



Performance Expectancy, Self-Efficacy, and Behavioral Intention: Enhancing College Students' Digital Literacy

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ABSTRACT

This study investigates the influence of Performance Expectancy, Self-Efficacy, and Behavioral Intention on students' Digital Literacy in the digitalization era. Using a quantitative research approach, Structural Equation Modeling-Partial Least Squares (SEM-PLS) was employed to analyze data collected through a questionnaire distributed to 355 students at Universitas Lambung Mangkurat. The questionnaire items were adapted from validated instruments used in prior research studies. The findings reveal that Self-Efficacy, Performance Expectancy, and Behavioral Intention each have a significant positive impact on students' Digital Literacy. Specifically, Self-Efficacy is shown to enhance students' Performance Expectancy, which, in turn, positively influences their Behavioral Intention to engage with digital technologies. These results underscore the pivotal role of digital competence and the need for universities and students alike to embrace digital transformation in learning processes. By fostering a supportive environment for developing Self-Efficacy and aligning expectations regarding technology's benefits, educational institutions can promote more effective digital literacy skills, thereby enhancing student preparedness for a rapidly evolving digital era.

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1. INTRODUCTION

The emergence of digitalization over the past few years, especially in Indonesia, has made digital literacy take on a major role in our society and has become an important concern for institutions and policy makers (Testers et al., 2020). The rapid advancement of technology has

also penetrated the world of education, resulting in changes in behavior in teaching and learning activities, learning resources, and learning technology (Elmunsvah et al., 2018).

Digital literacy provides a series of abilities, including 1) Accessing and searching for information efficiently and effectively using a variety of digital tools, 2) Critically evaluating source constraints for academic contexts, 3) Filtering, managing, and organizing information from a variety of sources, and 4) Understanding how to use digital tools for references to avoid plagiarism (Nikou & Aavakare, 2021).

Understanding digital literacy is needed not only in primary and secondary education but also in higher education. Students who are currently in college are in generation Z, where generation z is very close to the internet and online (Menon & Fink, 2019). So of course they understand how to access and organize information, but they still don't really understand how to apply this knowledge in learning (Monteiro & Leite, 2021).

In facing this digital era, where students as generation z are expected to be able to create a golden Indonesia that can participate. That way, students must have new literacy competencies, namely digital literacy. Recently, digital technology has gained popularity as the main tool in education in the digital era. In line with that, digital literacy creates opportunities to integrate the intellectual capital of society into sustainable development. Especially during the recent Covid-19 pandemic. Making learning and teaching activities at every level of education stop due to restrictions on activities set by the government. With the advancement of technology, the teaching and learning process can still be carried out by utilizing existing digital technology in the form of WhatsApp Group, zoom, and other platforms. Making us have to be ready to face the possibilities that will happen in the future and be literate in developing technology.

Digital transformation acts as an assistant to help a person absorb knowledge more effectively which can improve the degree of education distribution and there is a close relationship between the educational environment and digital technology. Technology is no longer a tool for entertainment but contributes to changing the traditional way of teaching and distributing education with paper and textbooks (Laakso et al., 2018).

Digital technology certainly also has a negative impact on today's young generation, one of which is that it makes them antisocial and distorts existing ethics (Tsatsou, 2016). Thus, effective digital literacy instruction requires cooperative efforts from educators/teachers to respect and trust each other with students and vice versa.

In facing the digitalization era, of course, an understanding of digital literacy is needed. So we need to know whether digital literacy gives students confidence that digital technology is useful and provides benefits in the learning process (performance expectations). However, it also requires confidence in the students themselves that they are able to use digital technology (self-efficacy). That way it will raise their intention to use digital technology and want to learn digital technology (behavioral intention). In this article, it is significant to measure and estimate the influence of digital literacy (DL) on students' performance expectations (PE), self-efficacy (SE), and behavioral intentions (BI).

DL is the awareness, attitude, and ability of individuals to use digital tools and devices appropriately to identify, use, manage, integrate, evaluate, analyze, and synthesize digital resources, build new knowledge, create media expressions, and communicate with others, enabling constructive social activities in certain life situations and seeing a series of processes (Koltay, 2011).

