

# EFFECTIVENESS AND STAKEHOLDERS' PERCEPTION OF THE STUDENT INFORMATION SYSTEM INTEGRATION IN HIGHER EDUCATION INSTITUTION

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## ABSTRACT

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*Blended Learning, Technology Acceptance Model, usability, higher education.*

Original research



*Learning Management Systems (LMS) are used as virtual classrooms in higher education. Students can still learn and study at their individual houses despite the distance. The purpose of this study is to investigate how stakeholders see the role of LMS integration with administrative services. The researchers specifically want to identify and clarify administrative tasks utilizing LMS, in our instance Schoolbook, in a blended learning environment. This is a study that will utilize survey results from the TAM questionnaire to quantify and analyze results from a sample population. The researchers gathered data through the use of an online survey form using the two (2) criteria from the Technology Acceptance Model Questionnaire, which are Perceived Usability and Perceived Ease of Use. Over-all, the respondents rated the Student Information System Integration was rated at 3.205 can be interpreted that the stakeholders strongly agree that the student integration system is highly useful and easy to use and would greatly help in the performance of their job. The SIS integration, which was designed to appropriately represent the data from the e-data to the Schoolbook, was successful in achieving its intended goal, according to experience and input from professors, staff, and students.*

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## 1. INTRODUCTION

The majority of human activities now must be done online due to the pandemic. The global education system is impacted by the coronavirus. Universities, colleges, and schools are closed to prevent the coronavirus from spreading. Parents, instructors, and kids all experience challenges when schools are closed. Therefore, distant learn-ing is a way to keep the educational system going (Tadesse & Muluye, 2020). Schools, colleges, and universities are utilizing the

digital realm rather than the four walls of their classrooms (Diaz et al., 2015).

LMSs are used as virtual classrooms in higher education. Students can still learn and study at their individual houses despite the distance. Teachers can continue to deliver their lectures and instruct the next generation. It offers them the adaptability and accessibility they require to maintain their daily routine as usual (Paradiso, 2022; Geresom & Hazarika, 2024). The integration of LMS with other administrative services like enrollment, account creation, and course

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development is not covered in any literature, despite the fact that all higher education institutions use LMS.

The purpose of this study is to investigate how stakeholders see the role of LMS integration with administrative services. The researchers specifically want to identify and clarify administrative tasks utilizing LMS, in our instance Schoolbook, in a blended learning environment.

The learning management system can be coupled with institutional databases and/or systems thanks to the Student Information System (SIS) connection (Berking & Gallagher, 2013). In this instance, the objective is to synchronize Schoolbook with DLSU-D, notably OUR's e-data and ICTC's portal and email data.

Many different types of enterprises utilize LMSs. However, we restricted the study to De La Salle University-Dasmariñas, our institution. This study aims to investigate how users interact with the Student Information System Integration. The study's primary concern is with the integration of student information systems in the management of their administrative tasks. Additionally, there is minimal attention paid to the technological requirements of integrating student information systems. Two factors contribute to the study's limitations. On the one hand, it will be more challenging to generalize this study as it is based on pilot testing. Continue utilizing this to gain a fuller, deeper grasp of the problem. The results are likely to be applicable to other campus-based courses and universities that place the same emphasis on integrating learning management systems with other existing systems in the organizations, even though not all components of the study can be transferred to other situations. On the other side, the TAM framework is utilized as a theoretical foundation in this study (Scherer et al., 2019). This framework's shortcomings could also apply to the study.

## **2. LITERATURE REVIEW**

The adoption of technology by students may be influenced by a number of factors, including their online learning. With the development of information and communication technology (ICT), more and more people are engaging in online learning activities. Online learning is more adaptable than traditional classroom-based education and increases educational horizons without space or time constraints.

In their work, Zhou et al. (2022), they provided a comprehensive model that employs an additional perceived variable in addition to the original TAM to analyze how students use an online learning platform (Luan & Teo, 2009). The empirical findings add to the body of literature by highlighting perceived engagement and enjoyment as important variables affecting users' intention to continue learning in the setting of online learning.

