# IMPROVING STUDENT LEARNING SATISFACTION THROUGH THE USE OF LEARNING MANAGEMENT SYSTEM IN BLENDED LEARNING TOURISM VOCATIONAL HIGHER EDUCATION IN JAKARTA

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## *Abstract*

*The 4.0 education era has transformed students into learning centers, and information technology is crucial. On the other hand, tourism vocational tertiary institutions must produce graduates with competencies that meet work demands. Without reducing the practical content in learning, the Blended Learning model is a solution for using technology to achieve this goal. This study aims to analyze the role of the Learning Management System (LMS) in blended learning on perceived technology acceptance, Self-efficacy, and student engagement in student learning satisfaction. Data were collected by surveying 314 LMS users across four Jakarta tourism vocational colleges. Having been analyzed with PLS-SEM, the findings indicate that student satisfaction in blended learning is significantly affected by student perceptions, engagement, and efficacy while using LMS. Informed by these findings, vocational tourism institutions should manage their LMS to improve the overall quality of blended learning and achieve their learning objectives in the era of education 4.0.*

***Keywords:*** *LMS Perception, Self-efficacy, Student Engagement, Student Satisfaction*

## 1. INTRODUCTION

The rapid development of information technology, especially the use of the internet and the industrial revolution 4.0, has influenced the world of higher education so that the term education 4.0 is known. The technological evolution that affects the education sector from time to time will ultimately require changes in pedagogy, teaching philosophy, educational models, information sources, learning methods, and the roles of students and lecturers.

The world of higher education is currently required to have a more efficient, accessible, and flexible teaching and information transfer process.
According to Ficci & Young (2017), Education 4.0 places students at the center of the learning ecosystem and empowers all potential students to achieve learning goals. Focus on experiential learning by utilizing various technology platforms, integrating with the work industry and society, and

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enabling learning through friends, social interaction, and everyday problems.

Tourism vocational higher education currently has challenges implementing information technology to support learning with a more significant practical learning content than academic higher education. The *blended* learning model allows tourism vocational higher education to implement information technology in the curriculum without reducing applicable learning content to ensure that graduates remain competent. " *Blend Learning* is a combination of face-to-face learning (offline) and *online learning* (online), which allows lecturers and students to utilize various learning media." The level of success in implementing *blended learning* is greatly influenced by the support for using software in the online learning model. *The Learning Management System* (LMS), with various features that provide multiple models of learning media, provides an alternative to information technology in online learning. In its development, LMS has facilitated educators and students with a virtual learning space that allows collaborative learning to be carried out synchronously or asynchronously. Learning activities through LMS can be developed by utilizing various features such as registration, distribution of teaching materials, interactions and assignments, and tests carried out online using a computer or smartphone. (Miranda et al., 2021) . With these multiple features, using LMS can support *blended learning* in achieving learning objectives. Using the Learning Management System (LMS) in *blended learning* has gradually improved learning and student learning outcomes. The application of LMS as an online learning medium is still not optimal; in 2019, only 53 study programs held face-to-face lectures combined with online courses (blended learning), and only 54 tertiary institutions under the auspices of the Director General of Higher Education utilized the SPADA Learning Management System (LMS). Indonesia for their learning (Ristekdikti, 2019).

Several previous studies revealed several facts related to using LMS in online learning. A study conducted at large private tertiary institutions in South Korea announced that involvement was still low in online learning behavior using LMS compared to the targets set by the institution, where only a few classes showed active online activity (Park et al., 2016) Research on student satisfaction in *blended learning* conducted by Cheng & Chau (2016) revealed that student satisfaction in using the LMS was not significantly influenced by access to the information provided and student involvement in interactive learning presented on the Moodle LMS platform. The research results related to student involvement in the use of LMS conducted by Pellas (2014) revealed that Self-efficacy positively influenced student involvement in cognitive and emotional aspects but was negatively correlated to behavioral aspects of student involvement in LMS. Student satisfaction related to student perception and Self-efficacy in using LMS also varies; these variables have a positive and significant correlation for female students. However, for male students, Self-efficacy and perceptions of using LMS have no significant effect on learning satisfaction.