The concept of DL includes the following elements and their respective skills, namely 1) Basic - the ability to read, write and use technological devices; (2) Background knowledge - understanding the paths, sources and sources of digital creation; (3) Central competencies - the

ability to gather knowledge from various sources; and (4) Attitudes and perspectives (Monteiro & Leite, 2021).

In previous studies, it has been shown that DL is positively related to performance expectations (Mohammadyari & Singh, 2015). This is also in accordance with other research that DL has a significant relationship with PE (Jang et al., 2021). Therefore, we propose that higher levels of digital literacy not only have a direct effect on the intention to use digital technology but also positively affect the productivity of university students. Previous studies have also shown that digital literacy has a positive relationship with behavioral intentions to use digital technology in learning. And this study also states that digital literacy with SE also has a positive relationship (Le et al., 2022).

PE defines the extent to which a person believes that using a system will help them gain benefits in job performance (Mohammadyari & Singh, 2015). PE refer to the extent to which the use of digital technologies benefits staff and students in carrying out their teaching and learning activities. (Monteiro & Leite, 2021). PE is explained using five constructs from the previous model/theory, namely 1. Perceived Usefulness, which is the extent to which someone believes that using a particular system will improve work performance, 2. Extrinsic Motivation, which is the belief that users want to do activities because they are considered to have a role in achieving valuable results that are different from the activity itself, such as increased performance, salary, or promotion, 3. Job-fit, which is how a system's ability improves individual job performance, 4. Relative Advantage, which is the extent to which the use of the innovation is considered better than the use of previous innovations, 5. Outcome Expectations, associated with expectations of results related to behavioral consequences. Based on empirical evidence, they are divided into performance expectations and personal expectations (Brown et al., 2010).

PE refers to the extent to which the use of digital technology benefits university staff and students in carrying out their teaching and learning activities. The definition used in this study is an adaptation of the performance expectancy construct (Chen & Zhou, 2016), where the construct has been used in both organizational and consumer contexts. Performance expectancy has received varying degrees of scholarly attention in educational contexts, for example (Abu-Al-Aish & Love, 2013; Diep et al., 2016; Nassuora, 2013). In terms of the effect of performance expectancy on intention, previous studies have shown that PE can indeed be a significant predictor of intention. SE is an individual's perception of how well he or she can function in a particular situation, as well as the belief that he or she has the ability to take the necessary actions. High self-efficacy tends to support self-confidence and independence (Sadaf & Gezer, 2020). Students with high SE are more likely to determine appropriate actions to support independent learning outcomes compared to students with low SE (Zimmerman, 1990). This is due to the ability of high self-efficacy to regulate oneself and motivate oneself to engage with the learning process environment, so that students tend to accept significant responsibility for their learning goals.

Self-efficacy refers to an individual's belief in his or her ability to perform the behaviors necessary to produce a given performance. It is not concerned with overall skill, but focuses only on judgments about what people can do with whatever skills they have (Le et al., 2022). From this understanding it shows that self-efficacy is not only general, but related to certain situations. Here, individuals can assess themselves as very good in certain areas, but feel less competent in certain areas.

Self-directed learning often involves understanding how to access and utilize different sites for learning resources. With self-efficacy, it will grow the individual's confidence in their sensitivity in fulfilling and completing the tasks or responsibilities they carry. So that they are able to overcome existing obstacles and achieve the expected goals by achieving the expected

results. In previous studies, it has been shown that digital literacy has a positive contribution to SE (Prior et al., 2016). Other studies also show that SE has a positive relationship with PE (Le et al., 2022).