A study by Bobrystka et al. (2020), a recent study that shows automated e-course delivery can result in roughly

the same statistically significant changes in students' academic motivation, occupational competence, and learning styles, has shown that it may be a workable teaching technique. It also implied that using an automated educational e-course with a virtual agent's help had been a more economical choice.

According to a study by Jamal, the use of learning management systems (LMSs) in educational settings has improved communication between students and teachers while also creating new difficulties.

The results of the study by Alturki and Aldraiweesh (2021) demonstrated that students' motivation to utilize LMS had positive effects on learning as sustainability engagement throughout the COVID-19 pandemic. Additionally, perceived closeness, peer endorsements, and subjective well-being of the student are all positively correlated with perceived usability and convenience of use, which in turn improves the students' intents to use the LMS for student involvement in COVID-19 (Alturki & Aldraiweesh, 2021).

The Technology Acceptance Model (TAM) has developed into a reliable tool for forecasting the adoption of various technologies. TAM was developed in the USA, but it has been applied and assessed in a variety of situations and empirical research.

According to a study by Granic and Marangunic (2019), there has been a commendable amount of work on the Technology Adoption Model (TAM), which amply supports the model's widespread use in the field of technology acceptance. However, there is still a deficit in our understanding of the representative academic works that serve as the foundation for research on TAM in educational setting.

According to Diaz et al. (2015), within the realm of information technology, the integration of many platforms and information systems in the academic environment is both crucial and difficult. Higher resource availability and improved interaction amongst intervening parties are made possible by this integration. According to a study by Borboa, there are differences in how these tools are adopted and used by faculty, raising concerns about how well-liked and well-received they will be by students when they are incorporated into pedagogy. Although many kids find using technology in the classroom to be beneficial, if it is used carelessly or infrequently, some students may become annoyed.

## **3. METHODOLOGY**

At its core, the concept described revolves around two main areas: software measurement research and the Technology Acceptance Model (TAM) (Wallace & Sheetz, 2014; Fearnley & Amora, 2020). Let's break down each part.

### **3.1 Software Measurement Research**

The primary objective of software measurement research is to establish a quantifiable way of evaluating the quality of computer programs. This involves

creating systematic approaches to measure various aspects of software, such as its performance, reliability, complexity, and more. The underlying goal is to achieve better control over the software development process by using objective data and metrics. By doing so, organizations can anticipate and manage potential issues, reduce costs, save time during development, and ultimately produce higher-quality software products. The idea is that by measuring various attributes of software using standardized metrics, development teams can gain insights into the software's health, identify areas for improvement, and make informed decisions throughout the development lifecycle. These metrics can help in monitoring progress, identifying bottlenecks, and making necessary adjustments to ensure that the final software product meets the desired quality standards.

### 3.2 Technology Acceptance Model

The Technology Acceptance Model (TAM) is a theoretical framework that aims to explain why individuals choose to adopt or reject a particular technology when performing a task. TAM is based on the idea that perceived usefulness and perceived ease of use are the key factors influencing an individual's decision to accept or use a technology. In simpler terms, if a person believes that a technology will make their task easier and more effective, they are more likely to adopt it.

TAM has been developed and refined by numerous researchers over time. It provides a structured way to understand the factors that shape users' attitudes and intentions toward using a technology. TAM has been applied across various contexts and technologies to analyze user behavior and predict technology adoption. Bringing these two concepts together, the passage suggests that software measurement research aims to provide quantitative ways to assess software quality, which in turn can lead to improved software development processes. By measuring and analyzing software attributes using standardized metrics, companies can manage their software projects more efficiently and produce higher-quality software products. Additionally, the passage touches on how the Technology Acceptance Model helps explain the reasons why people choose to embrace or reject certain technologies while performing tasks. This model has been adapted and utilized with different technologies to better understand user behavior and technology adoption patterns.

