



Blended Learning and Computers Self-efficacy Towards Students Learning Outcomes

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Abstract. The impact of emerging technology on public education is significant. This technology can only be controlled by those who are highly competent and educated and technology has caused a lot of change in human life. The aim of the study was to examine the blended learning and computers self-efficacy towards students learning outcomes. This type of research is mixed methods, with an embedded experimental model design by using SPSS and Qualitative data analysis techniques was obtained from interviews, questionnaires, documentation. The results of research in various fields of study or subjects show the superiority of learning outcomes for students who have high self-efficacy in computer skills than students with low self-efficacy in computer skills and the results of blended learning can improve student learning outcomes in higher education. It can be concluded that there is a significant effect of blended learning and computer self-efficacy towards learning outcomes. And blended learning and computer self-efficacy can improve students learning outcomes in Makassar State University. It is expected that blended learning can be applied and developed again in learning to other universities, especially by using a large sample.

Keywords: Blended Learning · Computer Self-Efficacy · Learning Outcomes

1 Introduction

With technological advancements higher education is actively looking to find effective models for providing students with more opportunities and a higher quality of learning (Nurhikmah, et al., 2018, 2021, Sujarwo et al. 2020; Sasabone et al., 2022). The impact of emerging technology on public education is significant. This technology can only be controlled by those who are highly competent and educated (Rafiola et al., 2020; Sukmawati, et al., 2022), technology has caused a lot of change in human life (Achim & Kassim, 2015; Al-Salman and Haider 2021).

The development of communication technology is accelerating accompanied by demands for needs that can make a potential contribution to the education and training sector. The potential of communication technology not only increases the efficiency, and effectiveness and flexibility of the learning process (Prifti, 2020), but also has an

impact on material development, shifting the role of learners and the growing autonomy of learners.

The concept of self-efficacy was first proposed by Bandura, an American psychologist, who believed that self-efficacy is a subjective assessment of whether a person can successfully perform certain achievement behaviors. Online learning self-efficacy is a specific application of self-efficacy in the field of online learning, which mainly refers to the subjective assessment of individuals on their ability to use computers, network information resources or network communication tools, and online learning platforms to complete learning tasks (Zhao et al., 2022).

Self-efficacy is defined as people's beliefs in their capabilities to produce desired effects by their own actions. One type of self-efficacy is Technology Self-Efficacy (TSE), which has been defined as "an individual's belief in his or her ability to use a computer effectively" [Bandura, 1997 as cited in (Agourram et al., 2019)]. According to Compeau and Higgins (1995) as a judgment of one's computer capabilities and expertise to perform tasks related to information technology. Furthermore, Compeau and Higgins (1995) cited in (Suharno et al., 2015) reveal that the study of CSE is important in order to determine individual behavior and performance in the use of information technology/computers.

The gap of this study is Future studies could explore the impact of stress and anxiety as well as depression on learning in highly complex blended learning environments where students often must interact with peers via collaborative technology as well as face-to-face (Beatty, 2019).

A number of research studies have investigated that the availability and capabilities of computers, including online access, have increased significantly today. At the same time, most students have adapted to using computers for learning and no longer have difficulty operating digital devices (Chen et al., 2018). Therefore, mixing studies from different generations of teaching and learning with technology is not conducive to meaningful conclusions (Müller and Mildemberger, T., 2021).

Many studies have found that self-efficacy is a predictor of learning engagement and learning achievement (Diseth, 2011; Olivier, Archambault, De Clercq, & Galand, 2019; Tsai, Chuang, Liang, & Tsai, 2011). Students with high levels of self-efficacy tend to show increased academic effort and active engagement, while showing stronger persistence in the face of adversity (Zhao, Zheng, Pan, & Zhou, 2021). In particular, self-efficacy for learning is positively related to independent learning. The findings of this study state that type 1 blended learning is better than type 2 blended learning, therefore lecturers are required to be able to design and manage the type 1 type 1 blended learning model wisely, relevantly and precisely between the potential face to face, online and offline. In addition, apart from the advantages of the blended learning learning model, the blended learning learning model can also be used as an alternative to solving problems regarding the learning system in universities, namely learning is divided into face-to-face learning through modules, structured learning through asynchronous online learning and independent learning that can be done. Using interactive media (Idris, H. (2022).

The aim of the study was to examine the blended learning and computers self-efficacy towards students learning outcomes in Makassar State University students.

2 Method

This type of research is mixed methods, with an embedded experimental model design. Data were analyzed using SPSS. The variables in this study are independent variable and dependent variable. The independent variable consists of one variable, namely self-efficacy of computer skills. The dependent variable to be studied is the learning outcomes of the Sociology of Education course. In addition to the variables above, there are other variables that need to be controlled. These variables are (1) learning facilities and infrastructure (other than those prepared by researchers), and (2) the ability and sincerity of the lecturers in learning. These two variables are assumed to be constant, so it is assumed that they will not have a significant effect on the dependent variable of learning outcomes.

