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Microlearning in the Public Sector: What Drives User Satisfaction?

Dirza Williansyah*, Elok Savitri Pusparini
Departement of Management, Faculty of Economics and Business, Universitas Indonesia, Indonesia
*Corresponding author e-mail: dirza.williansyah@ui.ac.id

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Abstract

Purpose – This research seeks to thoroughly explore the determinants of user satisfaction in microlearning within the public sector. It employs DeLone and McLean's Information System Success Model (DMISM) as a foundational framework, while also examining the impacts of transformational leadership and system compatibility.

Methodology –This quantitative study gathered data via an online survey, achieving 317 responses from participants within Indonesia's public sector through a snowball sampling approach. The analysis of the collected data was conducted using covariance-based structural equation modeling (CB-SEM) with LISREL 8.8 software.

Findings –The results indicate that overall quality, compatibility, and transformational leadership significantly and positively impact user satisfaction, with actual usage serving as a mediating factor.

Originality –The study examines both individual and organizational elements to offer fresh perspectives on the primary factors driving user satisfaction in microlearning within the public sector.

1. Introduction

The digital transformation of workplace training has evolved beyond a mere reaction to the COVID-19 pandemic into a strategic imperative for hybrid and flexible work environments (Wallo et al., 2025). As organizations transition to these models, traditional lengthy training sessions often result in cognitive overload, prompting a shift toward microlearning a pedagogical strategy delivering content in short, focused segments designed to enhance retention and reduce mental fatigue (Samala et al., 2023; Suryani et al., 2025). However, the rapid adoption of these digital management systems has outpaced the theoretical understanding of what truly drives their sustained usage and user satisfaction, particularly within the rigid structures of the public sector (Zhang, 2025).

Despite the growing adoption of microlearning, a significant academic debate persists regarding the primary drivers of its success, particularly within the rigid context of public sector institutions. On one hand, technocentric perspectives argue that the efficacy of digital learning hinges predominantly on system and information quality, asserting that high-performing technical infrastructure and data accuracy are the prerequisites for user satisfaction (Knauer et al., 2020; Widodo et al., 2023). In contrast, organizational behaviorists contend that in bureaucratic

environments, technical solutions are insufficient without the catalyst of transformational leadership to foster psychological safety and a culture of continuous learning (Ramadhan et al., 2025). This school of thought suggests that leadership strategies, rather than system features, are the true determinants of adapting to digital transformation.

Complicating this dichotomy is the emergence of compatibility as a critical variable, where recent scholars argue that neither technical quality nor leadership support suffices if the learning format does not align with the learner's specific workflow, values, and past experiences (Aldholay et al., 2018; Williansyah & Pusparini, 2024). Consequently, this research is necessary to resolve these conflicting narratives by empirically testing an integrated model that weighs these technological, organizational, and individual factors simultaneously. By doing so, it addresses the gap in understanding how these competing determinants interact to drive user satisfaction specifically among adult learners in government financial institutions, a demographic often overlooked in studies focused on general education or private sector contexts.

The advancement of information technology has facilitated the creation of efficient digital learning models within workplace environments (Kshirsagar et al., 2020). Digital learning offers numerous benefits, particularly in addressing the limitations associated with conventional learning approaches. Nevertheless, certain challenges persist. Extended digital learning sessions can cause mental fatigue, and there are concerns about decreasing attention spans, which may be attributed to increased smartphone usage and reliance on technology (Shail, 2019; Wilmer et al., 2017). This can impede learners' capacity to concentrate on lengthy educational content (Shail, 2019).

As evidenced by Hollands and Kazi (2019), Only 15% of participants finish online learning programs, underscoring a major issue of low engagement that hampers the success of these initiatives. Microlearning presents a promising remedy to this challenge. According to Lee et al. (2021), Microlearning entails dividing content into small, digestible segments, each concentrating on a specific concept and delivered in a short period. This method effectively addresses existing challenges and can enhance learner engagement and knowledge retention in workplace environments, particularly due to its efficient use of time and resources (Dolasinski & Reynolds, 2020).

Previous studies have shown that microlearning is broadly accepted across various domains and through multiple media formats. The fields that have most thoroughly adopted microlearning techniques are health sciences and agriculture. This method, which includes online courses, mobile apps, videos, flashcards, text messaging, and web-based dashboards, provides remarkable flexibility. Information technology primarily supports the implementation of microlearning (Dolasinski & Reynolds, 2020; Taylor & Hung, 2022).

Recently, the public sector has shown increased interest in microlearning as a succinct and targeted educational model (Gagné et al., 2019). This approach is acknowledged for its efficacy in spreading knowledge and fostering skill development (Beste, 2023). The advantages of microlearning are becoming more apparent, demonstrating beneficial results in its implementation (Shatte & Teague, 2020). Earlier studies suggest that microlearning can improve knowledge retention, skill acquisition, and confidence in executing tasks (Gagné et al., 2019). Additionally, microlearning can enhance collaborative learning and employee engagement, cultivating an environment of ongoing education (Inker et al., 2020).