### 3.3 Research Procedure

The evaluation was conducted based on the ratings by different stakeholders including staff, faculty and students (Bobrytska et al., 2020). Since the implementation done for the current school year was done on a university-wide basis, students enrolled in the current school year, faculty members, both full-time and part-time, currently handling subjects and staff, particularly clerks and secretaries who have direct

interaction with the system were asked to rate the system.

Questionnaire was distributed MS Forms. Based from the questionnaire, two factors were identified to be included which allowed the users to determine if the system is accepted or not including perceived usefulness and perceived ease of use. Moreover, a space for feedback or comments was also provided so that users may be able to input their comments which may not be included in the questionnaire provided.

## 4. RESULTS AND DISCUSSION

The researchers gathered data through the use of an online survey form using the two (2) criteria from the Technology Acceptance Model Questionnaire, which are Perceived Usability and Perceived Ease of Use (Figure 1).

The interpretation used for the data in the Likert scale was based on the range interpretation in a study by Nee and Yunus (2020). Where the interpretation ranges for the mean are 0.99 - 1.00 means Strongly Disagree, 1.00 - 1.99 is Disagree, 2.00 - 2.99 is Agree and 3.00 - 4.00 is Strongly Agree.

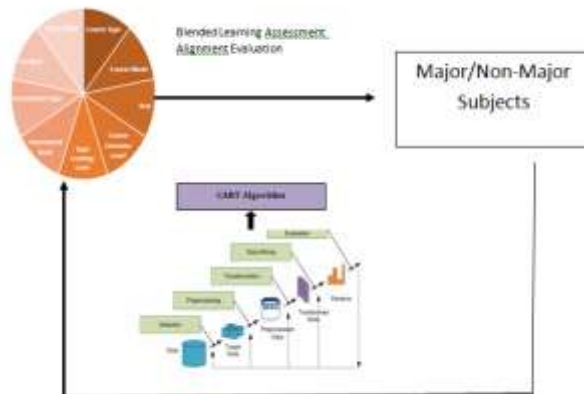


Figure 1. Blended Learning Assessment - Alignment Evaluation

The research or survey employed the Technology Acceptance Model (TAM) questionnaire to gather insights from various stakeholders (Figure 2).

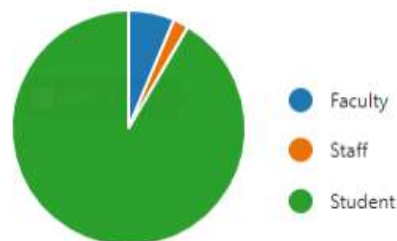


Figure 2. Distribution of Respondents

The participants were categorized based on their roles, with 91% of the respondents being students, indicating a

predominant focus on the opinions and perspectives of the student body. A smaller but notable percentage, comprising 6%, represented faculty members, suggesting an interest in understanding how educators perceive and embrace the technology under investigation. Additionally, 2% of the respondents were staff members, likely encompassing administrative or support personnel. This demographic breakdown provides a comprehensive view of the distribution of participants, enabling researchers to analyze and interpret the results in a nuanced manner, considering potential variations in technology acceptance across different stakeholder groups. The table 1 shows the result of the perceived usefulness of the integration of the student information system.

**Table 1.** Perceived Usefulness Result

Values	Faculty	Staff	Student	Average
Using [this software] in my job enabled me to accomplish tasks more quickly.	3.67	4.00	3.19	3.23
Using [this software] improved my job performance.	3.67	4.00	3.00	3.06
Using [this software] in my job increased my productivity.	3.67	4.00	3.09	3.15
Using [this software] enhanced my effectiveness on the job.	3.67	4.00	3.09	3.15
Average of Using [this software] made it easier to do my job.	3.67	4.00	3.26	3.30
Average of I found [this software] useful in my job.	3.67	4.00	3.21	3.26
				3.19

The initial segment of the questionnaire delves into the perceived usefulness of the Student Integration System at DLSU-D, with a specific focus on six distinct criteria. The collected responses from various stakeholder groups are presented in a table 1, showcasing their ratings for each criterion. Among the criteria, the respondents assigned the lowest rating, averaging 3.15, to the aspect of enhancing effectiveness and productivity in their job. On the other hand, the highest-rated criterion, scoring 3.30, was that the software made their job easier.

