Technology Acceptance of LMS Pintar Among Madrasah Tsanawiyah Teachers in Padang City: A Full Technology Acceptance Model Approach to Supporting SDG 4 (Quality Education)

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Abstract: This study aims to analyze the acceptance of the LMS Pintar Kemenag online training platform among public and private Madrasah Tsanawiyah teachers in Padang City using the Technology Acceptance Model (TAM). A quantitative survey was conducted involving 285 teachers, and the data were analyzed using descriptive statistics with SEMPLS. The results indicate high mean scores across all TAM constructs Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, and Behavioral Intention to Use showing a strong level of technology acceptance. Teachers consider the platform easy to operate and beneficial for professional development; consequently, they develop favorable attitudes and a sustained intention to use it for training and learning activities. These findings reinforce the relationship between perceived ease, perceived usefulness, and behavioral intention as proposed in TAM, while also highlighting the strategic role of digital platforms in supporting teacher competency development within religious education institutions. In conclusion, LMS Pintar Kemenag has been positively accepted by teachers, and its continued improvement is essential to enhance the effectiveness and sustainability of online professional training programs.

Keywords: LMS Pintar Kemenag; SEM-PLS; Technology acceptance model

Introduction

The rapid advancement of science and technology has brought substantial t ransformation across multiple sectors, including education. As a lifelong process, education plays a central role in developing learners' physical, intellectual, emotional, and spiritual potential, enabling them to adapt and contribute meaningfully within society (Attahakul, 2025; Gholami, 2024). Entering the era of Society 5.0, the integration of digital technologies in daily life has become inevitable, creating new opportunities while simultaneously generating more complex challenges for educational systems (George et al., 2024; Muliyadi et al., 2023; Tavares et al., 2022). Teachers and education personnel are therefore required to strengthen digital literacy and acquire 21st-century skills to remain relevant in this evolving landscape (Caena et al., 2019; Rahimi et al., 2024; Susilawati et al., 2025).

One of the most transformative innovations in this domain is the adoption of Learning Management Systems (LMS), which support structured, interactive, and flexible online learning. Global reports indicate that more than 90% of educational institutions have adopted LMS platforms to sustain learning continuity. In Indonesia, digital transformation in the education sector has been strongly encouraged by the government, including through the development of LMS Pintar a learning platform managed by the Ministry of Religious Affairs designed to expand professional development opportunities for teachers. LMS Pintar offers diverse training modules, MOOC-based courses, digital

learning resources, and online certification pathways, providing teachers with flexible access to capacity-building programs.

Despite its substantial potential, the actual use of LMS Pintar among teachers particularly at the madrasah level remains relatively low. Several obstacles contribute to this condition, including limited infrastructure, inconsistent internet access, inadequate digital devices, and varying levels of digital literacy among teachers. Many teachers find it difficult to navigate platform features, leading to reduced motivation to complete online training. Insufficient socialization, weak institutional support, heavy administrative workloads, and the perception that online training yields minimal practical impact also contribute to the underutilization of LMS Pintar. Moreover, the absence of strong regulatory reinforcement results in LMS usage being perceived as optional rather than essential.

The Technology Acceptance Model (TAM) proposed by Davis et al. (1989) provides a relevant theoretical lens to understand this phenomenon. TAM highlights two primary determinants of technology adoption: perceived ease of use and perceived usefulness. When users believe a system is easy to operate and offers meaningful benefits, their acceptance and positive attitudes toward the technology tend to increase. However, preliminary observations indicate that many madrasah teachers in Padang have not yet developed positive perceptions regarding the ease and usefulness of LMS Pintar. Although previous studies have widely applied TAM to examine LMS adoption, research focusing specifically on government-managed LMS platforms in the madrasah context remains limited. Additionally, existing studies predominantly examine behavioral intention rather than users' attitudes, indicating a need for more comprehensive investigation.

To address this gap, the present study focuses on understanding the factors influencing teachers' acceptance of LMS Pintar, specifically among madrasah tsanawiyah teachers in Padang City. Unlike research using commercial or open-source LMS platforms, this study examines a government-developed system and explores teacher attitudes as a distinctive variable within the TAM framework. The study also stems from the researcher's firsthand observations within the madrasah environment, where various challenges related to the adoption of LMS Pintar remain evident. Employing TAM as the analytical foundation is expected to provide insights useful for designing more effective training and support programs.

