The Implementation of Blended Learning and Peer Tutor Strategies in Pandemic Era: A Systematic Review

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ABSTRACT

The purpose of this study is to analyze the implementation of Blended Learning and Peer Tutor Strategies in the Pandemic Era from Higher Education in Indonesia. A systematic literature review was conducted from July 2020 until November 2020. This study includes a literature review of relevant research on the implementation of Blended Learning and Peer tutor strategy in the Pandemic Era from December 2019 until November 2020. The object of research was the blended learning and peer tutor strategy in Pandemic Era. In the beginning, there were 504 articles about Blended Learning. After the screening process based on inclusion and exclusion criteria, there were 10 selected papers in this study. The result showed that it had been found that blended learning and peer tutor strategy gave a positive impact on students outcome. The study showed that Blended Learning and peer tutor had a potential effect to increase student achievement in learning. Therefore, it need to develop a special learning model to keep student achievement in college. The implication of this study was that the integrated Blended learning model with peer tutors can be a solution for organizing learning at the postgraduate level during a pandemic. Through this model there were many positive influences on student learning outcomes. This study also presented a method that was often used on the topic of blended learning and peer tutors.

Keywords: Blended learning, Peer tutor, Pandemic era, Systematic review, Achievement of student

1. INTRODUCTION

The Covid-19 pandemic has had many influences on human life. In the field of education, until now many countries in the world have temporarily closed all schools in their countries. The lockdown policy makes learning activities both at school and the college moved at home [1]. Lockdown makes online or online learning more vigorous because activities outside the home are prohibited except for very important matters. During the lockdown, many students at the primary, secondary and high school levels use technology devices to support learning.

The lockdown policy caused several problems. Some of these problems include (1) lack of mastery of technology, (2) cost of internet access, (3) time of parents in accompanying children to study, (4) lack of communication and socialization between students, teachers, and parents, and (5) hours unlimited work for teachers. [2]. In addition, this

lockdown policy also poses a serious threat to the country's economic growth, especially since the case of this pandemic is still unknown when it will end due to the high cost of the lockdown [3].

The term new normal refers to a new normal order in a life that is different from the normal conditions before the pandemic [4]. In this new normal period, several countries in the world began to call for living "at peace" with Covid-19 by implementing certain protocols or regulations. This certainly greatly affects and changes the lifestyle of the people in various fields. All aspects of people's lives will be regulated by certain protocols until a vaccine for this virus is found. In education, appropriate learning models are needed at all levels. One of the appropriate models to do in the new normal era is blended learning.

Blended learning is carried out by mixing the learning process with face-to-face and online learning [5]. This will be very suitable for the new normal era, in which social activities begin to be reduced without reducing the essence of learning. In addition, blended learning has many positive effects on learning such as improving learning outcomes [6], achievement and motivation [7], scientific attitudes, and independent learning skills [8]. However, specifically at the postgraduate level, new strategies are still needed besides blended learning to suit the characteristics of learning in higher education.

Blended learning is a series of content blocks that are sequenced to create a learning experience and can be managed and tracked by start and end. Blended learning is professional learning, which matches the learning objectives with the most appropriate delivery media and learning environment. This aims to ensure that participants learn through facilitator-led content delivery while using multiple elements of control. Apart from this formal learning experience, blended learning also includes experiences that occur outside the formal curriculum. Designers who learn must remember that learning is timeless, occurs around students [9].

Through a combination of face-to-face and online activities, blended learning has great potential to regulate different teaching in higher education [10]. Blended-learning is a flexible approach in which the program includes a combination of different places and times that can be used to study. While learning is described as an act of understanding or understanding something, etymologically it can be concluded as a combination of the practice of instructional learning activities [11]. There are some parameters of blended learning as in the following Table 1 [12].

Blended learning in this study is defined as the adoption of web-based educational technology (i.e., learning management systems) for online learning, which is used in combination with face-to-face, placed instruction from teaching practitioners [13].

One of the goals of attending a university is to acquire more knowledge and expand assistance in creating a knowledge society [14]. Postgraduate school education is expected to develop students to acquire the ability to play a leading role in a multidisciplinary and international society as well as higher-level competencies based on their specialization [15]. Designing graduate learning should reflect the nature of graduate education, including constructing a suitable curriculum, creating classic original study, realizing cutting-edge, individual, and innovative goals [16]. For graduate students, practical teaching deepens students' understanding of theoretical knowledge, generates new understanding and thinking, solves problems, and explores student initiatives [17]. It includes good writing, quantitative, writing, comprehension, and analytical skills. The graduate school process requires students to have good analytical, comprehension, quantitative, and writing skills [18]. A course on teaching and learning to train graduate students in a discipline-specific context and in student-centred pedagogy had been developed [19].