Nonetheless, the inconsistent application of microlearning limits its ability to maximize user satisfaction and learning results. This variability is probably due to the model's relatively recent introduction, resulting in diverse interpretations and implementations in various settings (Dolasinski & Reynolds, 2020). Moreover, there is a lack of research on user satisfaction with microlearning among adult learners, as most studies concentrate on general e-learning

effectiveness or theoretical explorations (Rouibah et al., 2020; So et al., 2020). The shortage of empirical studies is particularly troubling, considering the strong connection between microlearning and information systems (Mohammed et al., 2018). Success models for information systems (DMISM), such as the DeLone and McLean model, highlight user satisfaction as a key determinant of a system's overall effectiveness.

Similar to information systems, user satisfaction in online learning is essential for determining the system's effectiveness. It has a direct impact on engagement, retention, and learning outcomes. Achieving high user satisfaction occurs when the online learning environment meets or surpasses learners' expectations regarding usability, content quality, and interactivity (Al-Fraihat et al., 2020). Research indicates that learners who are satisfied are more likely to complete their courses and recommend them to others, thereby creating a positive feedback loop that boosts the overall effectiveness of the learning system (Pham et al., 2019).

In the context of microlearning, user satisfaction becomes even more critical due to its unique characteristics. Microlearning delivers content in small, focused units that can be quickly consumed, demanding high compatibility for successful adoption (Nikou & Economides, 2018). Moreover, Sankaranarayanan et al. (2023) emphasized the role of microlearning in improving learner satisfaction and perceptions. Compatibility, a key element in information systems, measures how well a new technology aligns with a person's values, expectations, and past experiences (Aldholay et al., 2020). Past studies consistently demonstrate that compatibility is a pivotal factor influencing individuals' attitudes toward technology and their readiness to embrace it (Aldholay et al., 2020; Mutahar et al., 2017; Puah et al., 2022).

Expanding on the notion of compatibility, transformational leadership also plays a crucial role in learning contexts by empowering, inspiring, and motivating employees to actively participate (Khalid et al., 2020). Successful learning initiatives frequently benefit from transformational leadership, which emphasizes four essential behaviors: setting an example, fostering enthusiasm, prompting critical thinking among learners, and offering personal assistance. (Khalid et al., 2020). Effective transformational leadership in the public sector not only cultivates a supportive learning environment but also plays a crucial role in the overall success of learning efforts by promoting employee engagement and dedication.

Current literature on public sector digital training is divided. On one side, Williansyah & Pusparini (2024) argue from a technocratic perspective, suggesting that system quality is the primary drivers of user satisfaction. Conversely, Herlina et al. (2025) present a structuralist view, contending that organizational culture and governance frameworks are the true determinants of success, often overshadowing technical features. Furthermore, Gu et al. (2023) suggest that in the public sector, satisfaction may be driven more by perceived utility and transparency than by user experience alone.

This research aims to resolve this debate by identifying which of these competing factors System Quality, Organizational Factor from Leadership Style, or Perceived Utility from Compatibility is the dominant driver of Microlearning satisfaction specifically within Indonesian public sector. It also fills a gap in the DeLone and McLean Information Systems Success Model (DMISM) by considering the effects of individual and organizational factors on the adoption of microlearning. The research focuses on a Government Financial Organization (GFO) with an established microlearning platform since 2017, offering a concentrated analysis of user satisfaction in a well-developed microlearning setting. The findings aim to provide valuable insights for public sector organizations, enhancing the success of employee learning programs that employ microlearning strategies.

1.1. The IS Success Model in the context of microlearning

The DeLone and McLean Information Systems Success Model (ISSM) serves as a foundational framework for evaluating the efficacy of digital learning platforms, positing that system success is a multidimensional construct driven by three primary antecedents: system quality, information quality, and service quality (DeLone & McLean, 2003). In the specific context of microlearning, where content is delivered in bite-sized, focused segments, these quality dimensions are critical; system quality ensures technical reliability and ease of use, while information quality guarantees that the condensed content is accurate, relevant, and timely (Adnan, 2024; Williansyah & Pusparini, 2024). Furthermore, recent studies emphasize that service quality manifested through responsive technical support and reliable infrastructure is the most prominent influencer of student satisfaction in learning management systems, suggesting that technical functionality alone is insufficient without adequate support structures (Ayubi & Retnowardhani, 2025; Widodo et al., 2023).

Building upon these antecedents, the ISSM framework demonstrates that high-quality microlearning environments significantly influence user satisfaction and actual system usage, which subsequently drive organizational net benefits such as improved employee performance and continuous intention to use (Widodo et al., 2023). Contemporary research has extended the original model to include "compatibility" as a vital determinant, arguing that microlearning systems must align with the learner's specific workflow, values, and prior experiences to maximize adoption rates, particularly in rigid sectors like public administration (Williansyah & Pusparini, 2024). Consequently, the integration of high compatibility with robust system and information quality creates a feedback loop where increased user satisfaction mediates the relationship between technical features and the sustained usage necessary for lifelong learning and skill acquisition (Monib et al., 2025).