This study aims to (1) analyze teachers' perceptions of the ease of use and usefulness of LMS Pintar; (2) examine the influence of these perceptions on teachers' attitudes toward using the platform; and (3) identify key factors shaping LMS acceptance in the madrasah

context. The findings are expected to enrich TAM-based research in Islamic educational institutions and offer practical recommendations for the Ministry of Religious Affairs at both local and national levels. Furthermore, the study contributes to ongoing digital transformation efforts by supporting more inclusive, adaptable, and data-driven approaches to teacher professional development in Indonesia.

Method

This study adopted the Technology Acceptance Model (TAM) due to its strong theoretical grounding and extensive empirical validation in examining the adoption of educational technologies across diverse contexts. A quantitative explanatory research design was employed to investigate the causal relationships among the key TAM constructs, including perceived ease of use, perceived usefulness, attitude toward using, behavioral intention, and actual system use. The quantitative approach enabled statistical testing of predetermined hypotheses and supported the development of empirical predictions related to teachers' acceptance of the LMS. The research population consisted of 695 madrasah tsanawiyah teachers working under the Office of the Ministry of Religious Affairs in Padang City. Based on minimum sampling requirements for multivariate modeling, at least 250 responses were necessary; therefore, 285 teachers were included to ensure adequate statistical power and to minimize potential response bias. This sampling approach ensured that the characteristics of the selected respondents reflected the wider population structure, increasing the generalizability of the findings.
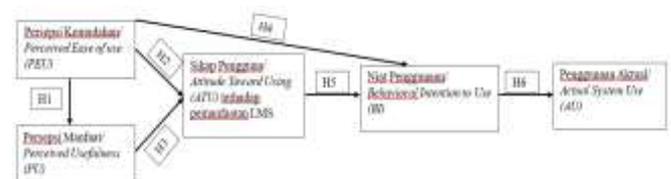

Figure 1. Conceptual framework

Data were collected using a structured questionnaire developed in accordance with the operational definitions of the TAM constructs. All items were measured with a Likert scale to capture respondents' perceptions of the LMS. The instrument consisted of indicators representing perceived usefulness, perceived ease of use, attitude toward using, behavioral intention, and actual use, and it was evaluated for validity and reliability prior to distribution. In addition to the questionnaire, three complementary data collection techniques were employed. First, direct observations were conducted to

gain insight into teachers' real-time interaction with the LMS within classroom settings, allowing a deeper understanding of actual system use. Second, a comprehensive literature review was undertaken to strengthen the theoretical foundation of the study by synthesizing relevant theories, prior empirical findings, and supporting evidence on technology acceptance and LMS adoption. Third, the primary quantitative data were obtained through the self-administered questionnaire completed independently by the participating teachers, capturing their perceptions, attitudes, and behavioral tendencies regarding LMS utilization.

The analysis began with descriptive statistics to summarize demographic characteristics and examine the distribution patterns of responses for each indicator. Frequencies, percentages, means, medians, modes, standard deviations, and minimum–maximum values were computed, and Likert-scale categories were used to interpret overall tendencies for each construct. Following descriptive analysis, Structural Equation Modeling using Partial Least Squares (SEM-PLS) was applied to test the TAM structure and evaluate its predictive capability in explaining LMS acceptance. SEM-PLS was selected for its suitability in analyzing complex models with multiple latent variables, its robustness in handling non-normal data distributions, and its efficiency with relatively small sample sizes. SmartPLS version 4.0 was used to conduct the analysis. The measurement model assessed convergent validity, and composite reliability through outer loadings, Average Variance Extracted (AVE), cross-loadings, and reliability coefficients, ensuring that indicators appropriately measured their respective latent constructs. Subsequently, the structural model evaluated the hypothesized causal relationships among the TAM variables by examining multicollinearity through Variance Inflation Factor (VIF), the coefficient of determination (R^2) for explanatory power, and predictive relevance (Q^2) to determine the model's forecasting capability.

Hypothesis testing was conducted through a bootstrapping procedure in SmartPLS, employing a 5% significance level. Hypotheses were accepted or rejected based on p-values below 0.05 and t-statistics above 1.96. This inferential process provided empirical evidence for the significance of each proposed relationship within the Technology Acceptance Model framework.

Result and Discussion

This study was conducted among teachers working at state (MTsN) and private (MTsS) Islamic junior high schools under the Ministry of Religious Affairs in Padang City. The research population comprised 695 teachers who actively used the Ministry's LMS Pintar Kemenag. A non-probability sampling technique was employed, and the questionnaire was administered digitally using Google Forms. From this process, 285 valid responses were obtained, meeting the required sample size for the study.