Upon consolidating the ratings across all criteria, the overall average for perceived usefulness, as reported by faculty, students, and staff, stands at 3.19. This collective rating suggests a strong consensus among

stakeholders, indicating a high degree of agreement that the Student Integration System is indeed valuable in facilitating the performance of their respective roles.

The noteworthy observation that the stakeholders rated the system highest in terms of making their job easier aligns with the overarching interpretation that the respondents perceive the Student Integration System as a useful tool in their professional responsibilities. Despite the variability in criteria, the general sentiment is one of agreement among the respondents regarding the utility of the system, emphasizing its positive impact on their job functions.

The table 2 shows the result of the perceived ease of use of the student integration system.

**Table 2.** Perceived Ease of Use Result

Questions	Faculty	Staff	Student	Average
Learning to operate [this software] was easy for me.	3.67	4.00	3.12	3.17
I found it easy to get [this software] to do what I want it to do	3.33	4.00	3.16	3.19
My interaction with [this product] was clear and understandable.	3.67	4.00	3.21	3.26
I found [this software] clear and understandable.	3.67	4.00	3.21	3.26
It was easy for me to be skillful at using [this software]	3.67	4.00	3.16	3.21
I found [this software] easy to use.	3.33	4.00	3.21	3.23
				3.22

In the second section of the questionnaire, attention was directed towards the perceived ease of use of the Student Integration System, as outlined in the TAM questionnaire. Respondents were asked to assess various characteristics related to the system's usability, and their ratings have been summarized.

The lowest-rated characteristic in this section was ease of learning, with a rating of 3.17. This suggests that, on average, respondents found the learning curve for the Student Integration System to be the least straightforward among the assessed characteristics. On the contrary, the characteristic of clear and understandable interaction with the system received the highest rating of 3.26, indicating that stakeholders perceive this aspect to be the most user-friendly and comprehensible.

When considering all characteristics collectively, the overall average for perceived ease of use is reported as 3.22. This cumulative rating can be interpreted as a strong agreement among stakeholders that the Student Integration System is easy to use in the context of their job responsibilities. Despite the variation in ratings for

specific characteristics, the general sentiment is positive, suggesting a consensus among respondents that the system is user-friendly and accessible in the performance of their tasks.

The table 3 shows the result of the Technology Acceptance Model (TAM) questionnaire.

**Table 3.** Technology Acceptance Model Result

Technology Acceptance Model	Average
Perceived Usefulness	3.19
Perceived Ease of Use	3.22
	3.205

The TAM (Technology Acceptance Model) questionnaire employed in this study is structured into two key components: perceived usefulness and perceived ease of use. These elements gauge the participants' opinions on how valuable and user-friendly a technology, in this case, the Student Information System Integration, is perceived to be.

The specific ratings provided by the respondents offer quantitative insights into their perceptions. The perceived usefulness received a rating of 3.19, suggesting that, on average, the stakeholders believe the Student Information System Integration holds a moderately high level of usefulness. This implies that respondents generally recognize the system as beneficial for their tasks or responsibilities.

On the other hand, the perceived ease of use received a slightly higher rating of 3.22. This indicates that, on average, the stakeholders find the system to be relatively easy to use. A higher rating in perceived ease of use is positive, as it suggests that users believe the technology is accessible and user-friendly.