Student satisfaction indicates the successful use of LMS in online learning. Technological readiness, internet connection quality, and technology implementation policies determine this. This can be realized if there is capability and trust between management and operational levels. Student satisfaction in using LMS is a positive attitude shown when using LMS, which is influenced by factors such as layout, color, ease of use, and perceived benefits. Implementing online learning through LMS requires student involvement in online education at LMS. Many studies have been used to measure the success of online learning models. Universities must examine

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student involvement aspects to improve learning outcomes (Jacob & Henriques, 2023). The active involvement of students in online learning requires their Self-efficacy and positive perception of the benefits of LMS as a learning medium. Student positive Self-efficacy is shaped by a cognitive weighting process using factors such as previous performance, self-perception of ability, effort expended, task difficulty, and amount of assistance received. Perceived use of LMS is one of the variables for measuring acceptance of technology use; positive perceptions that arise at later stages will motivate to apply and utilize LMS as a learning medium.

Based on the description and facts above and the findings of several previous studies that tested the use of LMS, showing inconsistent results, this research examines the relationship between student perceptions, Self-efficacy, *student engagement,* and student satisfaction with using the LMS platform in *blended learning.*

## 2. METHODS

The quantitative descriptive method is used to test the research hypothesis. This method uses a questionnaire with questions on a 5-point Likert scale. A survey was made to determine students' perceptions, efficacy, engagement, and learning satisfaction when using LMS as an online learning platform in a *blended learning model*. The research sample used purposive sampling, classified as *non-probability*

*random sampling.* The criteria for respondents were students. The respondents were students at vocational colleges in the DKI Jakarta area who had used LMS for online learning. To analyze the 314 data obtained, Smart PLS software was used to carry out data obtained using the SEM-PLS technique, a multivariate data analysis method for complex causal modeling. This analysis technique is known as variance-based structural equation modeling. In addition, SEM-PLS is a non-parametric method that does not involve data distribution assumptions.

The hypothesis and research framework proposed are as follows:
- H1: Perception *of using* LMS significantly and positively influences student *engagement.*
- H2: Self-efficacy has a significant and positive influence on student *engagement.*
- H3: Student engagement _ significantly and positively influences student learning satisfaction.
- H4: Perception *of* LMS use significantly and positively influences student learning satisfaction.
- H5: Self-efficacy has a significant and positive influence on student learning satisfaction.
- H6: Perception *of* LMS use significantly and positively influences student satisfaction through student *engagement.*
- H7: Self-efficacy significantly and positively influences student satisfaction through *student engagement.*

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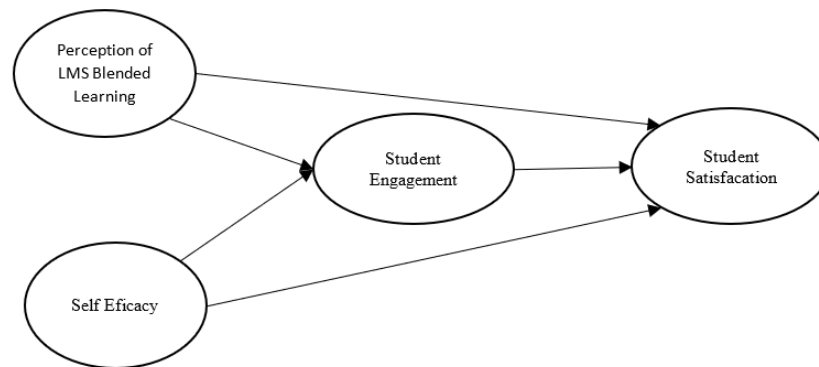
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Figure 1. Research Framework
Source: Research Data, 2023

## 3. RESULTS AND DISCUSSION

### 3.1 Data Description

In this study, respondents were categorized based on domicile, semester, level, and education and. Data analysis based on these characteristics shows that the most significant percentage of respondents are women (52.9% of the total respondents). The majority are diploma three program students, at 69.7%, diploma four at 28%, and the rest are diploma 1 and 2 students. When filling out the questionnaire, most respondents were educated in semester four, namely 33.4%, 30.6 in semester 2, 18.5% in semester six, and the rest in semesters 1, 3, 5, 7, and 8. Most of the respondents live in the DKI area Jakarta, which is 61.8%. The rest are scattered in the Bekasi, Depok, Tangerang, and Bogor areas.

### Outer Model Analysis

*Confirmatory Factor Analysis* (CFA) is an evaluation method for measuring *the outer model* used in this study. CFA measures *Cronbach's alpha*, *composite reliability, convergent,* and discriminant validity. The results of the CFA analysis are presented in Table 1.

