# Factors Influencing the Adoption and Success of Digital Educational Platforms Using The Delone – Mclean Model at PT Telekomunikasi Indonesia, TBK

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## Abstract

The incorporation of digital technology in education is essential for enhancing teaching efficiency and optimizing school administrative operations. This analysis assesses the efficacy of the Pijar Sekolah application, a digital tool aimed at improving educational management in Indonesia. The study examines four essential elements: System Quality, Information Quality, Service Quality, and User Satisfaction, and their impact on the intention to utilize the platform.

A quantitative research method was utilized, gathering data from 231 active users of the application, comprising school administrators and teachers. The analysis of the data was conducted through Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess the interrelationships among the variables. The results demonstrate that Information Quality and Service Quality have a substantial influence on user satisfaction and the intention to use, whereas System Quality exerts a lesser impact. Furthermore, it was observed that user satisfaction played a mediating role in the connection between platform features and the overall benefits experienced by users.

This study enhances our comprehension of digital transformation in education, providing theoretical insights and practical recommendations aimed at improving the usability and scalability of educational technologies. It is essential for those in positions of authority and development to focus on designs that center around the user in order to enhance the effectiveness of these platforms. Future investigations should delve into supplementary variables and the enduring viability of digital solutions in education.

**Keywords:** Digital Technology, Education, Pijar Sekolah, User Satisfaction, System Quality

## 1. Introduction

The incorporation of digital technology in education is essential for enhancing teaching efficiency and optimizing school administrative operations. This analysis assesses the efficacy of the Pijar Sekolah application, a digital tool aimed at improving educational management in Indonesia. The study examines four essential elements: System Quality, Information Quality, Service Quality, and User Satisfaction, and their impact on the intention to utilize the platform.

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This study enhances our comprehension of digital transformation in education, providing theoretical insights and practical recommendations aimed at improving the usability and scalability of educational technologies. It is essential for those in positions of authority and development to focus on designs that center around the user in order to enhance the effectiveness of these platforms. Future investigations should delve into supplementary variables and the enduring viability of digital solutions in education.

The objectives of this research are:

1. To examine the impact of System Quality on User Satisfaction and Intention to Use.
2. To analyze the influence of Information Quality on User Satisfaction and Intention to Use.
3. To assess the role of Service Quality in shaping User Satisfaction and Intention to Use.
4. To evaluate the effect of Self-Efficacy on User Satisfaction and Intention to Use.
5. To investigate the mediating role of User Satisfaction in the relationship between platform quality factors and Intention to Use.
6. To determine how Intention to Use influences the Net Benefit derived from the platform.

The findings of this study are expected to provide valuable insights for policymakers and developers to enhance the usability, adoption, and impact of educational platforms like Pijar Sekolah. Moreover, it contributes to the theoretical framework of information system success, particularly in developing country contexts.

## 2. Literature Review

The swift advancement of digital technology in education has resulted in the creation of various platforms designed to enhance learning results and streamline administrative processes. In this context, the DeLone and McLean Information Systems Success Model (2003) acts as a crucial framework for assessing the effectiveness of digital platforms. The model emphasizes three essential dimensions—System Quality, Information Quality, and Service Quality—as fundamental factors influencing user satisfaction and the intention to use. The dimensions establish a strong theoretical basis for evaluating the effectiveness of educational technologies such as Pijar Sekolah.

### 2.1 System Quality

The technical performance of a system encompasses aspects like ease of use, reliability, and functionality. DeLone and McLean (2003) indicate that superior system quality boosts user satisfaction and the likelihood of usage. The Pijar Sekolah platform highlights attributes such as intuitive interfaces and dependable functionality to cater to educational requirements. Studies indicate that effectively designed systems enhance both adoption and satisfaction (Ozkan & Koseler, 2009).

### 2.2 Information Quality

The quality of information relates to how relevant, accurate, and accessible the data provided by a system is. In the educational context, providing precise and prompt content is essential for ensuring user satisfaction and encouraging ongoing engagement (Chopra et al., 2019). For Pijar Sekolah, ensuring high-quality content allows school administrators and teachers to effectively utilize the platform.

