities in East Java, Indonesia. There were forty-one participants involved in this study. These participants were conveniently selected from the Hospital Administration class. Thus, a convenience sampling was used in this study as Dörnyei (2007) mentions, as cited in Farrokhi and Mahmoudi-Hamidabad (2012), the members of study are selected to meet certain practical criteria such as geographical proximity,

willingness to volunteer, availability at a certain time and easy accessibility. In this study, the reason behind the use of convenience sampling was availability at a certain time and easy accessibility because the researcher was the educator of Hospital Administration class, so it was easy to implement the treatment and compare the outcome.

Data Collection and Analysis Method

In this study, the research instruments used were test, observation, and interview. The test used in this study was written test that covered all materials in a one semester. Initially, the pre-test was given before implementing the treatment, then it was followed by the post-test was given at the end of the semester covering the materials about grammar and reading related to the field of study.

The researchers also did the observation to the students. This study also employed participant observations in which the researchers both observed the participants and took part in activities in the teaching and learning process (Creswell, 2012). In doing the class observation, the researchers gathered the fieldnotes by writing down the activities, the duration of activities, what the teacher did, and the students activities in each mode of learning after leaving the class.

Lastly, the interview was employed to gain better understanding and more information. In this case, a semi-structured interview was used to the selected participants to ask about the problems encountered during the treatment. This will allow participants to elicit and describe information in detail related to the challenges (Creswell, 2012).

The design of blended learning is outlined as follows:

Table 3. Design of Blended Learning

Types	Activities	Platform
Offline learning	- Informing students about blended learning - Sharing information about learning aids needed such as LMS, conference apps, online device (internet connection, computer or gadget)	Face to face classroom

Online learning	- Explaining materials about reading	
	- Continuing to explain long functional text related to the field of study	Zoom meeting LMS Email
	- Asking students to download materials in LMS	
	- Assigning students to do the exercise	
	- Asking students to send the works via LMS or email	

Data analysis

The researcher analyzed all collected data from test, observation, and interview. The numerical data from the pre-test and post-test were analyzed by using paired sample T-test. Then, it was continued to be computed by using SPSS 16.0. Moreover, from the observation fieldnotes, the researcher analyzed and coded according to the themes of classroom activities, interactional patterns, and students and teacher engagement. In addition, the interview from selected participants were transcribed. To check the validity of the collected data, the transcription was given to the interviewee. This step allowed the interviewee to ensure the intentions.

FINDINGS AND DISCUSSION

This section presents the findings of the studies followed by their justification according to the context and relevant theories and studies. The researchers presented the result of data analysis on the effect of blended learning on students' ESP achievement that was taken from the ESP test, observation, and interview.

The Implementation of Blended learning

The information related to the implementation of blended learning was gathered

from classroom observation. In this study, ESP teaching was applied two modes of teaching, face-to-face and online mode. In both modes, the educator used students-centred model in both learning ways. In the form of class, the educator used synchronous form in the face-to-face setting, meaning that real time collaboration in which the students and teacher could interact spontaneously. Meanwhile, educator employed asynchronous one which focused on a modern way in communication due to the online setting to allow the students in giving feedback anywhere and anytime.

The face-to-face meeting was implemented in the first semester, approximately six months consisting of sixteen meetings. In this case, the teacher implemented some teaching techniques and media for attracting the students to be more active and enthusiastic in the English class. The class also provided some tasks and the final project. In the final project, the educator assigned the students to make a short video related to some topics, for example advertisement video, reporting news, and many more.

Another mode of learning, e-learning, was implemented in the second semester. It was applied due to the institution's request to conduct a distance class by using e-learning during university's closure to minimize the covid-19 transmission. In implementing e-learning, the educator also provided the same topic related to the course outline to the Hospital Administration students. E-learning as a part of blended learning can be divided into two forms. First, the educator utilized classroom *Whatsapp* group to give a lecture through a voice note (recording voice from the app), *PowerPoint* slides with narration, and written discussion. The formative assessment was also given via app sharing by asking the students to perform what they have learnt previously. Second, the educator held online collaboration session with the assistance of *Zoom* and *Google meet*. The educator mainly created link which requested the students to join at the predetermined time. The later form offers an open discussion in a live chat that enabled students to participate and collaborate with others. This live session was more interactive and collaborative as educator and students were able to meet in the classroom, even it was a virtual meeting.

This model of blended learning implementation is accordance with the classification of Horn and Staker (2012), as cited in Mahmud (2021). This model is called rotation model in which a combination of face-to-face with online learning rotation. It allows the teachers to change from traditional learning to experience a shift to online learning.

The effect of Blended Learning on ESP achievement

The pre-test was conducted before the students obtained the e-learning class. In other words, pre-test was done in the first semester when they had face-to-face class. The pre-test held to compare the English achievement obtained by all the students with the post-test result and to determine their initial understanding of the measures stated in the learning objectives. The pre-test which was conducted on 27 May 2019 was followed by 41 students in Hospital Administration class. Meanwhile, for the post test, it was conducted on 29 May 2020, exactly before the students had their final test.

Table 4. Paired Sample Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	63.95	41	12.58	1.966
	Post-test	75.14	41	9.90	1.547

The paired samples statistics table showed the descriptive values of each variable in the paired sample. Post-tests received 63.95 from 41 data. The data distribution (Std. Deviation) obtained was 12.58 with a standard error of 1.966. Then, the post-test obtained average value 75.14 from 41 data. Data distribution (Std. Deviation) obtained 9.90 with a standard error 1.547. This shows that the post-test was higher than the pre-test, meaning that there was significant effect on the implementation of blended learning on students' achievement.