Table 2: Confirmatory Factor Analysis (CFA)
Source: Data Analysis Results, 2023

| Latent Variable | Indicator | Outer Loadings | Composite Reliability (CR) | Alpha Cronbach | AVE |
|---|---|---|---|---|---|
| Perception of Blended Learning | PBL1 | 0.861 | 0.952 | 0.939 | 0.767 |
| | PBL2 | 0.824 | | | |
| | PBL3 | 0.918 | | | |
| | PBL4 | 0.921 | | | |
| | PBL5 | 0.873 | | | |
| | PBL6 | 0.853 | | | |
| Self-efficacy | EFI1 | 0.783 | 0.907 | 0.877 | 0.618 |
| | EFI2 | 0.798 | | | |
| | EFI3 | 0.824 | | | |
| | EFI4 | 0.749 | | | |
| | EFI5 | 0.790 | | | |
| | EFI6 | 0.772 | | | |

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| Latent Variable | Indicator | Outer Loadings | Composite Reliability (CR) | Alpha Cronbach | AVE |
|---|---|---|---|---|---|
| Student Engagement | ENGG1 | 0.784 | 0.919 | 0.890 | 0.696 |
|  | ENGG2 | 0.871 |  |  |  |
|  | ENGG3 | 0.860 |  |  |  |
|  | ENGG4 | 0.842 |  |  |  |
|  | ENGG6 | 0.810 |  |  |  |
| Student Satisfaction | SATIS1 | 0.893 | 0.943 | 0.924 | 0.769 |
|  | SATIS2 | 0.906 |  |  |  |
|  | SATIS3 | 0.915 |  |  |  |
|  | SATIS4 | 0.841 |  |  |  |
|  | SATIS5 | 0.827 |  |  |  |

*The outer loading* value for all research indicators is more significant than 0.70, shown in Table 2, stating that all the variable indicators studied fulfill the convergent validity requirements. According to the discriminant validity results, the AVE coefficient value of all constructs is more significant than 0.50, which means that all constructs in this study are valid. In addition, the composite reliability value and *Cronbach's alpha value* of all constructs showed a value greater than 0.70, meaning that the construct meets the requirements for reliable data.

### Inner Model Analysis

This research uses the inner VIF value, GoF value, Q2, and R2 to evaluate the structural model (*Inner Model*). The results of the internal VIF test are shown in Table 2 below:

Table 2: VIF Test
Source: Data Analysis Results, 2023

|  | Perception Of Blended Learning | Self-efficacy | Student Engagement | Student Satisfaction |
|---|---|---|---|---|
| **Perception Of Blended Learning** |  |  | 1,922 | 2,450 |
| **Self-efficacy** |  |  | 1,922 | 2,907 |
| **Student Engagement** |  |  |  | 3,511 |
| **Student Satisfaction** |  |  |  |  |

Multicollinearity testing between endogenous and exogenous variable structures is the first step in testing the inner model. According to the test results in *the Inner Model* found in Table 3, it can be concluded that the structural model of this study has moderate and vigorous predictive properties, indicating an overall VIF value of less than 5. So, this research model is perfect for explaining empirical data.

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Table 3: Inner Model Evaluation
Source: Data Analysis Results, 2023

| Variable | R2 | Q2 | GoF |
|---|---|---|---|
| Perception on LMS | | | |
| Self-efficacy | | | 0.721 |
| Student Engagement | 0.715 | 0.488 | |
| Student Satisfaction | 0.790 | 0.601 | |