Population were 60 students consisted of two majors that divided into 2 (two) classes, namely the Department of Educational Curriculum and Technology and Sociology education. The determination of the research sample was carried out using a random sampling technique, where from two classes were selected at random, as well as the determination of the treatment group was carried out randomly through the lottery technique.

Data collection techniques used questionnaires, survey sheets, questionnaire sheets, observation sheets, communication guidelines for focus group discussions (FGD) with students and questionnaire responses to the implementation of learning.

Data collection activities include two stages, namely the preparation stage and the experimental implementation stage. The following describes the two stages of data collection.

After the research data is collected, the activities carried out are analyzing research data with certain data analysis techniques according to the type of research. The data collected in this study were processed statistically inferentially using the two-way analysis of variance (ANAVA) technique or two ways analysis of variance (two ways ANOVA) 2×2 . After all the parametric assumptions were met, it was continued with 2×2 factorial analysis of ANOVA to test the research hypothesis. Testing the null hypothesis (null hypothesis) was carried out at a significance level of 5% or $= 0.05$. All statistical analyzes used the Statistical Package for Social Science (SPSS) 16.0 for Windows computer software.

Qualitative data analysis techniques was obtained from interviews, questionnaires, documentation is reduced by summarizing, selecting, and focusing the data according to the research objectives. The presentation of the data is done after the data is reduced. Data obtained from interviews, questionnaires, documentation are presented in the form of notes, narrative descriptions, tables, charts, graphs, flow charts, and so on. The data that has been reduced and presented is then used by researchers to make conclusions.

3 Result and Discussion

In this section, a general description of the results of the research results from the analysis. Description of the research results is based on the results of the descriptive analysis of the research sample, total sample was 60 students. The following describes the state

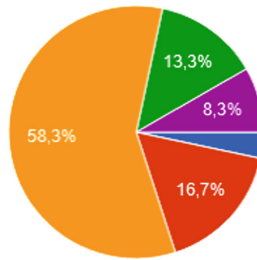


Chart 1. The students' experience in using Computer

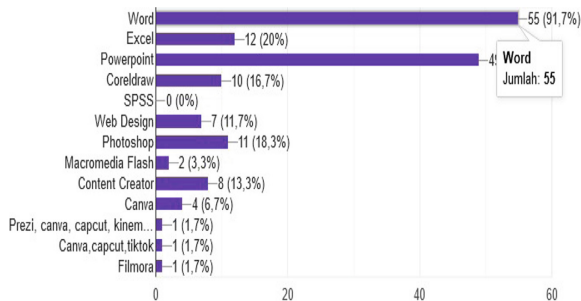


Chart 2. She Students Master the Parts of Computer

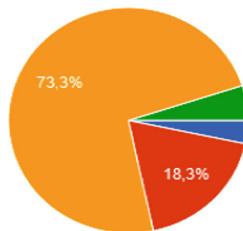


Chart 3. Problems Faced by Students in Using Computer

of the research sample based on blended learning and computers self-efficacy towards students learning outcomes in Sociology students in Makassar State University can be seen from some charts as follow:

Based on Chart 1 of The students' experience in using Computer shows that there were 3 students (2.3%) who did not have experience in using computer, 5 students (3.8%) who had much experience in using computer, 8 students (13.2%) who more experience in using computer, 10 students (16.4%) who had less experience in using computer and 36 students (59%) who had moderate experience in using computer.

Based on Chart 2 of The students master the parts of computer shows that there were 91.7% students who mastered word, there were 82% students who mastered powerpoint, there were 16,7% students who mastered Coreldraw, 18,3% students who mastered Photoshops and the others.

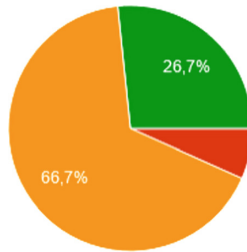


Chart 4. Students' Self-efficacy in Using Computer When They did Their Tasks

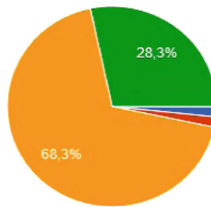


Chart 5. Students' Interest in Learning New Programs in Computer

Based data of Problems faced by students in using computer found that there were 18% students did not agree about all problems faced by the students can be solved. And there were 73,3% students agreed about all problems faced by the students can be solved Chart 3.

Based on Chart 4 Students self-efficacy in using computer when they did their tasks found that there were 26.7% students who did not agree in computer self-efficacy when they did their tasks and there were 66.7% students who did not agree in computer self-efficacy when they did their tasks.

Based on the Chart 5 of Students' interest in learning new programs in computer found that there were 28.3% students who were not interest and there were 68.3% students who were interest in learning new programs in computer.

Moreover, the results of the mean score of the test of the one group can be used as a measure to interpret that the posttest results for the sociology education class. To find out that the results of the pretest of that group can be used statistical analysis of the t-test in sample was carried out. The results of Dependent Variable: Learning outcomes in computer self-efficacy of students.