By using paired t-test analysis, the difference between the two means were computed. The criterion for the rejection or acceptance of the null hypothesis is a level of significance .05 (95% confidence). If the sig. value is less than to .05 ($p < 0.05$), it means that there is a statistically significant difference between two conditions (post-test and pre-test). According to the result, the computation showed the significant value was 0.000. Thus, the sig. (2-tailed) value was $0.000 < 0.05$ means that H_0 was rejected and H_1 is accepted. It concludes that there was a significant effect of the blended learning on the students' ESP achievement. The result shows that the blended learning was effective to make an important difference between the post-test and pre-test. Based on the findings, it reveals that there was significant effect of the blended learning on the students' ESP achievement.

Apart from the results of the test, the classroom observation also documented the effect of blended learning to students. Based on the notes taken after the class, there were two effects of blended learning namely students' motivation. The result indicated that students were more interested in exploring knowledge and skills through blended learning. They were also strongly satisfied and motivated to learn English. This can be seen from students' participation to join written discussion and to actively involved in the classroom activities such as asking and answering questions. The results corroborate the findings of Rehman and Fatima (2021) and Utomo and Ahsanah (2022). Rehman and Fatima (2021) indicated that a blend of innovative synchronous and asynchronous used during pandemic had supported students' engagement. Similarly, a more recent study conducted by Utomo and Ahsanah (2022) in the same setting revealed that the combination of synchronous and asynchronous learning has motivated and attracted students to learn English. Thus, it is obvious that the blended learning has increased students' motivation to participate in the ESP class.

Problems faced in joining Blended learning

The challenges of blended learning in higher education or university level were various. The emergence was encouraged permanently based on the innovative technological developments and interaction through traditional learning environments, which underlined blended learning transformational force. Based on the observation and interview, there were three problems that faced by both students and educator in having blended learning including media, time allotment, and instructional aspect.

Firstly, in implementing blended learning, the classroom component such as teacher and students should have a proper media. In face-to-face setting, the students and educator did not find a lot of problems. On the other hand, they found more problems in distance class or e-learning itself. Some students mentioned that they did not have proper media for supporting e-learning class such as computer or laptop.

"I did not have laptop/computer at home" (S1)

"Mam, my internet connection is bad. I could not join the class effectively" (S2)

"My phone did not support e-learning application, sometimes it doesn't work well"
(S3)

This unavailability of media hindered the teaching and learning process. Moreover, the internet connection might be another common problem which students and teacher

experienced. Given the condition that most of the students lived in a remote area, the internet connection was still limited, so few students were absent in every meeting, and some got problems in the middle of the e-learning class. Thus, technical problems including media and internet connection seems present in implementing e-learning as a part of blended learning which later lead to ineffective teaching and learning. Connectivity and bandwidth, according to Gautreau et al. (2012) and Andersson (2008), can be limiting factors to conduct e-learning through chat apps or live virtual sessions. Both studies argued that the appropriate connection and the bandwidth will affect the students' ability to access the content needed and to contribute to the classroom setting.

Secondly, time allotment also became the crucial problem. Both face-to-face and distance learning had the same time allotment and schedule. In F2F class, students and teacher could implement an effective and interactive class without distraction from internet connection. Moreover, the classroom preparation also did not need longer time as e-learning had. Thus, it can be concluded that e-learning could have longer time, because both students and educator need more technical preparation.

Lastly was the instructional aspect. This aspect was used to select the most appropriate instructional strategies that support the learning objectives. Such strategies were the products of learning objectives and serve to ensure the learning objectives and facilitate the transfer of learning. When developing blended learning, maintaining instructional quality is paramount. Consequently, learning objectives need not be compromised when developing a blended learning solution (Holden & Westfall, 2008). Instructional covered the pedagogical aspect, module, and material related to the subject. The students stated that most of the wish got a proper module and the educator readiness in having distance class. Students also added that it was important to have a training before having the blended learning. In addition, instructional factor also includes the choice that teacher need to opt online learning activities. Particularly, when teacher opted the pre-record lecture for asynchronous viewing, it resulted in ineffective and inefficient content delivery and classroom teaching. This is in line with Lloyd et al. (2012) who maintain that pre-recording lectures tend to be unsatisfying as the teaching and learning process may lack immediate feedbacks from the students.

CONCLUSION

This present study explores the use of blended learning to improve students' achievement in ESP class. Blended learning is a combination of face-to-face learning and

online learning. It is revealed that the implementation of blended learning in Hospital Administration class consisted of two modes, face-to-face and online learning. Online learning used in blended learning was divided into two forms namely through online platforms for teaching and assessment, and video conference like *Zoom* and *Google meet*. Moreover, it is perceived that blended learning has significantly affected students' achievement in ESP class. The result of significance score was 0.000 or sig. value is less than to .05 ($p < 0.05$), indicating that there is a statistically significant difference between two conditions (post-test and pre-test). This is also supported by the result of observation, showing that blended learning improved students' motivation in learning English.

Furthermore, were three main problems encountered by both teacher and students, namely media, time allotment, and instructional aspect. Thus, it would be better for the institution to give attention to learning media by providing proper media and overcome the limited internet connection problem. Therefore, all the learning components (educators, students, and institution) should have a good readiness to adapt themselves into digital era, so this blended learning will be done well.

This study implied that blending courses benefits both teachers and students by creating more interactive and collaborative and improving learning and motivation. Yet, the current study was limited to small sample size and only one major. The more sample size and more varied major for ESP class would reveal more thorough data about the implementation of blended learning. Thus, further research can be carried out to investigate the effect of blended learning in more varied ESP class.

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