EFFECT OF EARLY ABILITY, LEARNING INDEPENDENCE, AND ATTITUDE OF CONFIDENCE TOWARDS STUDENT INVOLVEMENT

Ade Firmannandya[1*]
[1*] Visual Communication Design, Universitas Muhammadiyah Surabaya, Surabaya, Indonesia

adefirmannandya@um-surabaya.ac.id

DOI: https://doi.org/10.21107/Widyagogik/v10i2.19145
Received February 09, 2023; February 23, 2023; Accepted March 03, 2023

Abstract

Many schools and universities in Indonesia have implemented combination learning or blended learning. Many factors influence student involvement in blended learning, including initial abilities, independent learning, and student attitudes. This study aims to determine the effect of initial abilities, learning independence and self-confidence on student involvement in blended learning. The initial ability variable is measured from the aspect of skills in using information technology, the willingness to use information technology, the availability of information technology, and confidence in the reliability of information technology. Learning independence is measured by not depending on others, disciplined behavior, a sense of responsibility, behaving based on initiative, and exercising self-control. The attitude variable of self-confidence is measured by confidence in using information technology, asking and answering questions, expressing opinions, and completing tasks on their own. Student involvement in online learning is viewed from 3 dimensions, namely cognitive, emotional and behavioral involvement. This study uses a non-experimental quantitative research design and is analyzed using Partial Least Square (PLS). Data was collected using a questionnaire and distributed to students in Indonesia. The study results show that learning using blended learning initial abilities, learning independence, and self-confidence affect student involvement.

Keywords – Ability; Independence; Attitude; Blended Learning

1. Introduction

The use of information and communication technology is now massively used in various aspects of life. This requires educators to see the fact that the world is changing. Changes occur in all aspects of technology, economy, politics and education. In Indonesia, the use of information technology for education is widely known, namely distance learning, including online learning, combination learning or blended learning, Massive Open Online Courses and others. Blended learning allows students greater freedom in how and when they interact in a virtual classroom context. Blended learning differs from traditional classes because computer screens separate students from their lecturers. On the positive side, this transition encourages all educational institutions to involve technology in learning.

On the other hand, comprehensive online learning requires design, such as audio and video content, which is appropriate to the learning material on a particular topic (Siron et al., 2020). The problem that often arises in Blended Learning is the lack of student involvement in learning (Ni, 2013). In other words, student learning outcomes can be less than optimal due to a lack of student involvement in learning (Cohen, 2017; Jordan, 2014). The time and frequency of student involvement in accessing the learning environment are one of the success factors in achieving results in online learning (Song et al., 2019). Thus, student involvement in blended learning is one of the problems. There are two main reasons for examining student involvement in this research. The first reason is the increasing number of higher education institutions adopting technology-mediated education and assisting higher education in managing education, which will certainly impact the investment these institutions have (Dixson, 2010). The second reason is that Blended Learning is very complex and competitive because students can take online and offline classes anywhere and anytime. Therefore, student involvement is the key to maintaining student interaction and is a predictor of success in learning. The involvement of students in the learning process has attracted much attention from educational researchers. Today there are many technologies has been implemented in online learning to support students to increase engagement and learning outcomes. Student involvement consists of several dimensions, namely behavioral involvement, emotional involvement, and cognitive involvement. The merging of these three sub-dimensions is, in fact, dynamically interrelated within each individual (Fredricks et al., 2004). Behavioural engagement includes student attention and effort in participating in the learning process, being directly involved with learning objects, having the courage to ask questions in public, and the time spent accessing

learning resources. In addition, cognitive engagement includes focus, elaboration, self-regulated interest, and psychological investment in learning.