### 2.3 Service Quality

The quality of service encompasses the responsiveness and assistance offered to users. In the context of the DeLone and McLean model, service quality plays a crucial role in providing users with the necessary support to resolve issues, which in turn enhances satisfaction and fosters loyalty (Islam, 2011). The support services offered by Pijar Sekolah are crucial in fostering trust and promoting sustained engagement.

### 2.4 User Satisfaction

User satisfaction acts as a mediator in the relationship between system features and user outcomes. High satisfaction levels lead to positive perceptions of the platform, which, in turn, enhance continued use. Studies by Wang et al. (2007) indicate that satisfaction is significantly influenced by system quality, information quality, and service quality.

### 2.5 Intention of Use

Intention of use refers to a user's willingness to adopt a platform for their tasks. It is directly influenced by satisfaction and the perceived value of the system. In the context of Pijar Sekolah, intention of use is driven by how effectively the platform meets educational needs and streamlines management processes.

### 2.6 Net Benefit

Net benefit represents the overall value delivered to users and organizations. For Pijar Sekolah, this includes improved operational efficiency, enhanced learning outcomes, and better decision-making for school administrators. The DeLone and McLean model emphasizes net benefit as the ultimate measure of system success.

This study builds on the DeLone and McLean framework to evaluate how these variables collectively influence the adoption and success of Pijar Sekolah. By integrating theoretical insights with empirical findings, this research aims to provide actionable recommendations for improving digital educational platforms.

## 3. Research Methodology

This study employs a quantitative research design featuring a descriptive-correlational approach to investigate the relationships among system quality, information quality, service quality, self-efficacy, user satisfaction, intention of use, and net benefit. The target population comprised active users of the Pijar Sekolah platform, focusing on teachers and school administrators. A total of 231 respondents were selected through random sampling to guarantee a representative dataset. The collection of data was conducted via an online questionnaire that included validated items corresponding to each variable. The analysis utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate the reliability, validity, and interrelationships among the variables. The methodological process included assessing the measurement model for both convergent and discriminant validity, and subsequently conducting structural model analysis to evaluate hypotheses using path coefficients, t-statistics, and p-values. The research assessed system quality, information quality, service quality, and self-efficacy as independent variables; user satisfaction as a mediating variable; and intention of use and net benefit as dependent variables. This methodology offers a solid framework for examining the elements that affect the adoption and success of Pijar Sekolah.

## 4. Results

This section presents the findings from the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. The results are divided into two parts: the evaluation of the measurement model and the testing of the structural model and hypotheses.

### 4.1 Measurement Model Evaluation

**Table 1: Outer Loadings**

| Variable | Indicator | Outer Loading |
|---|---|---|
| **Information Quality** | IQ1 | 0,775 |
| | IQ2 | 0,780 |
| | IQ3 | 0,782 |
| | IQ4 | 0,769 |
| | IQ5 | 0,774 |
| | IQ6 | 0,796 |
| **Intention of Use** | IU1 | 0,946 |
| | IU2 | 0,929 |
| | IU3 | 0,935 |
| **Net Benefit** | NB1 | 0,880 |
| | NB2 | 0,905 |
| | NB3 | 0,880 |
| **Self-Efficacy** | SE1 | 0,791 |
| | SE2 | 0,861 |
| | SE3 | 0,839 |
| **Service Quality** | SRQ1 | 0,794 |
| | SRQ2 | 0,790 |
| | SRQ3 | 0,786 |
| | SRQ4 | 0,802 |
| | SRQ5 | 0,795 |
| **System Quality** | SQ1 | 0,779 |
| | SQ2 | 0,765 |
| | SQ3 | 0,783 |
| | SQ4 | 0,813 |
| | SQ5 | 0,815 |
| **User Satisfaction** | US1 | 0,864 |
| | US2 | 0,916 |
| | US3 | 0,915 |