1.2. Overall Quality (QUL)

Overall quality is a multifaceted concept comprising system quality, information quality, and service quality (Aldholay et al., 2020; Aldholay, Isaac, Abdullah, & Ramayah, 2018; Aldholay, Isaac, Abdullah, Abdulsalam, 2018; Isaac et al., 2019). Flack (2016) found substantial connections between the extent of usage, user satisfaction, and the quality of information systems. In the context of microlearning information systems, a high-quality learning system is likely to be utilized more efficiently and regularly.

Understanding the overall quality of an information system requires examining three key dimensions. The first dimension, system quality, includes technical factors such as reliability, performance, and user-friendliness, all of which are crucial for providing reliable and efficient learning experience (DeLone & McLean, 1992, 2003). The second dimension, information quality, is vital, highlighting the necessity of relevant, accurate, and valuable content that enhances employee engagement with the information system (DeLone & McLean, 1992, 2003). Lastly, service quality, as highlighted by Aparicio et al. (2019), This relates to the support provided by the system provider in addressing user issues, resulting in a positive user experience and higher satisfaction with the information system in use.

The quality of the overall system has demonstrated significant positive relationships that influence actual usage and subsequently impact user satisfaction in online learning at Jordan University (Aldholay et al., 2020; Aldholay, Isaac, Abdullah, Abdulsalam, 2018). Another research investigation indicated that the quality of the system, information, and service each showed notable positive connections with both usage levels and user satisfaction (Çelik & Ayaz,

2022; Tam & Oliveira, 2016). Other studies have found that system quality has a positive but non-significant effect on user satisfaction (Nasoha, 2015). Their research, conducted in another setting, revealed that overall quality enhances user satisfaction by facilitating the use of system information. This underscores the significance of enhancing the system's overall quality to improve user satisfaction. According to these findings, there exists a positive and significant correlation between overall quality and actual usage, with actual usage serving as a mediator between the two variables. Consequently, this study will posit the following hypotheses.

H_{1a}: The overall quality significantly and positively influences the effective utilization of the microlearning system

H_{1b}: The overall quality of the microlearning system exerts an indirect positive and significant influence on user satisfaction by influencing actual usage

1.3. Compatibility (CMP)

Compatibility, identified as a crucial factor in innovation, is highlighted by Rogers (1995) for its role in accelerating technology adoption through alignment with users' values and previous experiences. According to Rogers (1995) further contends that compatibility (Cheng, 2015; Moore & Benbasat, 1991; Mutahar et al., 2017). Thus, compatibility assesses how well the microlearning system aligns with individuals' values, needs, environment, and past experiences.

Aldholay et al. (2020) found that Compatibility significantly impacts the actual usage of learning information systems, subsequently influencing user satisfaction. Users tend to be more satisfied with information systems that align with their needs and work preferences, as demonstrated in research by Ozturk et al. (2016). These studies have identified a positive correlation between compatibility, usage levels, and consequently, user satisfaction. Thus, this study will propose the following hypotheses:

H_{2a}: Compatibility positively and significantly influences the actual usage of the microlearning system

H_{2b}: Compatibility exerts an indirect positive and significant influence on user satisfaction with the microlearning system

1.4. Transformational Leadership (TL)

Transformational leadership (TL) is widely recognized as a leadership paradigm where leaders inspire followers to transcend self-interest for the greater good of the organization, fostering a climate of trust and shared vision (Ayandibu, 2024). This leadership style comprises four distinct behavioral dimensions: idealized influence, where leaders act as role models; inspirational motivation, involves articulating a compelling vision; intellectual stimulation, which encourages innovation and questioning of assumptions; and individualized consideration, where leaders attend to specific follower needs (Alshamsi et al., 2020; Bass & Avolio, 1994). In the realm of information systems, this leadership approach is vital for empowering organizations, stimulating motivation, and encouraging employee engagement in learning, thereby influencing the overall success of learning initiatives (Khalid et al., 2020).

The objective of this study is to evaluate how transformational leadership affects the microlearning information system, particularly examining idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Ghazali et al., 2015). It measures transformational leadership based on employee perceptions of their direct supervisor's leadership style, using the four specified dimensions (Ghazali et al., 2015; Khalid et al., 2020). Therefore, transformational leadership can encourage and motivate each employee to actively engage in learning, aiming to enhance user satisfaction. Aldholay et al. (2020) found that

transformational leadership positively and significantly impacts actual usage and then affect user satisfaction. Similar findings were obtained in the studies conducted by Rezvani et al. (2017) and Ghazali et al. (2015), which demonstrated that transformational leadership is positively related to user satisfaction and enhances system usage. Therefore, in this study, the following hypotheses will be formulated:

H3a: Transformational leadership positively and significantly influences the actual usage of the microlearning system

H3b: Transformational leadership exerts an indirect positive and significant influence on user satisfaction with the microlearning system

1.5. Actual Usage (USE)

DeLone and McLean (2003) Provide a comprehensive framework for comprehending actual usage, particularly emphasizing the degree to which individuals actively engage with the various features of information systems. Usage of information systems, including microlearning platforms, is defined as the efforts made by individuals to utilize the system, which plays a crucial role in generating organizational value (Jeyaraj, 2020). Differentiating between actual usage and usage intention is essential; actual usage refers to the behavior of using the system, while usage intention relates to the user's future plans to use it. Without genuine usage, an information system cannot produce positive effects. Usage characteristics include frequency, duration, extent, and variation, as well as user attitudes and system reliance. (Aparicio et al., 2019). In this study, usage is characterized as the perceived degree to which the microlearning system is employed for activities (Aparicio et al., 2019).