Meanwhile, anxiety, boredom, happiness, interest, passion, and student interactions are representations of emotional involvement (Henrie et al., 2015). Initial skills, independent learning, and students' attitudes as active learners are needed to increase student involvement in blended learning. Initial ability or prior knowledge is knowledge, skills, or abilities that a learner brings to his or her learning environment before the learning process begins (Jonassen & Grabowski, 2012). The initial ability has long been considered an important factor affecting learning and achievement. Trying to learn something without having sufficient prior knowledge can result in learning outcomes at the lowest level or just memorization. Learning outcomes like this can occur if students cannot relate new knowledge to their previous knowledge framework (Hailikari et al., 2007). Some literature states that there are two types of initial abilities in each individual, declarative knowledge, namely the students' initial ability to understand something. At the same time the second is procedural knowledge, namely the initial ability to know how the procedure does something (Hailikari et al., 2007). Referring to Anderson (2020) that declarative knowledge can be interpreted by "knowing what", while procedural knowledge can be interpreted by "knowing how". Hence, considering the different nature of these knowledge states, different valuation methods should be used to assess the two types of knowledge. As stated in the revision of Bloom's taxonomy Anderson et al (2001), a distinction is made between different types of knowledge and cognitive processes. The taxonomy presents the desired learning products, namely the types of knowledge to be learned and the cognitive processes in which knowledge can vary in level.

When starting the learning process, a student does not come in a state without knowledge and ability but has knowledge and experience of the material to be studied. Students' previous knowledge is stored in existing mental models and then used to interpret and assimilate new knowledge that will be learned (Anderson, 2020). Several previous studies have found that the amount and quality of initial abilities positively influence knowledge acquisition and the capacity to apply high-level cognitive problem-solving skills (Dochy et al., 1999). Differences in a student's initial abilities also affect the differences in their learning outcomes and enable them to achieve meaningful learning (Bledsoe & Flick, 2012; Tobias, 1994).

The importance of measuring the initial ability of a student should be a consideration for instructors in designing learning strategies before carrying out the teaching process. For instructors, a person's initial ability can provide valuable

information and predictions to improve and plan effective strategies in the learning process according to learning needs. Pretests are given to students before they start learning to determine whether they have previously mastered some or all of the material that will be included in the learning process (Dick et al., 2015). Therefore, the initial ability is not only to show learning outcomes after being compared with evaluation results at the end of learning but also useful for student profiles for instructional analysis. As for the benefits for students, initial ability tests can provide self-evaluation information that helps make them aware of previous knowledge and prepares them towards new learning materials to mobilize their pre-existing knowledge (Dochy et al., 1999).

Learning independence is a process of someone taking the initiative to learn with or without the help of others, diagnosing their own learning needs (Sumarmo, 2004). Learning independence is an ability to generate encouragement for yourself on an ongoing basis and always to be involved in solving problems. Referring to this opinion, independent learning is a student learning activity in learning that is driven by their own will without relying on others to solve problems. According to Zimmerman (2002) independent learning is related to the ability to regulate oneself. Learning to regulate oneself is voluntary in setting goals, setting various regulatory efforts to achieve goals, managing time, and setting social and physical environments.

According to Aristohadi (2008) in Ghufron & Suminta (2010) that there are four indicators, personal autonomy, self-management in learning, achieving freedom to learns (the independent pursuit of learning), and learner control over learning. Of instruction). Sumarmo (2004) explains three characteristics of learning independence: individuals designing their learning according to individual needs and goals, choosing strategies and carrying out their learning designs, monitoring their learning progress and comparing to certain standards. Measurement of learning independence in this study includes six dimensions, namely, the relationship between teacher and students remains but is not dependent, knowing when to ask for help and need help, knowing to whom and where to get help, knowing when to use learning media, knowing how to use media, and knowing various effective learning strategies (Nurhayati, 2018).

Self-confidence is one of the 18 character values contained in character education. In social life, many important moral values, including self-confidence, need to be instilled in students to support the learning process. According to Ghufron & Suminta (2010) self-confidence is the belief to do something for the subject as a personal characteristic in which there is self-ability, optimism, objective, responsibility, rational and realistic.

2. Method

This study uses a non-experimental quantitative research design. Four research variables are measured: initial ability, learning independence, self-confidence, and student involvement in online learning. The initial ability variable is measured from the aspect of skills in using information technology, the willingness to use information technology, the availability of information technology, and confidence in the reliability of information technology. Learning independence is measured by not being dependent on others, having disciplined behavior, behaving based on initiative, and exercising self-control. Self-confidence is measured by confidence in using information technology, confidence in asking and answering questions, confidence in expressing opinions, and confidence in completing tasks alone. Student involvement in online learning consists of three dimensions: cognitive, emotional, and behavioural. The relationship between the variables of this study is described as follows.