Descriptive statistical analysis indicates that the sample was predominantly composed of female teachers, with 182 respondents (63%), while male teachers accounted for the remaining proportion. In terms of age distribution, the largest group of respondents was within the 41–50 years age range, comprising 97 individuals (34.04%). Regarding educational attainment, the majority of respondents held a bachelor's degree (S1), totaling 238 teachers (83.50%), indicating a relatively homogeneous academic background among participants. Based on teaching experience, the highest proportion of respondents had teaching tenure ranging from 1 to 10 years, amounting to 107 teachers (37.54%). With respect to experience in using LMS Pintar, most respondents (247 teachers; 86.67%) reported having used the platform for more than one year. Similarly, descriptive results related to usage duration show that the majority of respondents had been utilizing LMS Pintar for less than five years, accounting for 247 teachers (86.67%). Overall, these findings suggest that the respondents possess sufficient professional experience and familiarity with LMS Pintar, supporting the adequacy of the sample for subsequent quantitative analysis.

Table 1. Measurement Model

Measurement Items		Outer Loading	Cronbach 's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Attitude Toward Using	ATU1	0.931	0.78	0.885	0.694
	ATU2	0.896			
	ATU3	-0.251			
	ATU4	0.937			
	ATU5	0.926			
Behavioral Intention To use	BI1	0.921	0.744	0.872	0.648
	BI2	0.913			
	BI3	-0.131			
	BI4	0.898			

Measurement Items		Outer Loading	Cronbach 's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
	BI5	0.878			
	PEU1	0.814			
	PEU2	0.760			
Perceived Ease of Use	PEU3	0.839	0.684	0.804	0.529
	PEU4	-0.130			
	PEU5	0.826			
	PU1	0.870			
	PU2	0.829			
Perceived Usefulnes	PU3	-0.120	0.767	0.861	0.626
	PU4	0.919			
	PU5	0.908			
	AU1	0.880			
	AU2	0.753			
Actual Use	AU3	0.889	0.744	0.847	0.601
	AU4	-0.129			
	AU5	0.927			

The overall model fit was evaluated using the standardized root mean square residual (SRMR) and additional fit indices. The SRMR values for both the saturated model (0.089) and the estimated model (0.094) were within the acceptable range for PLS-SEM, indicating an adequate approximation between the observed and model-implied correlations. Although the normed fit index (NFI) values were relatively modest, this result is acceptable given the predictive and exploratory nature of PLS-SEM. The result of model fit can be observed in Table 2.

Overall, the Goodness of Fit results indicate that the research model meets the feasibility criteria. This confirms that both the measurement model and the structural model are suitable for use and can support hypothesis analysis regarding the causal relationships between the research variables.

Table 2. Model Fit

	Saturated model	Estimated model
SRMR	0.089	0.094
d_ULS	2,557	2,892
d_G	0.928	0.957
Chi-square	1414,687	1445,224
NFI	0.777	0.773

To test the hypothesis, this study uses the t-statistic value compared with the t-table of 1.96 at a 5% significance level. The hypothesis is considered accepted if the t-statistic exceeds 1.96, and rejected if the value is below 1.96. The output from SmartPLS 4.0 showing the results of the structural model estimation can be seen in Table 3.

Table 3. Hypothesis Test

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics	P-Values	Desc
PEU -> PU	0.825	0.829	0.025	33.233 > 1.96	0.000	Accepted
PEU -> ATU	0.299	0.296	0.085	3.512 > 1.96	0.000	Accepted
PU -> ATU	0.580	0.583	0.084	6.916 > 1.96	0.000	Accepted
PEU -> BI	0.183	0.184	0.072	2.561 > 1.96	0.011	Accepted
ATU -> BI	0.719	0.719	0.068	10.504 > 1.96	0.000	Accepted
BI -> AU	0.778	0.780	0.029	27.239 > 1.96	0.000	Accepted

The findings support H1, demonstrating that Perceived Ease of Use (PEU) significantly influences Perceived Usefulness (PU) in the utilization of LMS Pintar Kemenag. This result indicates that Islamic junior high school teachers in Padang City perceive LMS Pintar as a platform that is easy to operate, which in turn strengthens their perception of its usefulness. The perceived simplicity of the system enhances the benefits teachers experience when using the LMS and contributes to a more positive evaluation of its utility.

These findings are consistent with the study by Al-Adwan et al. (2023), which similarly reported a significant effect of PEU on PU.