**Hypothesis Testing**

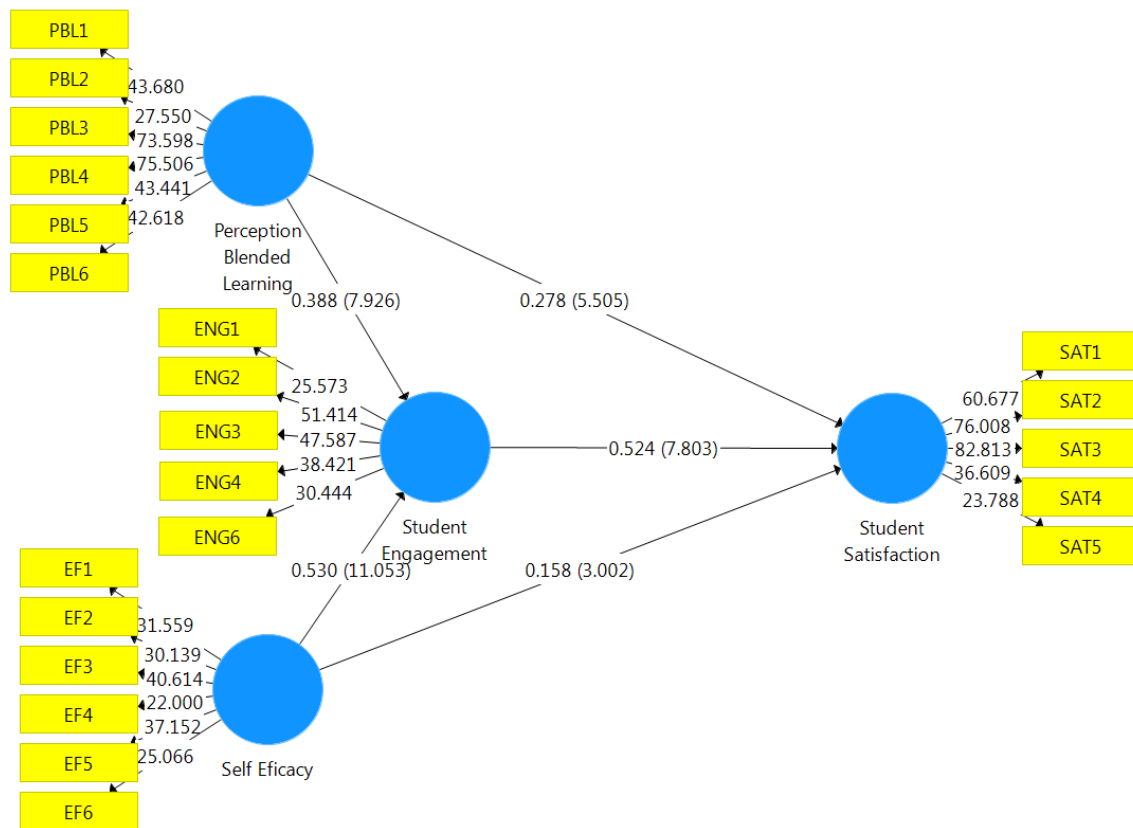Table 4 and Figure 2 show the results of the hypothesis test:



Figure 2. SEM modeling
Source: Research Data, 2023

Table 4: Path Coefficients Between Variables
Source: Data Analysis Results, 2023

| Construct Relationships | Path-Coefficients | T-Statistics | P-Values | Conclusion |
|---|---|---|---|---|
| **Direct Influence** | | | | |
| LMS Perception Student *Engagement* | 0.388 | 7,926 | 0,000 | Accepted |
| Student Efficacy Student →*Engagement* | 0.530 | 11,053 | 0,000 | Accepted |
| LMS Perception→ Student Satisfaction | 0.278 | 5,505 | 0,000 | Accepted |

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| Construct Relationships | Path-Coefficients | T-Statistics | P-Values | Conclusion |
|---|---|---|---|---|
| Efficacy Student → Student Satisfaction | 0.158 | 3,002 | 0.003 | Accepted |
| Student → *Engagement Student* Satisfaction | 0.524 | 7,803 | 0,000 | Accepted |
| **Indirect Influence** | | | | |
| LMS Perception *Student Engagement* Student → Student Satisfaction | 0.203 | 4,861 | 0,000 | Accepted |
| Student Efficacy → *Engagement* Student → Student Satisfaction | 0.277 | 7,215 | 0,000 | Accepted |

The results of testing the hypothesis shown in Figure 1 and Table 5 conclude that *the perception of* LMS use in *blended learning* has a positive and significant effect on student *engagement*, with a t-table value smaller than the t-statistic value and a P-value of 0.000, then H1 is accepted. The influence of Self-efficacy on *engagement* students and LMS perceptions of student satisfaction have a p-value smaller than 0.05, and the t-table value is smaller than the t-statistical value, so H2 and H3 are also accepted. The relationship between Self-efficacy, student satisfaction, and student engagement on student satisfaction showed similar results, so the H4 and H hypotheses were accepted.