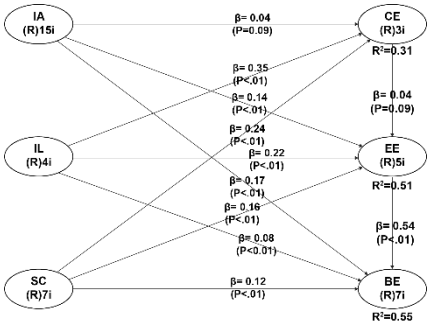

Figure 1. Relationship between Initial Ability (IA), Independent Learning (IL), and Self-Confidence (SP) variables on Cognitive Engagement (CE), Emotional Engagement (EE), and Behavioral Engagement (BE)

The research respondents were undergraduate, master and doctoral students at tertiary institutions throughout Indonesia, totalling 1013 students. A convenience sampling technique was used. Respondents were given questionnaires directly via the Google form by researchers and assisted by lecturers from universities in Java, Sumatra, Kalimantan, Sulawesi, Bali and West Nusa Tenggara.

The instrument used in this study was a questionnaire using a Likert scale point answer choice of 4 points ranging from strongly disagree (1) to strongly agree (4) given as response options for all items. Before the data collection, a small-scale trial was conducted on students at Surabaya State University to ensure the suitability of wording, format and layout. The data that has been collected is analyzed using Partial Least Square (PLS).

3. Result and Discussion

Hypothesis test

Hypothesis testing is used to test whether there is an effect of exogenous variables on endogenous variables. The test criteria state that if the path coefficient is positive and the probability ≤ level of significance (Alpha (α) = 5%), then it is stated that there is a positive and significant effect of the exogenous variables on the endogenous variables. The results of hypothesis testing can be known through the following table:

Table 1. Testing the hypothesis of initial ability variables, learning independence, and self-confidence towards cognitive involvement, emotional involvement, and behavioral involvement

Exogenous	Endogenous	Path Coefficients	SE	P values	Information
Initial Ability	Cognitive Engagement	0.041	0.031	0.094	Insignificant
Independence Learning	Cognitive Engagement	0.349	0.03	<0.001	Significant
Self-Confidence	Cognitive Engagement	0.238	0.031	<0.001	Significant
Initial Ability	Emotional Engagement	0.145	0.031	<0.001	Significant
Independence Learning	Emotional Engagement	0.219	0.031	<0.001	Significant
Self-Confidence	Emotional Engagement	0.164	0.031	<0.001	Significant
Cognitive Engagement	Emotional Engagement	0.474	0.030	<0.001	Significant
Initial Ability	Behavioral Engagement	0.172	0.031	<0.001	Significant
Independence Learning	Behavioral Engagement	0.078	0.031	0.006	Significant
Self-Confidence	Behavioral Engagement	0.119	0.031	<0.001	Significant
Emotional Engagement	Behavioral Engagement	0.545	0.030	<0.001	Significant

The effect of early ability on cognitive engagement produces a path coefficient of 0.041 with a probability value of 0.094. These results indicate that the probability value > level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is no significant effect of initial ability on cognitive engagement. The effect of independent learning on cognitive engagement produces a path coefficient of 0.349 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on cognitive engagement. The effect of self-confidence on

cognitive engagement produces a path coefficient of 0.238 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that self-confidence has a significant effect on cognitive engagement.

The effect of initial ability on emotional involvement produces a path coefficient of 0.145 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of initial ability on emotional involvement. The effect of independent learning on emotional involvement produces a path coefficient of 0.219 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on emotional involvement. The effect of self-confidence on emotional involvement produces a path coefficient of 0.164 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of the attitude of responsibility on emotional involvement.

The effect of cognitive involvement on emotional involvement produces a path coefficient of 0.476 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of cognitive involvement on emotional involvement.