The analysis also confirms H2, showing that PEU exerts a significant effect on Attitude Toward Use (ATU). This outcome aligns with the findings of Komendangi et al. (2017), who reported a positive influence of PEU on ATU. The results suggest that teachers view LMS Pintar as a platform that is easy to navigate and does not require substantial effort to

operate. Consequently, this perceived ease encourages teachers to recognize the LMS as a tool capable of supporting their work and contributing to their professional development (Balkaya et al., 2021; Kaewsaiha et al., 2021; Singh et al., 2024; Turnbull et al., 2020).

Moreover, the results validate H3, indicating that PU has a significant impact on ATU in the context of LMS Pintar usage. This means that teachers perceive LMS Pintar as beneficial for their instructional activities, and this perception of usefulness fosters a favorable attitude toward its adoption. This finding is in line with the study by Indahyati et al. (2014), Prastiawan et al. (2021), Gunawan et al. (2019) which also found that PU significantly affects attitudes toward system use.

The study likewise supports H4, revealing that PEU significantly influences Behavioral Intention (BI) to use LMS Pintar Kemenag. Teachers in Padang City perceive LMS Pintar as a system that is easy to use, and this perception strengthens their intention to engage with the platform. These findings corroborate the results of Siang et al. (2015), who similarly reported a significant effect of PEU on BI.

The results further confirm H5, showing that ATU significantly affects BI. This aligns with the findings of Indahyati et al. (2014), who demonstrated that positive attitudes toward system use significantly enhance behavioral intention. In this study, teachers who possess favorable attitudes toward LMS Pintar exhibit a stronger interest in using the platform. Their positive perceptions motivate them to adopt the LMS as a tool that can support and enhance their professional growth (Al-Mamary, 2022; Ashrafi et al., 2022; Liu et al., 2021).

Finally, the findings affirm H6, indicating that BI significantly influences Actual Use (AU) of LMS Pintar Kemenag. This suggests that teachers in Padang City have a strong tendency to use the system, driven by their positive behavioral intentions. The results imply that teachers perceive tangible benefits from using the LMS, which encourages consistent and meaningful actual use. This conclusion aligns with the study conducted by Indahyati et al. (2014), which also demonstrated a significant relationship between BI and AU.

Conclusion

Based on the analysis conducted with 285 public and private madrasah tsanawiyah teachers under the Ministry of Religious Affairs in Padang City, this study concludes that the utilization of LMS Pintar Kemenag, examined through the Technology Acceptance Model (TAM), demonstrates several significant causal relationships. Perceived Ease of Use was found to have a significant effect on Perceived Usefulness, indicating

that teachers who consider the system easy to operate are more likely to perceive it as beneficial. Perceived Ease of Use also exhibited a significant influence on Attitude toward Using, while Perceived Usefulness similarly contributed significantly to shaping teachers' attitudes regarding the system. Furthermore, Perceived Ease of Use showed a significant impact on Behavioral Intention to Use, suggesting that ease of operation strengthens teachers' intention to adopt the LMS. Attitude toward Using was also proven to significantly influence Behavioral Intention to Use. Finally, the findings confirmed that Behavioral Intention to Use had a significant effect on Actual System Use, reinforcing the central premise of TAM that intention serves as a strong predictor of real system utilization within the teaching context.

References

Al-Adwan, A. S., Li, N., Al-Adwan, A., Abbasi, G. A., Albelbisi, N. A., & Habibi, A. (2023). "Extending the Technology Acceptance Model (TAM) to Predict University Students' Intentions to Use Metaverse-Based Learning Platforms". *Education and Information Technologies*, *28*(11), 15381–15413. https://doi.org/10.1007/s10639-023-11816-3

Al-Mamary, Y. H. S. (2022). Why do students adopt and use Learning Management Systems?: Insights from Saudi Arabia. *International Journal of Information Management Data Insights*, *2*(2), 100088. https://doi.org/10.1016/j.jjimei.2022.100088

Ashrafi, A., Zareravasan, A., Rabiee Savoji, S., & Amani, M. (2022). Exploring factors influencing students' continuance intention to use the learning management system (LMS): a multi-perspective framework. *Interactive Learning Environments*, *30*(8), 1475–1497. https://doi.org/10.1080/10494820.2020.1734028

Attahakul, P. (2025). Education's Role in Creating a

Sustainable and Equitable Society. *Journal of Asian Language Teaching and Learning (Online)*, *6*(1), 81–93. Retrieved from https://so10.tci-thaijo.org/index.php/jote/article/view/1794

Balkaya, S., & Akkucuk, U. (2021). Adoption and Use of Learning Management Systems in Education: The Role of Playfulness and Self-Management. *Sustainability*, *13*(3), 1127. https://doi.org/10.3390/su13031127