BI of Use is the behavioral tendency to use a technology (Rafi et al., 2019). BI describes how a person will act using technology in the future. The role of BI as a predictor of use behavior has been widely accepted in various user acceptance models. Most behavioral reactions based on intention reflect conscious plans or decisions (Rhodes & Dickau, 2013). Theory of Planned Behavior (TPB) was developed to predict individual behavioral intentions toward certain effects. Then, TPB controls that individual behavioral intentions are directly influenced by motivating factors in their decisions designing mental processes (Ajzen, 2011). Most behavioral reactions based on intention reflect conscious plans or decisions. TPB was developed to predict individual behavioral intentions towards certain effects. The aspects of behavioral intention are as follows; 1) Desire is a condition where someone has the intention to use the application without having an obligation to be fulfilled immediately. 2) Intention can be defined as the purpose and goal (will or desire in the heart) of someone to use the application. 3) Plan is a concept that will be made in the future to continue using the application (Rhodes & Dickau, 2013). Previous research showed a positive relationship between Performance Expectancy and Behavioral Intention to use digital technology. This study also states that there is a positive and significant relationship between digital literacy and behavioral intention (Le et al., 2022).

2. METHOD

2.1 Research Design and Data

This study uses a quantitative approach by analyzing comparative causality between variables involving four variables, namely BI, SE, PE, and DL. This research was conducted at Lambung Mangkurat University, South Kalimantan, especially. Research data were obtained through a survey using e-form assistance for distributing questionnaires. A total of 355 respondents filled out the questionnaire. This sampling used stratified random sampling with data analysis using Structure Equation Modeling-Partial Least Square (SEM-PLS). The Responden of this study were students at Lambung Mangkurat University. This study used quantitative descriptive through the survey method. The number of population of 3,000 - 3,500 requires a minimum sample size of 312 and 317, therefore the sample of this study was 355 students with a proportional stratified random sampling technique with the Slovin formula (error = 5%), namely: $N = N / (1 + Ne^2)$, $N = 3,185 / (1 + (3,185 \times 0.05^2))$, $N = 355$.

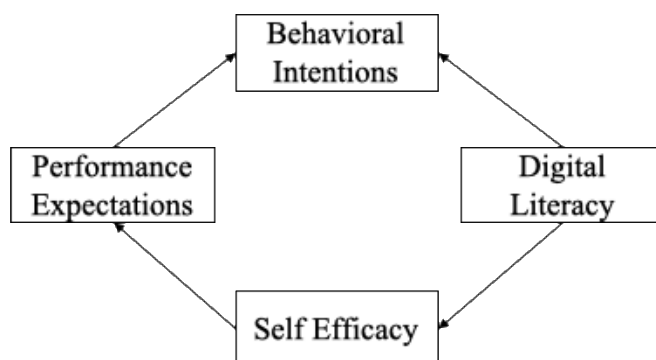


Figure 1. *Conceptual Framework*

2.3 Instruments and Measurements

This research questionnaire was built based on a literature review and modified from previous research. To measure DL, we included 5 questionnaires from by Nikou & Aavakare, (2021). PE, SE, and BI used each of the 5 questionnaires used by Jang et al. (2021). The instrument in this study was to measure PE, SE, BI, and DL using a questionnaire. Participants' responses to items used a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Table 1. Results of Stage 1 Instrument Measurements

No	Code	Variable	Loading Factor
1	DL	Digital Literacy	
	DL01	I can operate a computer or something similar	0.829
	DL02	I can understand and use MS. Word, Power Point, and Excel well and fluently	0.795
	DL03	I can operate e-learning	0.873
	DL04	I can share information using Gmail	0.833
	DL05	I can use social media such as YouTube and Instagram if later asked to upload assignments	0.601
2	PE	Performance Expectations	
	PE01	Digital technology makes it easier for me to collaborate with friends	0.878
	PE02	Digital technology is very useful to support my learning activities	0.897
	PE03	Using technology increases my chances of achieving things that are important to me	0.817
	PE04	Using digital technology helps me get things done faster	0.859
	PE05	Digital technology makes me antisocial or makes it difficult to get along with others	-0.053
3	SE	Self-Efficacy	
	SE01	I am able to use a computer or something similar	0.863
	SE02	I can find information myself without help from others	0.739
	SE03	I easily understand the updates of existing technology	0.837
	SE04	I can operate google in making (g-docs, g-sheet, g-form, g-drive, g-mail, and g-meet)	0.811
	SE05	I can complete goals quickly because of technology	0.766
4	BI	Behavioral Intention	
	BI01	I will not hesitate to use digital technology to access information when I want or need to learn something	0.787
	BI02	I will continue to use digital technology for learning purposes	0.871
	BI03	I plan to use digital technology to search for information when I want or need to learn something	0.912
	BI04	I use digital technology because it is easy to get information	0.912
	BI05	I do not intend to use digital technology to obtain information when I want or need to learn something	-0.005