The effect of initial ability on behavioral engagement produces a path coefficient of 0.172 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of initial ability on behavioral engagement. The effect of independent learning on engagement behavior produces a path coefficient of 0.078 with a probability value of 0.006. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on behavioral engagement. The effect of self-confidence on engagement behavior produces a path coefficient of 0.119 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of self-confidence on engagement behavior. The effect of emotional involvement on behavioral involvement produces a path coefficient of 0.545 with a probability value of <0.001. These results indicate that the probability value < level of significance (Alpha (α) = 5%). Therefore, it can be

interpreted that there is a significant influence of emotional involvement on behavioral engagement.

Indirect Effect Hypothesis

Testing the indirect effect hypothesis is intended to test whether exogenous variables have an indirect effect on endogenous variables through mediating variables. The test criteria state that if the p value≤ level of significance (Alpha (α) = 5%), then it is stated that there is a significant influence of exogenous variables on endogenous variables through mediating variables. The results of the analysis can be seen through a summary in the following table:

Table 2. Testing the indirect effect hypothesis on initial ability, independent learning, and self-confident attitudes towards cognitive involvement, emotional involvement, and behavioral involvement

Exogenous	Mediation 1	Mediation 2	Endogenous	Indirect Effect	SE	P-Value	Information
IA	CE		EE	0.019	0.015	0.167	Insignificant
IA	EE		BE	0.079	0.017	0.000	Significant
IA	CE	EE	BE	0.011	0.011	0.260	Insignificant
IL	CE		EE	0.165	0.018	0.000	Significant
IL	EE		BE	0.119	0.018	0.000	Significant
IL	CE	EE	BE	0.090	0.011	0.000	Significant
SC	CE		EE	0.113	0.016	0.000	Significant
SC	EE		BE	0.089	0.018	0.000	Significant
SC	CE	EE	BE	0.061	0.010	0.000	Significant
CE	EE		BE	0.258	0.022	0.000	Significant

The effect of early ability on emotional involvement through cognitive engagement produces a p value of 0.167. This shows that the p value > level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a non-significant effect of initial ability on emotional involvement through cognitive involvement. The effect of initial ability on behavioral involvement through emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of initial ability on behavioral engagement through emotional involvement. The effect of initial ability on behavioral engagement through cognitive and emotional involvement resulted in a p value of 0.260. This shows that the p value > level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is no significant effect of initial ability on behavioral engagement through cognitive involvement and emotional involvement.

The effect of independent learning on emotional involvement through cognitive involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on emotional involvement through cognitive involvement. The effect of independent learning on behavioral involvement through emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on behavioral involvement through emotional involvement. The effect of independent learning on behavioral involvement through cognitive involvement and emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of learning independence on behavioral involvement through cognitive involvement and emotional involvement.

The effect of self-confidence on emotional involvement through cognitive involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of self-confidence on emotional involvement through cognitive involvement. The effect of self-confidence on behavioral involvement through emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of self-confidence on behavioral engagement through emotional involvement. The effect of self-confidence on behavioral engagement through cognitive involvement and emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is no significant effect of self-confidence on behavioral engagement through cognitive involvement and emotional involvement. The influence of cognitive involvement on behavioral involvement through emotional involvement produces a p value of 0.000. This shows that the p value < level of significance (Alpha (α) = 5%). Therefore, it can be interpreted that there is a significant influence of cognitive involvement on behavioral involvement through emotional involvement.

Conversion of Path Diagrams into Structural

Models The conversion of the path diagram in the measurement model is intended to determine the direct and indirect effects. The model effects, directly or indirectly, are presented in the following table:

Table 3. The effect of the model directly or indirectly on the results of hypothesis testing in the conversion of the path diagram into a structural model of initial ability, learning independence, and self-confidence variables on cognitive involvement, emotional involvement, and behavioral involvement

Exogenous	Endogenous	Path Coefficients
Initial Ability	Cognitive Engagement	0.041
Independence Learning	Cognitive Engagement	0.349*
Self-Confidence	Cognitive Engagement	0.238*
Initial Ability	Emotional Engagement	0.145*
Independence Learning	Emotional Engagement	0.219*
Self-Confidence	Emotional Engagement	0.164*
Cognitive Engagement	Emotional Engagement	0.474*
Initial Ability	Behavioral Engagement	0.172*
Independence Learning	Behavioral Engagement	0.078*
Self-Confidence	Behavioral Engagement	0.119*
Emotional Engagement	Behavioral Engagement	0.545*