After testing the parametric assumptions and it turns out that these assumptions are met, the next step is to test the hypothesis and describe the results of hypothesis testing based on the results of research data analysis. The data analysis technique used is one-way 1 x 2 variance analysis. The data analysis is essentially used to test one research hypotheses. The research hypotheses is as follows. There is significant effect between computer self-efficacy students and blended learning. The have high self-efficacy in computer skills and groups of students who have low self- efficacy in computer skills in undergraduate students of FIP UNM in blended learning and computers self-efficacy towards students learning outcomes.

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To determine the blended learning and computers self- efficacy towards students learning outcomes, it is necessary to test the hypothesis by using analysis of variance. The results of the hypothesis test show that There is significant results of learning outcomes for the Sociology of Education course in group of students who have high self-efficacy in computer skills and group of students who have low self-efficacy in computer skills in undergraduate students of FIP UNM. Self-efficacy of computer skills is strongly related to the reasons why someone chooses to take online courses. Learners who have higher self-efficacy in computer skills take courses because of their curiosity about online courses, not solely because of the availability of the program for them, as experienced by those who take online courses because of the availability of the program. The decision to take online courses may be related to the learning model, but the self-efficacy of one's computer abilities can also be a factor in taking online learning. People who think that they will succeed in carrying out a given task are likely to succeed. Whereas people who believe that they will fail to carry out certain tasks, then they usually will indeed fail.

The findings of this study are in line with previous research steted that the t-test obtained $P < 0.05$, meaning that there is a significant effect of blended learning with the science technology approach of society on learning outcomes. And blended learning with a community science technology approach can improve student learning outcomes in higher education. It is hoped that blended learning can be used and developed again in learning in higher education (Huda, et al., 2022). It supported by the other study found that a growing number of higher education institutions are considering replacing part of face-to-face classroom teaching with online learning environments by offering students a blended learning format (Müller dan Mildenberger, Müller and Mildenberger, T., 2021).

Futhermore, the findings of this study are in line with previous theories and research results that show the need for self-efficacy in determining the success or failure of a person in completing a given task. In relation to online learning, of course, the self-efficacy expected by students is the self-efficacy of computer skills. This is closely related to the media used in internet-based learning, namely computers. In this study, it appears how students who are less proficient in using computers have high concerns about their ability to complete the tasks in the learning.

The results of observations made by researchers on postgraduate students at UNM who participated in internet-based learning, showed how a group of students were confused by this internet-based learning because they didn't even access the internet to hold a mouse. They are very stiff. While some students seem happy with this learning

because according to him, they can follow the learning in their workplace where internet facilities are already available. From the recordings of student activities, it can be seen that those who are happy with this learning and who have the skills to use computers show their activeness in participating in learning including online discussions. Meanwhile, active students' learning outcomes showed better learning outcomes compared to inactive students. The concept of self-efficacy was first proposed by Bandura, an American psychologist, who believed that self-efficacy is a subjective assessment of whether a person can successfully perform certain achievement behaviors. Online learning self-efficacy is a specific application of self-efficacy in the field of online learning, which mainly refers to the subjective assessment of individuals on their ability to use computers, network information resources or network communication tools, and online learning platforms to complete learning tasks (Zhao et al., 2022).

Zhao et al.(2022) provide suggestions to improve independent learning for online learners such as increase teacher support, increase student self-efficacy, and promote a form of self-learning. Moreover, self- efficacy is one of the important factors to increase the level of independent learning. A good online learning environment can make students adapt to new online learning methods better and faster, reduce frustration in the online learning process, and play an important role in increasing the self-efficacy of students' online learning technology.

And An and Frick (2006) found the same results in research that self-efficacy of computer skills is an important factor for the frequency and success in the use of online learning and the higher the self-efficacy of a person's computer skills, the more satisfied he is in the subject. Online and the higher the learning outcomes. The results of research in various fields of study or subjects show the superiority of learning outcomes for students who have high self-efficacy in computer skills than students with low self-efficacy in computer skills. Based on data interview stated that the institution must provide skills training and guidance to students in the use of information technology and online learning platforms, improve students' information literacy, ability to use learning tools, and reduce setbacks caused by technical difficulties in online learning. At the same time, schools must also provide online learning method training to students, so as to increase the knowledge base of students in online learning as a whole. This can not only increase students' online learning self-efficacy but also increase their level of independent learning (Wang et al., 2013). In addition to providing external infrastructure in terms of technology, emphasis should be placed on providing learners with specific guidance on online learning skills and learning models.

Furthermore, it is possible that computer self-efficacy and blended learning can change continuously along with their increasing ability to use computers and their desire to learn new things. According to Lee and Witta (2001), a person's self-efficacy may be indirectly high at the beginning of taking online subjects, as his findings in his study of 16-year-old students who took online subjects, where their self-efficacy changed significantly. Significant from the beginning to the end of the semester. Therefore, learners must have the ability to overcome obstacles in learning.

4 Conclusion

Based the results of findings and discussion can be concluded that that there is a significant effect of blended learning and computers self-efficacy on learning outcomes. And blended learning and computers self-efficacy can increase students learning outcomes in higher education. It is hoped that blended learning can be applied and developed any more in learning to the other higher education especially using much samples.

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