A thorough investigation of various factors is required, including the distinct features of the systems, the frequency of use, and the duration of individual interactions with specific technology. The significance of the utilization level is evident, given its substantial impact on user satisfaction, as corroborated by numerous studies (Aldholay et al., 2020; Aldholay, Isaac, Abdullah, & Ramayah, 2018; Aldholay, Isaac, Abdullah, Abdulsalam, 2018; Isaac et al., 2019; Tam & Oliveira, 2016). This implies that the more individuals use the system beyond their initial expectations, the greater their satisfaction tends to be. Several recent studies further substantiate this relationship between usage frequency and user satisfaction. Xie et al. (2024) found that increased engagement with AI-powered systems heightened user satisfaction through the positive correlation between usage frequency and system. Similarly, Durak (2023) demonstrated that higher frequency of chatbot use in educational settings boosted satisfaction by enhancing user confidence and perceived effectiveness. Khan et al. (2023) further supported this notion by showing that prolonged engagement with digital library systems directly contributed to greater satisfaction due to improved information accessibility. Therefore, increased usage is anticipated to boost user satisfaction, laying a robust foundation for the following hypothesis in this study.

H_4: The actual usage of the microlearning system positively and significantly influences user satisfaction

1.6. User Satisfaction (SAT)

User satisfaction is crucial in the realm of online learning, particularly in measuring the satisfaction levels of employees who actively participate in the learning system (Aldholay et al., 2020; Aldholay, Isaac, Abdullah, & Ramayah, 2018; Aldholay, Isaac, Abdullah, Abdulsalam, 2018; Isaac et al., 2019). This concept is consistent with the Delone and McLean Information Systems Success Model (IS Success Model), which posits that user satisfaction is a key factor in assessing the effectiveness of information systems (DeLone & McLean, 1992, 2003). Building on

this concept, user satisfaction is closely associated with the perceived quality of the system, encompassing various elements such as information quality, system performance, and service delivery through actual usage. In the context of learning systems, user satisfaction is intricately tied to the quality of educational content, the effectiveness of the learning system, and the overall service provided by the platform. Following DeLone & McLean (2003), user satisfaction serves as a critical metric for evaluating the effectiveness and success of the microlearning system.

1.7. Proposed Model Overview

This study builds upon existing literature to define the relationships among the components of the conceptual framework. Figure 1 depicts the proposed model, which incorporates the overall quality (comprising service, system, and information quality), the actual system usage, and user satisfaction. (DeLone & McLean, 2003), compatibility and transformational leadership (Aldholay et al., 2020). The current model assesses the connections between the constructs and suggests four hypotheses for empirical testing.

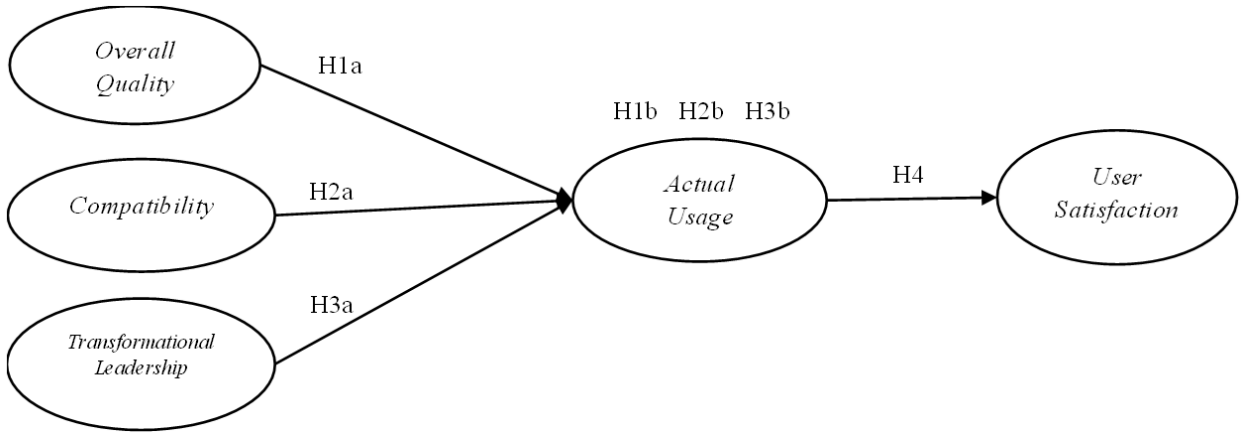

Figure 1. Conceptual Model (2023)