Based on the table above, the measurement model formed is as follows;

Equation 1: Y1 = 0.041 X1 + 0.349X2 + 0.238X3

From equation 1, it can be informed that: (1) The direct effect coefficient of early ability on cognitive engagement is 0.041, indicating that initial ability has a positive and insignificant effect on cognitive engagement. This means that a higher initial ability tends to increase cognitive engagement, even though the increase is insignificant; (2) The direct effect coefficient of learning independence on cognitive engagement is 0.349, which states that learning independence has a positive and significant effect on cognitive engagement. This means that the higher the independence of learning, it tends to increase cognitive engagement; (3) The direct effect coefficient of self-confidence on cognitive engagement is 0.238, indicating that self-confidence has a positive and significant effect on cognitive engagement. This means that higher self-confidence tends to increase cognitive engagement.

Equation 2: Y2= 0.145 X1 + 0.219X2 + 0.164 X3 + 0.474Y1

From equation 2, it can be informed that: (1) The direct effect coefficient of initial ability on emotional engagement is 0.145, indicating that initial ability has a positive and significant effect on emotional engagement. This means that the higher the initial ability tends to increase emotional involvement; (2) The direct effect coefficient of learning independence on emotional engagement is

0.219, which states that independent learning has a positive and significant effect on emotional engagement. This means that the higher the independence of learning, it tends to increase emotional involvement; (3) The direct effect coefficient of self-confidence on emotional engagement is 0.164, which states that self-confidence has a positive and significant effect on emotional engagement. This means that the higher the self-confidence, the more likely it is to increase emotional involvement; (4) The direct effect coefficient of cognitive engagement on emotional engagement is 0.474, indicating that cognitive involvement has a positive and significant effect on emotional engagement. This means that the higher the cognitive involvement, the more likely it is to increase emotional involvement (5) The indirect effect coefficient of initial ability on emotional involvement through cognitive involvement of 0.019 states that initial ability has a positive and insignificant effect on emotional involvement through cognitive involvement. This means that the better the cognitive engagement caused by the better the initial ability, the more emotional involvement tends to increase, even though the increase is insignificant; (6) The indirect effect coefficient of learning independence on emotional involvement through cognitive involvement of 0.018 states that learning independence positively and significantly affects emotional involvement through cognitive involvement. This means that the better cognitive engagement caused by better independent learning tends to increase emotional involvement; (7) The indirect effect coefficient of self-confidence on emotional involvement through cognitive involvement of 0.016 states that self-confidence has a positive and significant effect on emotional involvement through cognitive involvement. This means that better cognitive engagement caused by better self-confidence tends to increase emotional involvement.

Equation 3: Y3 = 0.172 X1 + 0.078X2 + 0.119 X3 + 0.545Y2

From equation 3, it can be informed that: (1) The direct effect coefficient of initial ability on behavioral engagement is 0.172, indicating that initial ability has a positive and significant effect on behavioral engagement. This means that the higher the initial ability, it tends to increase behavioral engagement; (2) The direct effect coefficient of learning independence on behavioral engagement is 0.078, indicating that learning independence has a positive and significant effect on behavioral engagement. This means that the higher the learning independence, the more likely it is to increase behavioral engagement; (3) The direct effect coefficient of self-confidence on behavioral engagement is 0.119, indicating that self-confidence has a positive and significant effect on behavioral engagement. This means that the higher the self-confidence, the more likely it is to increase behavioral engagement; (4) The direct effect coefficient of self-