## Table 2: Average Variance Extracted (AVE)

| Variable | Average Variance Extracted (AVE) |
|---|---|
| **Information Quality** | 0,607 |
| **Intention of Use** | 0,877 |

| | |
|---|---|
| **Net Benefit** | 0,789 |
| **Self-Efficacy** | 0,690 |
| **Service Quality** | 0,629 |
| **System Quality** | 0,626 |
| **User Satisfaction** | 0,808 |

## Table 3: Reliability Analysis

| Variabel | Cronbach's Alpha | Composite Reliability |
|---|---|---|
| **Information Quality** | **0,871** | **0,903** |
| **Intention of Use** | **0,930** | **0,955** |
| **Net Benefit** | **0,866** | **0,918** |
| **Self-Efficacy** | **0,775** | **0,870** |
| **Service Quality** | **0,853** | **0,895** |
| **System Quality** | **0,850** | **0,893** |
| **User Satisfaction** | **0,881** | **0,926** |

## Table 4: Discriminant Validity

| | IQ | IU | NB | SE | SRQ | SQ | US |
|---|---|---|---|---|---|---|---|
| IQ | 0,779 | | | | | | |
| IU | 0,731 | 0,937 | | | | | |
| NB | 0,717 | 0,690 | 0,888 | | | | |
| SE | 0,684 | 0,667 | 0,592 | 0,831 | | | |
| SRQ | 0,805 | 0,752 | 0,713 | 0,641 | 0,793 | | |
| SQ | 0,729 | 0,709 | 0,653 | 0,651 | 0,784 | 0,791 | |
| US | 0,656 | 0,731 | 0,626 | 0,705 | 0,649 | 0,671 | 0,899 |

The measurement model was assessed to confirm its validity and reliability. Convergent validity was established, as all indicators exhibited outer loading values greater than 0.5, and the Average Variance Extracted (AVE) values for all constructs exceeded 0.5. This suggests that the latent variables accounted for a significant portion of the variance in their indicators. The Fornell-Larcker Criterion was employed to establish discriminant validity, demonstrating that the square root of the AVE for each construct exceeded its correlations with other constructs, thereby confirming the distinctiveness of each variable. Furthermore, construct reliability was confirmed, as all Composite Reliability (CR) values surpassed 0.7, thereby affirming the internal consistency of the indicators for each construct.
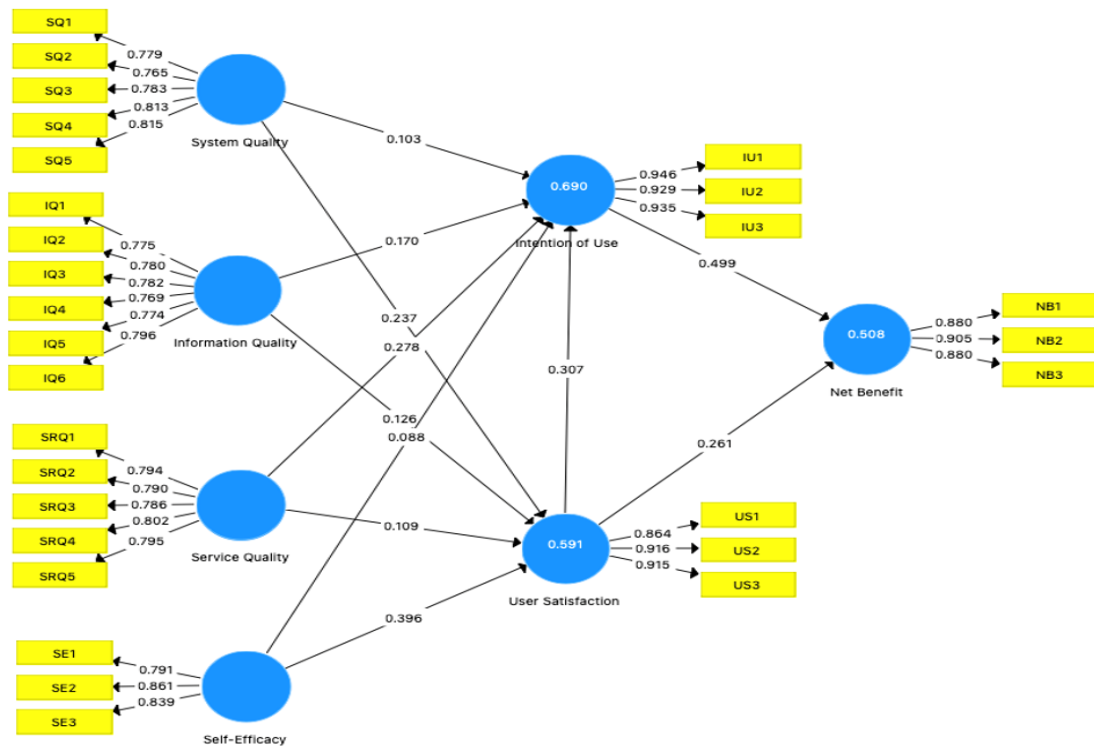
**Figure 1: Outer Model**