The overall rating for the Student Information System Integration, calculated as the average of the perceived usefulness and perceived ease of use scores (3.205), signifies a combined positive perception. The interpretation is that the stakeholders, as a whole, strongly agree that the system is both highly useful and easy to use. Furthermore, the statement suggests that the respondents believe the integration of this system would significantly contribute to the enhancement of their job performance. In summary, the results imply a favorable attitude towards the Student Information System Integration, indicating a high level of acceptance and positive expectations from the stakeholders.

## 5. SUMMARY

The questionnaire, based on the Technology Acceptance Model (TAM), evaluated stakeholders' perspectives on the Student Integration System at DLSU-D. In terms of perceived usefulness, stakeholders, including faculty, students, and staff, provided an overall rating of 3.19, signifying a strong agreement that the system is valuable in their job performance. Notably, the criteria of making their job easier received the highest rating

(3.30), while enhancing effectiveness and productivity received the lowest (3.15).

Regarding perceived ease of use, stakeholders gave an overall rating of 3.22, indicating a robust consensus that the Student Integration System is easy to use in their roles. The characteristic of clear and understandable interaction with the system received the highest rating (3.26), while ease of learning received the lowest (3.17). Despite variations in specific criteria, the general sentiment is positive, highlighting stakeholders' agreement on the system's utility and user-friendliness in supporting their job tasks.

## 6. CONCLUSIONS

The findings of the study reveal a high level of acceptance among stakeholders for the Student Integration System, particularly among those directly interacting with the system. The proponents were able to discern this positive reception through feedback and suggestions provided by the stakeholders, indicating not only acceptance but also an interest in further enhancements to better support their job functions.

A noteworthy achievement highlighted in the report is the successful and accurate connection established between Schoolbook and e-data through the implemented technology. The integration of the Student Information System (SIS) effectively bridged the gap between these platforms, receiving positive feedback from professors, staff, and students. This success is particularly crucial, as it attests to the system's ability to appropriately represent data from e-data in the Schoolbook, aligning with the intended goals of the integration.

However, the report also acknowledges specific challenges related to the policy on loading and posting payments, emphasizing their impact on the perceived usefulness of the system. The recognition of these issues underscores the importance of addressing them to ensure the system is viewed favorably by stakeholders. Resolving these challenges becomes crucial for maximizing the utility of the Student Integration System, further enhancing its acceptance and effectiveness in supporting various tasks within the academic environment.

## 7. RECOMMENDATION

Based on the comprehensive evaluation of stakeholder responses and the successful implementation of the Student Integration System (SIS), several key recommendations are proposed to further optimize the system's functionality and address identified challenges. Firstly, it is advised to incorporate additional features into the SIS based on valuable feedback and suggestions received from stakeholders. This iterative approach ensures that the system continually evolves to meet the specific needs and expectations of faculty, staff, and

students. Furthermore, addressing issues related to the policy on loading and posting of payments is crucial, as these challenges were identified as impacting the perceived usefulness of the system. Collaborative efforts with finance and administrative personnel are recommended to find practical solutions that streamline processes and contribute to a more positive user experience.

In order to enhance the overall user experience, it is essential to prioritize user training programs and support mechanisms. Recognizing the importance of ease of learning, comprehensive training initiatives for all stakeholders should be implemented, complemented by accessible support channels such as documentation and helpdesk services. Additionally, establishing a system for continuous monitoring and evaluation is vital. Regular assessments of system functionality, user experience, and the resolution of emerging issues will ensure that the SIS remains effective and aligned with the evolving needs of the academic community.

To maintain a strong alignment between technological advancements and academic requirements, collaboration between the Information Technology (IT) department and academic units is crucial. Regular discussions can identify emerging technologies, educational trends, and potential areas for system enhancement, ensuring that

the Student Integration System remains at the forefront of supporting academic activities. By implementing these recommendations, the institution can foster a positive user experience, enhance system functionality, and ensure the continued success of the Student Integration System in supporting the diverse needs of faculty, staff, and students within the academic environment.

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