2. Research Methods

2.1. Data Collection

This research utilizes a quantitative methodology, gathering data via an online survey administered through Google Forms. This method was selected due to its effectiveness in reaching a broad and geographically diverse population. The significance of this study is heightened by the fact that the participants are employees spread across different regions of Indonesia. The study's subjects include employees from the Government Financial Organization in Indonesia (GFO) who have at least one year of work experience and have completed a minimum of one microlearning course. A nonprobability sampling technique, specifically snowball sampling, was employed, wherein initial respondents recommended additional participants (Cooper & Schindler, 2014). Snowball sampling was employed from September to October 2023, yielding a total of 363 responses. During the data screening process, 25 entries were found to not meet the specified requirements and consistency criteria, making them unsuitable for analysis. Subsequently, a data cleansing procedure using Microsoft Excel identified and excluded 21 outliers in the QUL, TL, and USE variables. Consequently, the analysis proceeded with 317 data entries. This sample size is deemed adequate as it exceeds the minimum required sample size, which is determined by the formula (n x 5), where n represents the number of indicators.

The study utilized a questionnaire to gauge participants' perceptions of different facets of the system. This questionnaire comprised 35 items, which were adapted from several prior research studies, and utilized a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). To evaluate the overall quality, the research employed 11 indicators that were modified from previous studies Aldholay et al. (2018). Compatibility was measured using four indicators adapted from Moore and Benbasat (1991). Transformational leadership was evaluated with 12 indicators adapted from Ghazali et al. (2015). Therefore, actual usage was measured using four indicators adapted from Aparicio et al. (2019). Finally, user satisfaction was also measured with a four-item scale adapted from Aparicio et al. (2019).

2.2. Data Analysis

This research utilizes Structural Equation Modeling (SEM), a sophisticated statistical technique for testing hypotheses concerning the connections between both observed and latent variables. SEM integrates aspects of factor analysis and multiple regression analysis, enabling the simultaneous exploration of intricate causal relationships among various variables (Hair et al., 2014). Hypothesis testing was conducted using LISREL 8.8 to examine the correlations between variables. Hair et al. (2014) state that SEM comprises two primary components: the measurement model, which addresses the associations between latent variables and their indicators, and the structural model, which investigates the relationships among the latent variables themselves. This research utilizes Covariance-Based Structural Equation Modeling (CB-SEM) to test the theories outlined in the DeLone and McLean Information System Success Model.

3. Results and Discussions

3.1. Respondents Demographic

Table 1 displays the demographic attributes of the participants, indicating that a significant portion of the respondents are male, comprising 223 individuals (70.3%). The age distribution shows that the majority, 163 participants (51%), are between 31 and 40 years old. Regarding educational background, half of the respondents, 160 individuals (50.5%), hold a Bachelor's degree, followed by those with a Diploma (31.2%), a Master's degree (15.8%), high school education (2.2%), and a Doctorate degree (0.3%). Geographically, most respondents are based in Java, accounting for 211 individuals (66.6%), while others are distributed across Bali-NTT-NTB (8.2%), Sumatera (10.7%), Kalimantan (5.7%), Sulawesi (5.4%), and Maluku-Papua (3.5%).

The demographic profile indicates that the sample is largely composed of respondents who are in their productive working age and possess relatively high educational qualifications. These characteristics suggest that the participants are likely to have sufficient experience and knowledge to evaluate the implementation and effectiveness of microlearning in the public sector. Furthermore, the inclusion of respondents from multiple regions of Indonesia enhances the representativeness of the sample by capturing perspectives from diverse geographical contexts and organizational environments.

These demographic insights provide context for interpreting the study's findings, showing a diverse representation in terms of gender, age, education, and geographic distribution. The concentration of respondents with a bachelor’s degree and a presence primarily in Java may influence perceptions and experiences within the public sector, particularly in regions with different infrastructure and educational backgrounds. This demographic diversity helps ensure a more comprehensive understanding of user satisfaction with microlearning across varying public sector environments.

Table 1. Respondents Demographic

Item	Categories	Freq.	Percentage
Gender	Male	223	70.3
	Female	94	29.7
Age	< 25 years	29	9
	25 to 30 years	87	27
	31 to 40 years	163	51
	41 to 50 years	23	7
	> 50 years	15	5
Education	High School or equivalent	7	2.2
	Diploma (DI - DIII)	99	31.2
	Bachelor's degree (DIV / S1)	160	50.5
	Master's degree (S2)	50	15.8
	Doctorate degree (S3)	1	0.3
Work Location	Sumatera	34	10.7
	Java	211	66.6
	Kalimantan	18	5.7
	Bali-NTT-NTB	26	82
	Sulawesi	17	5.4
	Maluku-Papua	11	3.5

Source: processed data

3.2. Assessment of Measurement Model

This study utilized Confirmatory Factor Analysis (CFA) to evaluate how well the measures represent the intended constructs, ensuring the validity and reliability of the indicators while confirming the hypothesized structure of the constructs. Convergent validity, a critical component, was assessed using the standardized loading factor (SLF) and average variance extracted (AVE). According to Hair et al. (2014), an SLF of 0.5 or higher and an AVE of 0.5 or higher indicate good convergent validity.