Learning in higher education requires students to study independently of learning to teaching and teaching to learning [20]. In new normal, this activity can still be carried out. Lecturers can apply the peer tutor strategy for students in blended learning with technological devices. In addition, the peer tutor strategy also has many benefits such as a positive attitude and level of learning satisfaction [21], success in learning [22], or learning outcomes [23], and student participation [24]. Therefore, integrated blended learning with peer tutors is the most appropriate alternative for implementing new normal era learning at the college level

Teaching for learning and learning to teaching focuses on the quality of teaching in higher education. This emphasizes the role that peer review can play, where teaching supports the enhancement of these activities in teaching practice and learning outcomes. This agenda is a further development of higher education through the activities of global institutions, higher education institutions, scientific disciplines, and individual teachers [25].

Peer tutors often involve one-on-one sessions on formal tutoring sessions in a university setting [26]. Not all peer tutors are "experts". They are sometimes

Table 1. Parameter of blended learning

No	Parameter	Descrtiptions
1	Learning objective	To increase a positive attitude in learning
2	Content	Active learning, accepting, responding and assessing
3	Pedagogic Approach	Dialog
4	Learning activity	Socratic questions, self-reflection, online peer discussions, face to face class discussions facilitated by the teacher
5	Resource and technology	Online forums, websites
6	Blended Learning Model	Individual reflections, personal experiences, messages, socratic questions

randomly assigned, classmates of the same age or those of lesser achievers of the same age. The term "peer tutor" often replaces tutors of the same age [27]. In peer tutor, students generally identify more easily than with older (teachers/lecturers), and this helps create an environment where students are more comfortable to ask questions and work through challenging problems in a free-form classroom environment [28].

Peer tutors can be experts, classmates of the same age, accomplished or not. Therefore, there are various teaching approaches, developed by educators or researchers based on the concept of peer interaction that can improve student performance in various academic fields or in behaviour management. Classical peer tutors, reciprocal peer tutors, peer-assisted learning strategies, and cross-age tutoring are examples of peer tutoring strategies [29].

The open learning environment established in the Peer tutor environment invites students to take responsibility for their own and their peers' learning, including metacognitive regulating the collaborative learning process [30]. In this study, peer tutor strategy refers to peer tutoring conducted by postgraduate students with relatively the same age and ability classifications. Peer tutors are conducted online using an existing website. Based on the previous explanation, it is necessary to analyze appropriate and effective learning held by all universities. Therefore, the researcher tries to conduct a literature study to describe the effectiveness of blended learning and peer tutor at Indonesia higher education in Pandemic Era learning toward students thinking skill, cognitive skill and softskill.

2. METHOD

This study presents a systematic review of research examining the students' outcome when learning with Blended learning and Peer Tutor strategy in the Pandemic Era. This systematic review included the learning objective, the selected journal, the exclusion and inclusion criteria, search strategy, and databases. The criteria for the analysis of the results followed the recommendations of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement [31]. The declaration from PRISMA is the global and approved revised version of the declaration from QUORUM (Quality of Meta-analysis reporting) [32]. The review question was: "How student Outcome can be increased by using blended learning and peer tutor strategy in Pandemic Era?'

The analysis of the paper conducted by two researchers. Data were collected and organized in a table that contains the year, author, method, and students' outcome. A literature search was conducted using the following online databases Science Direct, Google scholar, and Scopus. It is covered the period from December 2019 to November 2020 and limited in English. At the beginning of Blended learning, we got 504 articles, after screening based on the inclusion and exclusion criteria, there were 10 selected papers. While there where 385 article about peer tutor before screening process. After we finished the screening process based on the criteria inclusion and extraction, only one selected paper to analyse. The criteria of inclusion and extraction are shown in Table 2.

Table 2. Criteria inclusion and exclusion selected paper

Criteria	Inclusion	Exclusion
Type	Indexed journal and Conference	Non-Indexed Journal
Tittle	Mention "Blended Learning or peer tutor"	No Mentioned
Language	English	Non-English
Timeline	Between December 2019 – November 2020	Less than December 2019
Country	Indonesia	Non Indonesia
Topic	The impact of Blended learning or peer tutor toward students achievement	Other topics
Sample/Participant	Student from College/University	Non College/University

3. RESULTS AND DISCUSSION

To identify some articles describing blended learning and peer tutor strategy, a systematic review was conducted. The study focused on student outcomes such as cognitive skill, thinking skill, and soft skill in blended learning and peer tutor strategy on Pandemic Era.