Table 1. informs about the results of the first stage instrument measurement. Overall, the value of the loading factor ranges from 0.739 to 0.912 (more than 0.70). So this study can be ascertained to meet convergent validity. However, there are several items that do not meet the criteria (<0.70) are items NP05 (-0.005), LD05 (0.601), and HK05 (-0.053). So items that do not meet the criteria are eliminated to obtain an appropriate structural model.

2.4 Structural Capital Estimation

This study uses multivariate data analysis as an effort to test the research hypothesis developed based on theory. This study calculates the outer model and inner model as the main requirements for examining the structural model in this study. The outer model estimation test

includes convergent validity, discriminant validity, and composite reliability validity to meet the testing criteria. The criteria for determining convergent validity in the study are when the factor loading is >0.70 and the mean extract variance (AVE) is >0.50 (Hair, Howard, & Nitzl, 2020). To achieve discriminant validity, the cross-loading value must be >0.70 and the Heterotrait-monotrait Ratio (HTMT) <0.90 (Hair, Howard, & Nitzl, 2020). Achieve reliability in the model, the Cronbach's alpha value must be >0.70 .

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Outer Model Prediction

Table 2 shows that the respondents from the E-questionnaire involved in this study amounted to 355 answers. The E-Questionnaire that the researcher distributed met the requirements of the number of samples used. With a population of 3,185 students, 355 students were needed to be used as samples in this study. The characteristics of this study are active students at Lambung Mangkurat University. The characteristics of the respondents in this study include gender and Class. The results of the respondent description show that based on gender, the respondents in this study were dominated by women.

Table 1. above shows that there are 3 items that must be eliminated. After the items are eliminated, the second stage of instrument measurement is carried out on the research instrument by re-specifying it until all factor loadings can meet the convergent validity criteria (>0.70). Table 3. provides information from the results of the second stage of instrument measurement that has been re-specified. So it can be seen that all factor loadings have met the convergent validity criteria (>0.70).

Furthermore, the research instrument to achieve Discriminant Validity (DV), the AVE value must be above 0.50. Table 2. explains that the AVE value of the LD construct (0.730), HK (0.747), ED (0.647), and NP (0.761). It can be seen that the AVE value ranges from 0.647 to 0.761, so this meets the criteria of DV which is more than 0.50. Meanwhile, the composite reliability (CR) value in the CR table must be above 0.70 (Hair et al., 2020). Table 2. Shows that the CR value ranges from 0.901 to 0.927, this means that CR has met the criteria of composite reliability. To measure discriminant validity, this study also estimates using heterotraits. Discriminant validity is achieved when the ratio is below 0.90.

Table 2. Result of measurement model (outer model)

Construct	Item	Loading	Cronbach alpha	CR	AVE
DL	DL01	0.839	0,877	0,915	0,730
	DL02	0.842			
	DL03	0.893			
	DL04	0.842			
PE	PE01	0.879	0,887	0,922	0,747
	PE02	0.902			
	PE03	0.817			
	PE04	0.857			
SE	SE01	0.864	0,863	0,901	0,647
	SE02	0.739			
	SE03	0.837			
	SE04	0.811			
	SE05	0.763			

Construct	Item	Loading	Cronbach alpha	CR	AVE
BI	BI01	0.788	0,894	0,927	0,761
	BI02	0.871			
	BI03	0.912			
	BI04	0.911			

Table 3 shows that there is one construct > 0.90, namely the LD construct with SE (0.919), so that the value does not indicate discriminant validity. While the other heterotrait-monotrait values range from 0.639 to 0.821 indicating that discriminant validity has been confirmed.