confidence on behavioral engagement is 0.545 indicating that self-confidence has a positive and significant effect on behavioral engagement. This means that the higher the self-confidence, the more likely it is to increase behavioral engagement; (5) The indirect effect coefficient of initial ability on behavioral involvement through emotional involvement is 0.079, which states that initial ability has a positive and significant effect on behavioral involvement through emotional involvement. This means that the better the emotional involvement caused by, the better the initial ability, it tends to increase behavioral involvement; (6) The indirect effect coefficient of early ability on cognitive engagement and emotional involvement of 0.011 states that initial ability has a positive and insignificant effect on behavioral engagement through cognitive engagement and emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement caused by, the better initial abilities, it tends to increase behavioral involvement, even though the increase is insignificant; (7) The indirect effect coefficient of learning independence on behavioral involvement through emotional involvement is 0.165, which states that learning independence has a positive and significant effect on behavioral involvement. This means that the better the emotional involvement caused, the better the learning independence, and the more likely it is to increase behavioral involvement; (8) The indirect effect coefficient of learning independence on behavioral engagement through cognitive involvement and emotional involvement is 0.090, stating that learning independence has a positive and significant effect on behavioral involvement and emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement caused by, the better independent learning, it tends to increase behavioral engagement; (9) The indirect effect coefficient of self-confidence on behavioral involvement through emotional involvement is 0.089, which states that self-confidence has a positive and significant effect on behavioral involvement through emotional involvement. This means that the better the emotional involvement caused by the better self-confidence, the more likely it is to increase behavioral involvement; (10) The indirect effect coefficient of confidence on behavioral engagement through cognitive engagement and emotional involvement of 0.061 states that self-confidence positively and significantly affects behavioral engagement through cognitive engagement and emotional involvement. This means that the better the emotional involvement caused, the better cognitive involvement caused, and the better self-confidence, it tends to increase behavioral engagement; (11) The indirect effect coefficient of cognitive involvement on emotional involvement is 0.545, which states that

cognitive involvement has a positive and significant effect on behavioral involvement through emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement, it tends to increase behavioral involvement.

Dominant Influence

Exogenous Variables that have a dominant influence on endogenous variables can be identified through the largest total coefficient. The results of the complete effect analysis can be seen in the following table.

Table 4. The dominant influence of initial ability variables, learning independence, and self-confidence on cognitive involvement, emotional involvement, and behavioral involvement

Exogenous	Endogenous	Total Effect
Initial Ability	Cognitive Engagement	0.041
Independence Learning	Cognitive Engagement	0.349
Self-Confidence	Cognitive Engagement	0.238
Initial Ability	Emotional Engagement	0.164
Independence Learning	Emotional Engagement	0.237
Self-Confidence	Emotional Engagement	0.180
Cognitive Engagement	Emotional Engagement	0.474
Initial Ability	Behavioral Engagement	0.270
Independence Learning	Behavioral Engagement	0.288
Self-Confidence	Behavioral Engagement	0.299
Emotional Engagement	Behavioral Engagement	0.803

The table above informs that the variable with the greatest total effect on cognitive engagement is learning independence, with a total effect of 0.349. This learning independence is the variable that has the most influence or dominant influence on the cognitive engagement. The variable with the greatest total effect on emotional engagement is cognitive engagement, with a total effect of 0.474. This cognitive involvement is the variable that has the most influence or dominant influence on emotional involvement. The variable that has the greatest total effect on behavioral engagement is emotional involvement, with a total effect of 0.803. This emotional involvement is the most influential variable or dominant influence on behavioral engagement.

Discussion

Based on the results of data analysis using Partial Least Square (PLS), the following discussion can be carried out.

Initial ability, learning independence, and self-confidence significantly affect cognitive engagement. Initial ability, learning independence, and self-

confidence significantly affect emotional involvement. The cognitive engagement has a significant effect on emotional involvement. Initial ability, learning independence, and self-confidence significantly affect emotional involvement. Initial ability, learning independence, and self-confidence significantly affect behavioral engagement. Emotional involvement has a significant effect on behavioral engagement.

There is no significant effect of initial ability on emotional involvement through cognitive involvement, but there is a significant effect on behavioral involvement through emotional involvement. There is no significant effect of initial ability on behavioral engagement through cognitive involvement and emotional involvement. Independent learning has a significant effect on emotional involvement through cognitive involvement. There is a significant influence of independent learning on behavioral engagement through emotional involvement.