Table 3. Analysis of selected paper

Paper	Sample	Method	Student Outcome
Paper 1 [33]	College student from biologi Education/fifth semester (76)	Quasi experiment	Blended learning are potential to increase the creative thinking skill. Blended learning are more effective than conventional model in increasing creative thinking skill
Paper 2 [34]	Student from a university Elementary School Teacher Education (30)	Quasi experiment	Use of the moodle blended-learning learning model in Elementary School Teacher Education students during the COVID-19 pandemic era is effective and can be used as a network-based learning solution or online
Paper 3 [35]	Students from the sixth semester of mathematics education study program (4)	Descriptive qualitative research	The results of the Blended learning study concluded that the average level of mathematical disposition of students was classified as moderate.
Paper 4 [36]	Students at fifth and sixth semester from a University Riau (no mentioned)	Survey method using questionnaire	Blended learning has strongly impacted student's academic productivity performance.
Paper 5 [37]	Students in STKIP Bandar Lampung (no mentioned)	Development research using ADDIE method	Students had positive responses to the Blended learning developed, and Blended learning was very useful in improving the quality of lectures
Paper 6 [38]	Students from the Department of Electronic Engineering Education (92)	Quasi experiment	the implementation of blended learning is effective in increasing the students' critical thinking and communication skills

Paper	Sample	Method	Student Outcome
Paper 7 [39]	Students from the second semester majoring in informatics engineering at STMIK STIKOM Indonesia campus (no mentioned)	Quasi experiment	student mathematics learning outcomes taught with blended learning were better than conventional mathematics learning outcomes.
Paper 8 [40]	Second-year students from the Department of Electrical Engineering, State University of Malang (54)	Quasi experiment	The results were reported that students who used blended learning obtained higher scores
Paper 9 [41]	Students from Entrepreneurship Subject program, STKIP PGRI Nganjuk (151)	Quantitative descriptive correlational type	The blended learning model has a positive effect on improving technopreneurship skills
Paper 10 [42]	The students from Biology Education Study Program at Universitas Muhammadiyah Surakarta (17)	Pre-experimental design using One Shot Case Study	Peer learning has a positive impact on improving the average grade acquisition on student performance in preparing a class action research proposal and cognitive skills

According to Table 3, these findings show that blended learning and peer tutor have many positive impacts on learning processes in higher education. The impact can simultaneous in increasing student outcome such as creative thinking, network learning, math and science, cognitive skill.

Blended learning with peer tutor effected in improving students thinking skill. According to Table 3, there were two articles showed that this model give positive impact on creative thinking skill and critical thinking skill. There were five articles shows that this model can improve student cognitive skill such as in math. Others showed that this model gave positive impact on students soft skill, two articles showed in technopreneurship skills and one paper showed that this model can improve quality of lecture.

In this section, we will answer the research question about How Students' Outcomes can be increased by Blended learning and peer tutor. Blended learning implementations in higher education, showing the educational technology skill as a transversal and alternative concept [43]. It has 10 categories of critical factors such as technology, didactics, course outcome, collaboration, and social presence, course design, synchronicity and a-synchronicity, the heritage from technology-enhanced distance courses, Multimodal overloading, Trends and hypes, and economy [44]. Blended learning will be effective if several activities such as face-to-face, online and independent learning are properly combined so as to improve student learning outcomes and skills [45].

To take full advantage of the opportunities that blended learning, there is some process that must be considered making well-informed, commitment with this way of teaching, pilot testing, where blended Learning requires creating appropriate ecologies for faculty to (re)design and offer courses that get the best from face-to-face and virtual learning environments, initiatives that transform educational practices with the support of technology [46]. To guide higher education when they use blended learning, a framework has been developed such as

institutional considerations to address support needs (the what); an overview of change agents driving the move towards enhanced blended learning (the why), processes that facilitate enhanced blended learning (the how) and stakeholder groups that should be involved in the transition (the who) [47].

Peer teaching gives benefit for the generic skills development and metacognitive training and lectures need to stimulate students' metacognitive skills and lifelong learning in knowledge society through peer-teaching [48]. There are some factors in controlling the successful Peer Teaching Method in Higher Education gender, GPA, and age [49]. Female students have been proved to prefer this method to male students. If the GPA is high, the satisfaction of peer teaching will be higher. In contrast, if the age of the students is higher, the satisfaction of peer teaching will be lower.

4. CONCLUSION

As a conclusion, the result of the existing study had shown that blended learning and peer tutor was a suitable learning model in improving students' outcomes at Higher Education in Pandemic Era. Blended learning and peer tutor success to increase students outcome which was satisfaction and confidence. Results showed that Indonesia Student that used blended learning and peer tutor was more confident and show higher achievement in learning. The recommendation for the next study is to develop a new model integrated between Blended Learning and Peer tutor.

AUTHORS' CONTRIBUTIONS

Nurfina Aznam, Jumadi Jumadi, and Heru Nurcahyo contributed to the design and implementation of the research.

Yusman Wiyatmo and Riki Perdana contributed to the analysis of the results and to the writing of the manuscript.

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