Table 3. Heterotrait-monotrait ratio (HTMT)

Construct	SE	PE	DL	BI
SE				
PE	0,639			
DL	0,919	0,652		
BI	0,670	0,821	0,696	

3.1.2 Model Estimation in Structural

Table 4 shows the relationship between variables. There are 5 hypotheses that have a significant effect with a T value of more than 1.96 and a P value for each relationship below <0.05, including Self-Efficacy on Performance Expectations (T-Test = 2.638), Performance Expectations on Behavioral Intentions (T-Test = 10.039), Digital Literacy with Self-Efficacy (T-Test = 41.754), Digital Literacy with Performance Expectations (T-Test = 3.349), Digital Literacy with Behavioral Intentions (T-Test = 4.783).

Table 4. Path Coefficients and Hypothesis Testing Results

Hypothesis	Relationship	T-test	p-value	Results
H1	SE -> PE	2.638	0,009	Accepted
H2	PE -> BI	10.039	0,000	Accepted
H3	DL -> SE	41.754	0,000	Accepted
H4	DL -> PE	3.349	0,001	Accepted
H5	DL -> BI	4.783	0,000	Accepted

Based on the results of the second stage of the instrument research, it was also found that the direct influence of each hypothesis that was tested directly between variables. Table 6 shows that all original sample values have an influence of a variable on is in the same direction. So it can be concluded that all hypotheses have a direct influence with a positive relationship direction.

Table 5. *Direct Effect* (DL, PE, SE, and DI)

Hypothesis	Effect	Orig. Sample
H1	SE -> PE	0,265
H2	PE -> BI	0,575
H3	DL -> SE	0,808
H4	DL -> PE	0,367
H5	DL -> BI	0,288

3.1.3 Fit Model

Table 4 and Figure 2 convey information on hypothesis estimation in this study using a significance level of 5%. The study confirmed that all hypotheses were accepted. And in H3, namely the relationship between DL and SE, it has the highest significance level with a T-statistic of 41.754.