Independent learning has a significant effect on behavioral involvement through cognitive and emotional involvement. Self-confidence has a significant effect on emotional involvement through cognitive involvement. Self-confidence also has a significant effect on behavioral engagement through emotional involvement. Self-confidence has a significant effect on behavioral engagement through cognitive involvement and emotional involvement. Cognitive engagement has a significant effect on behavioral engagement through emotional involvement.

The coefficient of a direct effect on early ability has a positive and insignificant effect on cognitive engagement. This means that a higher initial ability tends to increase cognitive engagement, even though the increase is insignificant. Learning independence has a positive and significant effect on cognitive engagement. This means that the higher the independence of learning, it tends to increase cognitive engagement. Self-confidence has a positive and significant effect on cognitive engagement. This means that higher self-confidence tends to increase cognitive engagement.

The coefficient of direct effect is that initial ability has a positive and significant effect on emotional involvement. This means that the higher the initial ability tends to increase emotional involvement. Learning independence has a positive and significant effect on emotional engagement. This means that the higher the independence of learning, it tends to increase emotional involvement. Self-confidence towards emotional involvement of 0.164 states that self-confidence positively and significantly affects emotional involvement. This means

that the higher the self-confidence, the more likely it is to increase emotional involvement. The cognitive engagement has a positive and significant effect on emotional engagement. This means that the higher the cognitive involvement, the more likely it is to increase emotional involvement.

The coefficient of an indirect effect on early ability has a positive and insignificant effect on emotional involvement through cognitive involvement. This means that the better the cognitive engagement caused, the better the initial ability and the more emotional involvement tends to increase, even though the increase is insignificant. Learning independence has a positive and significant effect on emotional involvement through cognitive involvement. This means that better cognitive engagement caused by better independent learning tends to increase emotional involvement. Self-confidence has a positive and significant effect on emotional involvement through cognitive involvement. This means better cognitive engagement caused by better self-confidence tends to increase emotional involvement.

The direct effect coefficient of initial ability on behavioral engagement shows that initial ability has a positive and significant effect on behavioral engagement. This means that the higher the initial ability, it tends to increase behavioral engagement. Learning independence has a positive and significant effect on behavioral engagement. This means that the higher the learning independence, the more likely it is to increase behavioral engagement. Self-confidence has a positive and significant effect on behavioral engagement. This means that the higher the self-confidence, the more likely it is to increase behavioral engagement. Self-confidence has a positive and significant effect on behavioral engagement. This means that the higher the self-confidence, the more likely it is to increase behavioral engagement.

The indirect effect coefficient of initial ability on behavioral involvement through emotional involvement results in the finding that initial ability has a positive and significant effect on behavioral involvement through emotional involvement. This means that the better the emotional involvement caused by, the better the initial ability, it tends to increase behavioral involvement. The initial ability has a positive but not significant effect on behavioral engagement through cognitive involvement and emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement caused by, the better initial abilities, it tends to increase behavioral involvement, even though the increase is insignificant. Learning independence positively and significantly affects behavioral engagement through emotional involvement. This means that the better the emotional involvement caused, the better the learning independence, and the more likely it is to increase behavioral involvement.

The indirect effect coefficient of learning independence on behavioral engagement through cognitive involvement and emotional involvement resulted in the finding that learning independence had a positive and significant effect on behavioral involvement and emotional involvement. This means that the better the emotional involvement caused by the better cognitive involvement caused by the better independent learning, it tends to increase behavioral engagement. Self-confidence has a positive and significant effect on behavioral engagement through emotional involvement. This means that the better the emotional involvement caused by the better self-confidence, the more likely it is to increase behavioral involvement.

The indirect effect coefficient of self-confidence on behavioral engagement through cognitive engagement and emotional involvement results in the finding that self-confidence has a positive and significant effect on behavioral engagement through cognitive engagement and emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement caused by, the better self-confidence, it tends to increase behavioral engagement. The cognitive engagement has a positive and significant effect on behavioral engagement through emotional involvement. This means that the better the emotional involvement caused by, the better cognitive involvement, it tends to increase behavioral involvement.