**Table 5: Goodness-of-Fit Indices**

| Fit Index | Saturated Model | Estimated Model | Interpretation |
|---|---|---|---|
| SRMR (Standardized Root Mean Square Residual) | 0.047 | 0.062 | Values below 0.08 indicate a good model fit. |
| d_ULS (Unweighted Least Squares Discrepancy) | 0.907 | 1.540 | Lower values indicate better fit; the discrepancy here is small. |
| d_G (Geodesic Discrepancy) | 0.567 | 0.610 | Lower values show better alignment of the model with observed data. |
| Chi-Square | 735.129 | 776.565 | Lower Chi-Square values suggest better fit; differences here indicate minor adjustments. |
| NFI (Normed Fit Index) | 0.843 | 0.834 | Values approaching 0.9 suggest an adequate fit but indicate room for improvement. |

The model fit indices demonstrate a strong alignment between the data and the estimated structural model. The SRMR values for the Saturated Model (0.047) and the Estimated Model (0.062) are both below the 0.08 threshold, indicating a strong alignment between the estimated covariance matrix and the observed data. The d_ULS and d_G indices, which assess discrepancies between observed and estimated data, indicate an acceptable fit, with minor

differences noted between the models. The Chi-Square values are comparable, with the Saturated Model (735.129) demonstrating a slight advantage over the Estimated Model (776.565), suggesting a marginally superior fit for the former. In the interim, the NFI values for both models, although below the optimal threshold of 0.9, indicate a moderately acceptable fit and underscore areas for potential improvement. The indices indicate that the model adequately fits the data, although there is potential for further enhancement, especially regarding the Normed Fit Index (NFI).

## 4.2 Hypothesis Testing

The structural model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the relationships between the constructs. The hypothesis testing results, including path coefficients, t-values, and p-values, are summarized in Table 6.

**Table 6: Hypothesis Testing Results**

| Hypothesis | Relationship | t-Statistics | p-Value | Criteria |
|---|---|---|---|---|
| H1: Information Quality → Intention of Use | Positive | 2.343 | 0.019 | Significant |
| H2: Information Quality → User Satisfaction | Positive | 1.576 | 0.115 | Not Significant |
| H3: Intention of Use → Net Benefit | Positive | 7.447 | 0 | Significant |
| H4: Self-Efficacy → Intention of Use | Positive | 1.646 | 0.1 | Not Significant |
| H5: Self-Efficacy → User Satisfaction | Positive | 6.706 | 0 | Significant |
| H6: Service Quality → Intention of Use | Positive | 3.833 | 0 | Significant |
| H7: Service Quality → User Satisfaction | Positive | 1.306 | 0.192 | Not Significant |
| H8: System Quality → Intention of Use | Positive | 1.575 | 0.115 | Not Significant |
| H9: System Quality → User Satisfaction | Positive | 3.185 | 0.001 | Significant |
| H10: User Satisfaction → Intention of Use | Positive | 5.323 | 0 | Significant |
| H11: User Satisfaction → Net Benefit | Positive | 3.877 | 0 | Significant |

The results of hypothesis testing provide significant insights into the relationships among variables within the structural model. The findings illustrate the differential impact of the

independent variables on the mediating and dependent variables, enhancing the comprehension of the factors influencing the adoption and success of the Pijar Sekolah platform.