The indirect relationship between LMS *perceptions* in *blended learning* on student satisfaction and Self-efficacy on student satisfaction, mediated by student *engagement,* is Hypothesis 6 and 7 accepted.

### 3.2 Discussion

The study's results revealed student perceptions when using LMS in blended learning that student efficacy in using LMS had a significant effect on student engagement and student learning satisfaction. The outer loading value indicates that student perception variables in using LMS at tourism vocational colleges in Jakarta are dominantly reflected by PBL 4 and PBL 4 (*Perceived Usefulness*) indicators. This shows that the benefits of LMS felt by students in online learning support face-to-face learning both in theory and practice, thereby increasing student involvement and satisfaction both when learning is carried out online and offline. This result is consistent with the findings of Gao et al. (2020) on the relationship between LMS perception variables and *student engagement* but different results for the relationship between LMS perceptions and student satisfaction. This conclusion reveals that the greater the students' benefits in using the LMS, the greater their involvement and pride in offline and online learning.

Self-efficacy's vivacious and significant influence on *student engagement* and satisfaction, which are the second and fourth hypotheses, aligns with the research findings. The dominant indicators that reflect the Self-efficacy variable are students' self-confidence when using the LMS (Strength) and the feeling of comfort they feel when participating in blended learning that uses the LMS as a media and online learning tool (*Generality* ). It can be concluded that better student efficacy when using the LMS when studying *online* combined with *offline learning* will strengthen student *engagement* and learning satisfaction when following the lecture model using the *blended method*. These results align with the conclusions of the research, but the results differ from where Self-efficacy does not affect student *engagement* and satisfaction.

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A significant and positive influence was also shown on the power of the student *engagement variable* on student learning satisfaction. The dominant factor that reflects student *engagement in blended learning* is demonstrated by two indicators, namely ENG2 and ENGG3, which are dimensions of *emotional engagement* in this variable. This indicates that students' comfort and liking for using LMS in *online lectures,* which supports the face-to-face learning process in class, is the leading indicator influencing student learning satisfaction. This result is in line with the research. The leading indicators that define student satisfaction in the *online* learning process are SATIS3 (satisfaction of knowledge and scientific needs through *online learning in the blended learning* model) and SATIS4 (readiness and preference for following the *online* learning model combined *offline*).

*Student engagement* is also a mediating variable that positively and significantly influences the relationship between LMS *blended learning perceptions* and Self-efficacy on student learning satisfaction. This shows that *student engagement* further increases student satisfaction in *blended learning* after positive perceptions are formed regarding using LMS and good Self-efficacy from students participating in online and offline learning.

## 4. CONCLUSION
### 4.1 Conclusion

LMS, as one of *the tools* that supports the implementation of online learning, has various features that can encourage the success of the blended teaching and learning *process*. As part of a generation accustomed to using and accessing information digitally, students feel the comfort and benefits of an LMS in their learning process, ultimately providing their learning satisfaction. Students as users of LMS and online learning objects have several challenges that must be overcome, such as stable internet access, technical understanding, digital skills that are not evenly distributed among all students, and the willingness to learn independently and be active in the LMS virtual discussion room. Another big obstacle that must be overcome in *blended learning* is the lecturer's ability to manage and utilize all the learning media models available in the LMS. The role of universities is to determine policies and facilitate every aspect needed by both lecturers and students in online learning; in this case, the use of LMS is a critical factor in the success of the *blended learning model* in tourism vocational universities, in the end, this will also influence the sustainability of universities in education era 4.0.

*Blended* learning model, especially regarding the use of LMS information technology, further research can be developed by adding other variables that still need to be added to this research, primarily related to the readiness of lecturers and universities.

### 4.2. Implications

The results of this study provide managerial implications for the management of vocational tourism tertiary institutions to improve the management of blended learning. Managing online learning with LMS as an application that makes it easy for students to understand learning material and supports offline learning is a successful factor for the blended learning model in tertiary institutions, especially vocational tertiary institutions. The online learning model implemented during the Covid-19 pandemic and then agreed learning, which is applied mainly by vocational tertiary institutions in the post-pandemic period (new standard), requires planning and creativity for teaching lecturers so that the learning targets and competencies expected from learning outcomes can be achieved optimally. In the end, all of these things

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will increase student satisfaction in learning and the competitiveness of the tertiary institution itself.

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