Learning independence is the variable with the greatest total effect on cognitive engagement. This learning independence is the variable that has the most influence or dominant influence on the cognitive engagement. Cognitive involvement is the variable with the greatest total effect on emotional involvement. Thus, cognitive involvement is the variable with the most influence or dominant influence on emotional involvement. Emotional involvement is the variable with the greatest total effect on behavioral engagement. This emotional involvement is the most influential variable or has the most dominant influence on behavioral engagement.

4. Conclusion

Based on the results and discussion above, initial self-knowledge influences students' cognitive, emotional and behavioral involvement in learning using blended learning. Independence affects the cognitive, emotional and behavioral involvement of students. Self-confidence also influences the cognitive, emotional and behavioral involvement of students. It is suggested that the learning process is optimal. It is necessary to involve cognitive, emotional, and

behavior by considering the factors of prior knowledge, learning independence, and self-confidence in students.

References

Anderson, J. R. (2020). Cognitive Psychology and Its Implications. In *Worth Publishers* (Vol. 13, Issue 1).

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., Jarrett, R. F., Thorndike, R. L., & Hagen, E. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives,* (Cabridged, Vol. 5, Issue 1). White Plains, NY: Longman. https://doi.org/10.2307/2281462

Bledsoe, K. E., & Flick, L. (2012). Concept development and meaningful learning among electrical engineering students engaged in a problem-based laboratory experience. *Journal of Science Education and Technology*, *21*(2), 226–245. https://doi.org/10.1007/s10956-011-9303-6

Cohen, A. (2017). Analysis of student activity in web-supported courses as a tool for predicting dropout. *Educational Technology Research and Development*, *65*(5), 1285–1304. https://doi.org/10.1007/s11423-017-9524-3

Dick, W., Carey, L., & Carey, J. O. (2015). The Systematic Design of Instruction Eight Edition. In *The United States of America: Pearson*.

Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of the Scholarship of Teaching and Learning*, *10*(2), 1–13. http://ezproxy.deakin.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=52225431&site=eds-live&scope=site

Dochy, F., Segers, M., & Buehl, M. M. (1999). The relation between assessment practices and outcomes of studies: The case of research on prior knowledge. *Review of Educational Research*, *69*(2), 145–186. https://doi.org/10.3102/00346543069002145

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Ghufron, M. N. N., & Suminta, R. R. (2010). *Teori - Teori Psikologi*. Ar-Ruzz Media.

Hailikari, T., Nevgi, A., & Lindblom-Ylänne, S. (2007). Exploring alternative ways of

assessing prior knowledge, its components and their relation to student achievement: A mathematics based case study. *Studies in Educational Evaluation*, *33*(3–4), 320–337. https://doi.org/10.1016/j.stueduc.2007.07.007

Henrie, C. R., Halverson, L. R., & Graham, C. R. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers & Education*, *90*, 36–53. https://doi.org/10.1016/j.compedu.2015.09.005

Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. *International Review of Research in Open and Distributed Learning*, *15*(1), 133–160. https://doi.org/10.19173/irrodl.v15i1.1651

Ni, A. Y. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education*, *19*(2), 199–215. https://doi.org/10.1080/15236803.2013.12001730

Nurhayati, E. (2018). *Psikologi Pendidikan Inovatif* (Vol. 2, Issue 1). Pustaka Pelajar.

Siron, Y., Wibowo, A., & Narmaditya, B. S. (2020). Factors affecting the adoption of e-learning in Indonesia: Lesson from Covid-19. *JOTSE: Journal of Technology and Science Education*, *10*(2), 282–295. https://doi.org/10.3926/jotse.1025

Song, D., Rice, M., & Oh, E. Y. (2019). Participation in online courses and interaction with a virtual agent. *International Review of Research in Open and Distributed Learning*, *20*(1). https://doi.org/10.19173/irrodl.v20i1.3998

Sumarmo, U. (2004). Kemandirian belajar: apa, mengapa, dan bagaimana dikembangkan pada peserta didik. *Seminar Nasional FPMIPA UNY Yogyakarta*, *8*(1983), 1–9.

Tobias, S. (1994). Interest, prior knowledge, and learning. *Review of Educational Research*, *64*(1), 37–54. https://doi.org/10.3102/00346543064001037

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102