The findings indicate that System Quality has a significant positive effect on User Satisfaction (H9: t = 3.185, p = 0.001), underscoring the importance of reliability, functionality, and ease of use in influencing user satisfaction. Nonetheless, the direct effect on Intention of Use was not significant (H8: t = 1.575, p = 0.115), indicating that system quality alone does not suffice to promote adoption in the absence of supplementary influences from other variables. The quality of information had a significant impact on the intention to use (H1: t = 2.343, p = 0.019), indicating that the relevance, accuracy, and accessibility of the information offered by the platform effectively promote user adoption of the system. Nevertheless, the effect on User Satisfaction was not significant (H2: t = 1.576, p = 0.115), suggesting that although information quality is essential for usage decisions, it may not directly influence user satisfaction without the integration of additional factors.

Service Quality has been identified as a significant factor influencing Intention of Use (H6: t = 3.833, p = 0.000), underscoring the critical role of responsive and effective support in facilitating platform adoption. In contrast, the impact on User Satisfaction was not significant (H7: t = 1.306, p = 0.192), indicating that improvements related to service may not directly increase satisfaction. Self-efficacy exhibited a significant positive effect on user satisfaction (H5: t = 6.706, p = 0.000), highlighting the importance of user confidence in effectively engaging with the platform. Nonetheless, the direct effect on Intention of Use was not significant (H4: t = 1.646, p = 0.100), suggesting that although confidence enhances satisfaction, it does not necessarily lead to increased usage intentions.

User Satisfaction served as a significant mediator in the model, exerting a notable influence on both Intention of Use (H10: t = 5.323, p = 0.000) and Net Benefit (H11: t = 3.877, p = 0.000). The findings indicate that satisfied users are more inclined to adopt the platform and obtain significant benefits from its utilization. Intention of Use exhibited the most significant direct effect on Net Benefit (H3: t = 7.447, p = 0.000), highlighting its essential role in the platform's success and impact.

The findings underscore the necessity of enhancing System Quality, Information Quality, and Service Quality to improve user satisfaction and usage intention. Furthermore, enhancing user confidence and satisfaction is crucial for the effective adoption and use of educational platforms such as Pijar Sekolah, thereby optimizing their overall benefits for both users and institutions.

## 5.Discussion

The hypothesis testing results, as summarized in Table 6, provide insights into the relationships between system quality, information quality, service quality, self-efficacy, user satisfaction, and intention to use, as well as their combined impact on net benefits. The following section discusses these findings in light of existing theories and prior studies, and offers practical recommendations for the enhancement of the Pijar Sekolah platform.

### 5.1 System Quality and User Satisfaction

The notable positive impact of System Quality on User Satisfaction (t = 3.185, p = 0.001) highlights the critical role of an effective platform in enhancing user satisfaction. This finding is consistent with the DeLone and McLean Information Systems Success Model (2003), which asserts that system reliability, functionality, and user-friendliness are essential for improving satisfaction. A dependable and accurate platform facilitates seamless user interactions, thereby enhancing positive user experiences (Chen et al., 2020).

The non-significant relationship between System Quality and Intention to Use (t = 1.575, p = 0.115) indicates that although system quality enhances satisfaction, it is insufficient to ensure adoption on its own. Petter et al. (2008) have indicated that users may need supplementary motivational factors, including perceived usefulness or support, to convert satisfaction into usage intentions.

### 5.2 Information Quality and User Outcomes

The findings indicate that Information Quality significantly positively affects Intention to Use (t = 2.343, p = 0.019), highlighting the necessity of providing users with accurate, relevant, and timely information. This finding is consistent with previous research by Wixom and Todd (2005), which highlights the importance of high-quality information in promoting trust and facilitating system adoption. Platforms offering current and relevant content are more likely to attract and retain users.

The non-significant effect of Information Quality on User Satisfaction (t = 1.576, p = 0.115) indicates that, although high-quality information is crucial for decision-making, it may not directly improve user satisfaction without the influence of additional factors, including system usability and service responsiveness. This finding underscores the necessity for a comprehensive strategy that considers various aspects of platform quality.