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu). *European Journal of Education*, *54*(3), 356–369. https://doi.org/10.1111/ejed.12345

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, *35*(8), 982–1003. https://doi.org/10.1287/mnsc.35.8.982

George, D. A. S., & George, A. S. H. (2024). Towards a Super Smart Society 5.0: Opportunities and Challenges of Integrating Emerging Technologies for Social Innovation. *Partners Universal International Research Journal*, *3*(2), 01–29. https://doi.org/10.5281/zenodo.11522048

Gholami, A. (2024). The Integration of Spiritual Curriculum into Primary School Physical Education in Relation to Transformational Teaching Approaches. *Physical Activity in Children*, *1*(1), 14–20. https://doi.org/10.61186/pach.416547.1005

Gunawan, F., Ali, M. M., & Nugroho, A. (2019). Analysis of the Effects of Perceived Ease of Use and Perceived Usefulness on Consumer Attitude and Their Impacts on Purchase Decision on PT Tokopedia In Jabodetabek. *European Journal of Business and Management Research*, *4*(5). https://doi.org/10.24018/ejbmr.2019.4.5.100

Kaewsaiha, P., & Chanchalor, S. (2021). Factors affecting the usage of learning management systems in higher education. *Education and Information Technologies*, *26*(3), 2919–2939. https://doi.org/10.1007/s10639-020-10374-2

Komendangi, F., Molenaar, R., & Lengkey, L. (2017). Analisis Dan Perancangan Aplikasi E-Learning Berbasis Learning Management System (LMS) Moodle Di Program Studi Teknik Pertanian Universitas Sam Ratulangi. *E-Journal Universitas Sam Ratulangi*, *1*(3), 1–11. Retrieved from https://ejournal.unsrat.ac.id/v3/index.php/cocos/article/view/14980/14552

Liu, Q., & Geertshuis, S. (2021). Professional identity and the adoption of learning management systems. *Studies in Higher Education*, *46*(3), 624–637.

https://doi.org/10.1080/03075079.2019.1647413

Muliyadi, L., Doyan, A., Susilawati, Hamidi, Hakim, S., & Munandar, H. (2023). Training on Using PhET Virtual Media on Newton's Law of Gravity for Class X Students at Islamic Senior High School of Syaikh Abdurrahman Kotaraja, East Lombok. *Unram Journal of Community Service*, *1*(1), 15–18. Retrieved from https://journals.balaipublikasi.id/index.php/jcss/article/view/68

Prastiawan, D. I., Aisjah, S., & Rofiaty, R. (2021). The Effect of Perceived Usefulness, Perceived Ease of Use, and Social Influence on the Use of Mobile Banking through the Mediation of Attitude Toward Use. *Asia Pacific Management and Business Application*, *009*(03), 243–260. https://doi.org/10.21776/ub.apmba.2021.009.03.4

Rahimi, R. A., & Oh, G. S. (2024). Rethinking the role of educators in the 21st century: navigating globalization, technology, and pandemics. *Journal of Marketing Analytics*, *12*(2), 182–197. https://doi.org/10.1057/s41270-024-00303-4

Siang, J. J., & Santoso, H. B. (2015). Students' Perspective of Learning Management System: an Empirical Evidence of Technology. *Journal of Arts, Science & Commerce*, *5*(2), 1–14. Retrieved from https://researchersworld.com/index.php/rworld/article/view/565

Singh, S., & Chakraborty, A. (2024). Educators' learning experiences and intention to use online learning Management Systems' platforms: A perceptual study. *Serbian Journal of Management*, *19*(2), 319–337. https://doi.org/10.5937/sjm19-45512

Susilawati, Doyan, A., Rokhmat, J., Muliyadi, L., Rizaldi, D. R., Fatimah, Z., Ikhsan, M., & Ardianti, N. R. (2025). Integration of Smartphone-Based Learning Media and Project-Based Learning to Enhance Creativity and Scientific Literacy in Physics. *International Journal of Information and Education Technology*, *15*(7), 1449–1459. https://doi.org/10.18178/ijiet.2025.15.7.2346

Tavares, M. C., Azevedo, G., & Marques, R. P. (2022). The Challenges and Opportunities of Era 5.0 for a More Humanistic and Sustainable Society—A Literature Review. *Societies*, *12*(6), 149. https://doi.org/10.3390/soc12060149

Turnbull, D., Chugh, R., & Luck, J. (2020). Learning Management Systems, An Overview. In *Encyclopedia of Education and Information Technologies* (pp. 1052–1058). Springer International Publishing. https://doi.org/10.1007/978-3-030-10576-1_248