The research found that all indicators met the SLF criteria (as detailed in Table 2), and the AVE exceeded 0.5 for most constructs. Although the AVE for system and service quality indicators fell below the 0.5 threshold, their composite reliability (CR) values were above 0.6, indicating acceptable convergent validity according to Fornell and Larcker (1981). These findings validate the measurement component of the model, allowing for further analysis.

The measurement assessment results in Table 2 confirm that all variables and indicators are valid and reliable, with adequate standard loadings, average variance extracted (AVE), and composite reliability (CR) values. Compatibility, transformational leadership, overall quality, actual usage, and user satisfaction meet the reliability and validity standards, supporting their robustness in the model. These results underline that the constructions adequately capture the intended dimensions, providing a sound foundation for further analysis and interpretation within the context of microlearning systems in the public sector.

Table 2. Measurement Assessment Results

Variables	Dimension	Indicator		Latent Variables	SLF	AVE	CR	Conclusion
First Order								
Compatibility	Unidimensional	CMP1	<=	CMP	0.82	0.614	0.862	Valid and Reliable
		CMP2	<=	CMP	0.88			
		CMP3	<=	CMP	0.81			
		CMP4	<=	CMP	0.6			
Transformational Leadership	Ideal Influence	II1	<=	II	0.89	0.817	0.930	Valid and Reliable
		II2	<=	II	0.93			
		II3	<=	II	0.89			
	Inspire Motivation	IM1	<=	IM	0.88	0.736	0.893	Valid and Reliable
		IM2	<=	IM	0.83			
		IM3	<=	IM	0.86			
	Intellect Stimuli	IS1	<=	IS	0.93	0.849	0.944	Valid and Reliable
		IS2	<=	IS	0.92			
		IS3	<=	IS	0.91			
	Individu Consider	IC1	<=	IC	0.8	0.777	0.912	Valid and Reliable
		IC2	<=	IC	0.94			
		IC3	<=	IC	0.9			
Overall Quality	System Quality	SYSQ1	<=	SYSQ	0.76	0.442	0.701	Valid and Reliable
		SYSQ2	<=	SYSQ	0.58			
		SYSQ3	<=	SYSQ	0.64			
	Information Quality	INFQ1	<=	INFQ	0.79	0.623	0.892	Valid and Reliable
		INFQ2	<=	INFQ	0.8			
		INFQ3	<=	INFQ	0.82			
		INFQ4	<=	INFQ	0.78			
		INFQ5	<=	INFQ	0.75			
	Service Quality	SERQ1	<=	SERQ	0.66	0.420	0.684	Valid and Reliable
		SERQ2	<=	SERQ	0.59			
		SERQ3	<=	SERQ	0.69			
Actual Usage	Unidimensional	USE1	<=	USE	0.65	0.524	0.812	Valid and Reliable
		USE2	<=	USE	0.57			
		USE3	<=	USE	0.82			
		USE4	<=	USE	0.82			
User Satisfaction	Unidimensional	SAT1	<=	SAT	0.8	0.665	0.888	Valid and Reliable
		SAT2	<=	SAT	0.83			
		SAT3	<=	SAT	0.76			
		SAT4	<=	SAT	0.87			
Second Order								
Transformational Leadership	Ideal Influence	II	<=	TL	0.95	0.890	0.970	Valid and Reliable
	Inspire Motivation	IM	<=	TL	0.99			
	Intellect Stimuli	IS	<=	TL	0.95			
	Individu Consider	IC	<=	TL	0.87			

Variables	Dimension	Indicator		Latent Variables	SLF	AVE	CR	Conclusion
Overall Quality	System Quality	SYSQ	<=	QUL	0.87	0.797	0.922	Valid and Reliable
	Information Quality	INFQ	<=	QUL	0.91			
	Service Quality	SERQ	<=	QUL	0.9			

Source: processed data

Furthermore, the CFA results indicate that the measurement model demonstrates an acceptable level of construct validity and internal consistency, suggesting that the observed indicators adequately represent their respective latent variables. The satisfactory standardized loading factors and composite reliability values confirm that the measurement instrument is sufficiently robust for testing the structural relationships among the constructs. Therefore, the validated measurement model provides confidence that subsequent structural equation modeling (SEM) analysis can be conducted to examine the hypothesized relationships without significant concerns regarding measurement error or construct misspecification.

3.3. Assessment of Structural Model

Table 3 shows the Goodness of Fit (GOF) for the model, which meets the criteria set by Hair et al. (2014), demonstrating satisfactory absolute and incremental fit indices. This outcome suggests that the model provides an acceptable representation of the data, capturing essential relationships between the variables and maintaining structural integrity in the analysis.