### 5.3 Service Quality and Intention to Use

The substantial positive effect of Service Quality on Intention to Use (t = 3.833, p = 0.000) underscores the essential function of responsive support systems in promoting platform adoption. In alignment with the findings of Parasuraman et al. (1988), effective service delivery fosters trust and boosts user confidence, both of which are critical for promoting continued usage.

The non-significant effect of Service Quality on User Satisfaction (t = 1.306, p = 0.192) suggests that improvements in service alone do not adequately enhance satisfaction. This finding is consistent with Wang et al. (2007), who propose that service quality should be complemented by robust system functionality and high-quality content to enhance user satisfaction.

### 5.4 Self-Efficacy and User Engagement

The strong positive correlation between Self-Efficacy and User Satisfaction (t = 6.706, p = 0.000) underscores the critical role of user confidence in influencing satisfaction with the platform. Bandura's (1994) self-efficacy theory posits that individuals who possess confidence in their ability to execute specific tasks are more inclined to achieve favorable outcomes.

Within the framework of Pijar Sekolah, individuals exhibiting high self-efficacy demonstrate enhanced capability in navigating the platform, resulting in increased satisfaction levels.

The relationship between Self-Efficacy and Intention to Use was not significant (t = 1.646, p = 0.100). This finding indicates that although confidence increases satisfaction, it does not necessarily affect the decision to adopt the platform directly. This is consistent with the findings of Compeau and Higgins (1995), which suggest that external factors, including organizational support and peer influence, may influence usage intentions.

### 5.5 Practical Implication

This study presents several recommendations aimed at enhancing the adoption and effectiveness of the Pijar Sekolah platform. Developers should prioritize the enhancement of system quality by concentrating on features that improve reliability, functionality, and usability, as these elements directly impact user satisfaction. Consistent updates and monitoring of system performance are crucial for sustaining a high-quality platform. Providing accurate, relevant, and timely information is essential for promoting usage intentions. Content must be customized to address the distinct requirements of teachers and administrators, guaranteeing its relevance to their daily responsibilities. Third, enhancing service support through the provision of accessible and responsive services, including a 24/7 help desk and comprehensive user manuals, can foster trust and confidence among users. Fourth, implementing training programs and workshops can enhance user confidence and self-efficacy, providing users with the skills required to navigate the platform effectively. Maintaining a strong focus on user satisfaction is essential, as it influences the relationship between platform quality and net benefits. Systematic collection of user feedback facilitates the identification and rectification of potential improvement areas, thereby ensuring the platform adapts to the changing needs of its users. Implementing these recommendations will enable Pijar Sekolah to improve its adoption and enhance its effectiveness in supporting educational institutions.

### 6. Conclusion

This research offers important insights into the determinants affecting the adoption and efficacy of the Pijar Sekolah platform. This research utilizes the DeLone and McLean Information Systems Success Model (2003), incorporating self-efficacy as an additional variable, to elucidate the intricate relationships among system quality, information quality, service quality, user satisfaction, intention to use, and net benefit. The findings indicate that system quality and self-efficacy significantly improve user satisfaction, whereas information quality and service quality are crucial for promoting platform adoption. User satisfaction was identified as a significant mediator, exerting a strong influence on both intention to use and net benefit, with intention to use recognized as the primary driver of platform success.

This study theoretically expands information systems success models by integrating user confidence (self-efficacy) as a determinant of user satisfaction and behavior. The research provides practical recommendations for developers, policymakers, and educators, such as improving platform reliability and usability, ensuring the delivery of accurate and relevant information, enhancing service support, and building user confidence through training initiatives. These measures can enhance the adoption and effectiveness of Pijar Sekolah, thereby yielding significant benefits for educational institutions. Future research may

investigate further variables, including organizational support, peer influence, and cultural factors, to enhance the understanding of user behavior in educational platforms. Additionally, longitudinal studies may investigate the enduring effects of these variables on platform success and user outcomes.

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