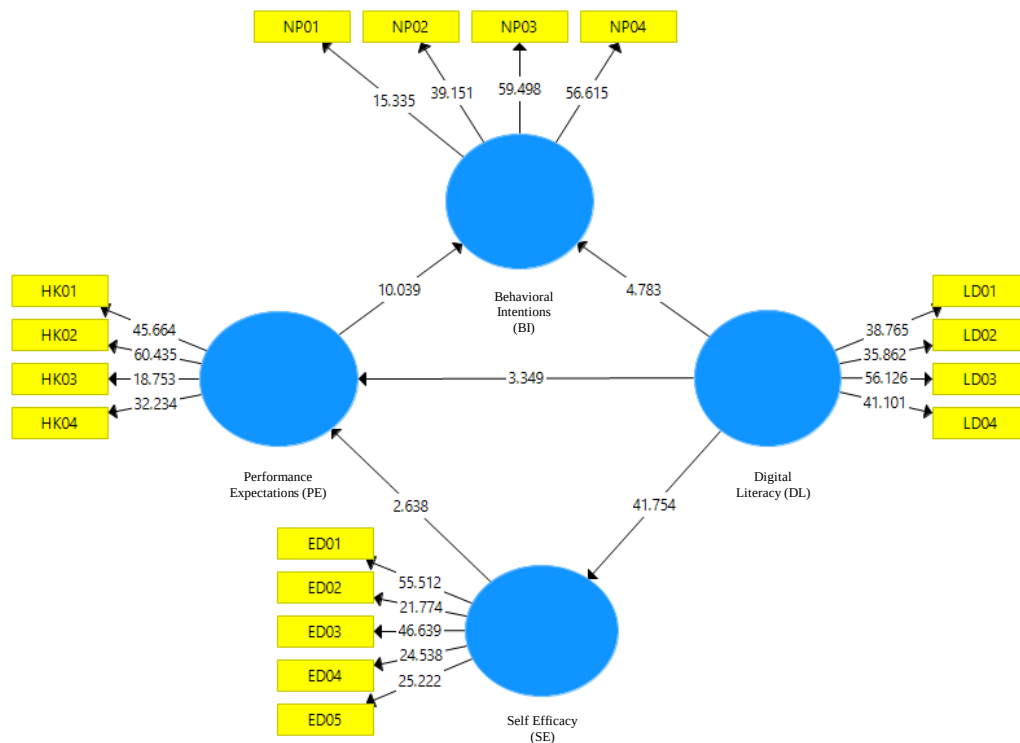


Figure 2. Direct Measurement and Structural Model Estimation

3.1 Discussion

The first hypothesis aims to test Self-Efficacy on Students' Performance Expectations. This study found that there is a positive and significant influence between Self-Efficacy on Students' Performance Expectations with digital technology. The higher the self-efficacy/self-confidence in the abilities possessed by students, the more students will be confident in using digital technology to gain benefits in student teaching and learning activities. The results of this study are in line with previous studies which show that Self-Efficacy has a positive effect on Performance Expectations (Le et al., 2022).

The second hypothesis found that there is a positive and significant influence between Performance Expectancy and Student Behavioral Intention. The higher the performance expectancy/confidence of students to use digital technology can help gain benefits in student teaching and learning activities, the higher the behavioral intention to use digital technology in learning. This finding is in line with previous research which shows a positive relationship between Performance Expectancy and Behavioral Intention to use digital technology in learning (Le et al., 2022; Oluwajana & Adeshola, 2021; Chua et al., 2018). Meanwhile, other findings show that performance expectations can indeed be a significant predictor of behavioral intentions (Diep et al., 2016; Nassuora, 2013).

The third hypothesis found that there is a positive and significant influence between Digital Literacy and Students' Self-Efficacy. This hypothesis is the hypothesis with the highest t-statistic value compared to other hypotheses. The better or more proficient students are in using digital technology, the more students will believe that their abilities and competencies in using digital technology can help learning. This finding is in line with previous research which shows a positive relationship between Digital Literacy and Self-Efficacy (Prior et al., 2016). In other findings, it was shown that digital literacy also influences self-efficacy directly and positively in terms of determining behavioral intentions in online learning activities (Le et al., 2022).

The fourth hypothesis found that there is a positive and significant influence between Digital Literacy and Students' Performance Expectations. The more proficient or better students are in using digital technology, the more they will believe that using digital technology will provide benefits in their learning process. This finding is in line with previous research which shows a positive relationship between Digital Literacy and Performance Expectations (Mohammadyari & Singh, 2015). This is also in accordance with other research that Digital Literacy has a significant relationship with Performance Expectations (Nikou & Aavakare, 2021 Jang et al., 2021)

The fifth hypothesis found that there is a positive and significant influence between Digital Literacy and Students' Behavioral Intentions. This finding is in line with previous research which shows a positive relationship between Digital Literacy and Behavioral Intentions (Le et al., 2022). But in other studies it also states that digital literacy is not significant with behavioral intentions, this is because most respondents are from millennials so they are assumed to be people who are literate in digital technology. Therefore, they assume that the use of digital technology for their learning activities is a natural thing (Nikou & Aavakare, 2021). The more proficient or better students are in using digital technology, the higher the behavioral intention of students to use digital technology in learning. So that with the increasing digital literacy, it will not only have a direct impact on the intention to use digital technology but will also have a positive impact on student productivity to understand the function of using digital technology for teaching and learning activities.

4. CONCLUSION

In conclusion, this study aimed to identify the factors influencing digital literacy among students at Lambung Mangkurat University in the current era of digitalization. By proposing and validating five hypotheses, we found that Self-Efficacy (SE), Performance Expectancy (PE), and Behavioral Intention (BI) significantly impact students' digital literacy (DL). Additionally, SE demonstrated a positive and significant influence on PE, while PE positively influenced BI. Among these factors, SE emerged as the most impactful variable on DL, as evidenced by its high T-Statistic value of 41.754. This finding emphasizes that self-confidence and independence in engaging with digital technologies are closely tied to an individual's perceived self-ability to take action and adapt. The study, however, faced limitations due to the scope of respondents, which were restricted to two batches of students from the Faculty of Teacher Training and Education (FKIP) at ULM through a survey approach. Future research should consider employing qualitative methods to provide a more in-depth understanding of the factors influencing digital literacy. Additionally, including other variables beyond the current model may offer a broader perspective on determinants affecting students' digital literacy.

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