Tabel 3. The Goodness of Fit Result

GOF	The Goodness of Fit Indicators	Goodness of Fit Standard	Goodness of Fit Result	Conclusion
Absolute Fit Indices	Goodness-of-Fit Index (GFI)	GFI ≥ 0,90 good fit; 0,80 ≤ GFI < 0,90 marginal fit	0,84	Marginal Fit
	Root Mean Square Error of Approximation (RMSEA)	0,05 ≥ RMSEA ≤ 0,08	0,071	Good Fit
	Normed Chi-Square	3:1	2,59:1	Good Fit
Incremental Fit Indices	Normed Fit Index (NFI)	NFI > 0,9	0,97	Good Fit
	Tucker Lewis Index (TLI) or Non-Normed Fit Index (NNFI)	NNFI > 0,9	0,98	Good Fit
	Comparative Fit Index (CFI)	CFI > 0,9	0,98	Good Fit
	Relative Fit Index (RFI)	RFI > 0,9	0,97	Good Fit
	Incremental Fit Index (IFI)	IFI > 0,9	0,98	Good Fit

Source: processed data

The results reveal that the model meets nearly all criteria for an acceptable fit, with only a marginal fit indicated by the GFI. The high standards met by the RMSEA, NFI, and other incremental indices lend strong support to the model's reliability, showing it adequately represents the data structure. Minor adjustments could potentially improve the GFI; however, the overall fit

confirms the model's effectiveness for examining microlearning adoption in public sector contexts.

3.4. Hypotheses Testing

LISREL 8.80 was utilized for hypothesis testing. A one-tailed test was conducted at a significance level of 0.05, with a critical t-value of 1.645. As a result, all paths in the model displayed t-values exceeding 1.645, indicating statistically significant relationships between the variables. This means that overall quality, compatibility, and transformational leadership all had significant positive effects on actual usage. Additionally, actual usage significantly increased user satisfaction. These findings provide empirical support for hypotheses 1a, 2a, 3a, and 4.

Figure 2 details the model's results. Key among these are the R-squared values, which show that overall quality, compatibility, and transformational leadership account for 78% ($R^2 = 0.78$) of the variance in actual usage, with the remaining 22% due to other factors not included in the model. Similarly, actual usage accounts for 90% ($R^2 = 0.90$) of user satisfaction, with the remaining 10% attributed to other variables.

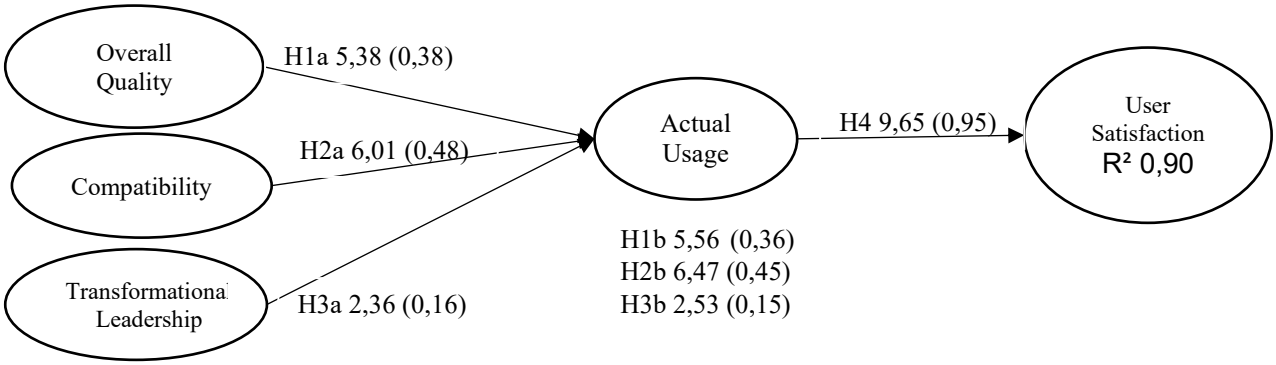

Figure 2. Path Diagram Conceptual Model T-Stat (Path Coefficient) (2023)

To further verify the hypothesized mediation effect of actual usage (H_{1b}, H_{2b}, H_{3b}), the 'options EF' syntax in LISREL was used to analyze the mediating effects. The resulting output provided t-values that indicated the strength of these effects. Each t-value for the mediation paths surpassed the critical value of 1.645, thereby confirming the mediating role of actual usage. Detailed t-values are provided in Table 4.

Tabel 4. Hypotheses Result Summary

Hypotheses	Relationships	t-value	Conclusion
H_{1a}	QUL => USE	5,38	supported
H_{1b}	QUL => USE => SAT	5,56	supported
H_{2a}	CMP => USE	6,01	supported
H_{2b}	CMP => USE => SAT	6,47	supported
H_{3a}	TL => USE	2,36	supported
H_{3b}	TL => USE => SAT	2,53	supported
H_4	USE => SAT	9,65	supported

Source: processed data

These findings reveal that all hypotheses are supported, confirming the significant positive effects of quality (QUL), compatibility (CMP), and transformational leadership (TL) on the usage (USE) of microlearning systems, which in turn positively influences user satisfaction (SAT). The

highest t-value (9.65) in the USE => SAT relationship emphasizes the strong impact of system use on user satisfaction. This alignment highlights the importance of prioritizing quality, compatibility, and leadership to enhance microlearning effectiveness in public sector contexts.

3.5. Discussion

This study examines the factors that affect user satisfaction with a microlearning system within a Government Financial Organization (GFO). The investigation employs a modified version of the Information System Success Model (DMISM) (DeLone & McLean, 2003). This model includes technological factors (overall system quality), organizational factors (transformational leadership), and individual factors (compatibility) to better understand user satisfaction. Additionally, the study provides more in-depth discussions on these topics.

The data analysis confirmed hypothesis 1a, showing that overall quality has a significant and positive impact on the actual usage of the microlearning system. In other words, employees are more inclined to use the system if it provides high overall quality (including system quality, information quality, and service quality). This finding is consistent with the DMISM theory, which highlights the effect of system quality, information quality, and service quality on system usage (DeLone & McLean, 2003). Additionally, it supports previous research demonstrating the positive effect of overall quality on usage within e-learning environments (Aldholay et al., 2020; Çelik & Ayaz, 2022). The analysis indicated that information quality has the most significant impact on overall quality. Therefore, it is essential to ensure that the information provided by the microlearning system is relevant, accurate, current, comprehensive, and well-organized for successful implementation.

The results also confirmed hypothesis 2a, the higher the compatibility between GFO employees and the microlearning system, the greater the level of usage. This study supports previous research that found a relationship between compatibility and actual usage in information systems (Aldholay et al., 2020; Cheng, 2015; Ozturk et al., 2016). Employee preferences regarding how microlearning integrates with their work activities significantly influence compatibility. This indicates that a microlearning system perceived as aligned with employees' work preferences substantially impacts the overall compatibility rating of the system.

The findings also showed that transformational leadership significantly impacts actual usage, confirming hypothesis 3a. In other words, when leaders inspire and motivate employees, it leads to increased use of the microlearning system. These results are consistent with previous research suggesting that transformational leadership influences actual system usage (Aldholay et al., 2020; Ghazali et al., 2015). The most influential trait is the aspect of inspiring motivation, particularly the indicator, "direct supervisor speaking optimistically about the team's future," which demonstrated the highest contribution.

User satisfaction is a critical indicator of positive perceptions towards a system. This study explored the relationship between actual usage and user satisfaction. Consistent with hypothesis 4, the results showed a strong positive correlation, suggesting that users who engage more with the system experience higher levels of satisfaction. This outcome aligns with earlier research that identified a positive impact of usage on satisfaction (Aldholay et al., 2020; Aldholay., et al., 2018; Isaac et al., 2019). In other words, users who actively engage with the microlearning system generally report higher satisfaction levels. These findings support the idea that system performance, particularly user engagement through actual usage, significantly influences user perceptions of satisfaction with the system.

This research demonstrated that overall quality, compatibility, and transformational leadership indirectly impact microlearning user satisfaction through actual usage among GFO

employees in Indonesia. In essence, the effectiveness of the microlearning system, its alignment with employee needs, and the presence of transformational leadership contribute to user satisfaction, with this influence being mediated by the system's actual usage. These factors enhance user satisfaction by promoting more frequent and effective use of the microlearning system within the GFO. The analysis further reveals that compatibility significantly influences actual usage. Additionally, overall quality and transformational leadership are also important factors. Specifically, compatibility is a strong determinant of actual usage, followed by the positive effects of overall quality and transformational leadership.

4. Conclusions

In conclusion, this study identifies compatibility is the paramount determinant of microlearning usage in Government Financial Organizations (GFOs), acting as the critical precursor to achieving high user satisfaction. While information quality and transformational leadership act as essential enablers, the results demonstrate that satisfaction is maximized only when learning technologies seamlessly integrate with employees' existing workflows, professional values, and preferred work styles (Bervell et al., 2023). Public sector leaders must prioritize 'operational fit' over mere content availability this requires designing flexible, mobile-responsive, and self-paced learning modules that align with the fragmented schedules of civil servants, alongside implementing leadership training to foster a supportive culture and utilizing content sorting features to ensure materials remain current and relevant. While this research offers valuable insights that can guide public sector organizations in developing microlearning systems, the findings should be interpreted with caution due to three key limitations. Firstly, the study solely employed quantitative methods using questionnaires. Secondly, the research subjects were restricted to employees from a single government entity, the Government Financial Organization. Lastly, the investigation focused exclusively on user satisfaction. Future research should adopt a mixed-methods approach, combining quantitative surveys with qualitative techniques like interviews and focus groups, to gain a deeper understanding of user experience and satisfaction with microlearning systems. Additionally, broadening the research subjects to include employees from various government agencies across different sectors will help identify common and unique factors influencing user satisfaction, thereby enhancing the generalizability of the findings. Researchers should also explore a wider range of outcomes, such as employee learning performance. These efforts will offer a more comprehensive understanding of the elements that contribute to effective microlearning in the public sector, ultimately leading to more robust and widely applicable insights.

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