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INVESTIGATING THE DRIVERS AND BARRIERS TO MOOC ADOPTION BY COURSE AND TRAINING INSTITUTIONS

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ABSTRACT

The integration of MOOCs into Course and Training Institutions represents a profound shift in the landscape of education delivery and reception. Despite the substantial potential benefits of MOOCs, the adoption process is intricate. This research delves into the essential factors influencing adoption decisions and explores the unique challenges confronted by both adopters and non-adopters. Employing the TAM and TOE theoretical framework, the study utilizes a mixed-methods approach, combining quantitative analysis with qualitative insights from open-ended questions. The findings underscore the critical role of perceived ease of use (PEOU), emphasizing the importance of user-friendly platforms. Additionally, the study recognizes the pivotal influence of Service Quality, Financial Support, and Government Policy in shaping institutional intentions to embrace MOOCs. A comparative analysis between adopters and non-adopters reveals distinctive challenges for each group. Adopter express concerns regarding inadequate government support and promotional efforts affecting platform access. In contrast, non-adopters highlight the necessity for offline training and underscore government-related support and prioritization challenges impacting MOOC adoption.

KEYWORDS *Course Institution, E-learning, MOOC, Online Course, VET, Vocational*

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INTRODUCTION

Massive Open Online Courses (MOOC) are large-scale online classes developed by higher education institutions as a platform for students and instructors to engage in active learning (Yang, 2023). As an educational innovation, MOOCs have garnered significant attention from educators, learners, and administrators in recent years. MOOC platforms provide a space for educators to upload teaching videos and course materials, which can be accessed freely or based on a fair fee by learners Successful (Mardiati et al., 2022; Rai & Chunrao, 2016). Examples of MOOCs include edX, Coursera, Udacity, and Open2Study. There are several reasons contributing to the popularity of MOOCs. Firstly, with the prevalence of the Internet, MOOCs can reach a large scale of learners residing in geographically diverse areas. Additionally, it is cost-effective to deliver course content to learners in various countries and regions. Furthermore, this online learning environment provides learners with a variety of course options based on their own interests and strengths. Specifically, MOOCs promise to address educational equality by helping students in developing countries access high-quality course materials (Haryanto et al., 2023; Henderikx et al., 2019).

The idea of integrating MOOCs into the education system is to ensure that programs can be accessed globally by diverse learners and provide opportunities for students to participate in shared and collaborative learning experiences (Suwarno et al., 2021; Tang & Xing, 2022). MOOCs target open lifelong learning by providing affordable and flexible opportunities for individuals to learn new skills, advance their careers, and acquire knowledge in a variety of ways (Bordoloi et al., 2020; Sumiarti et al., 2021). The Indonesian government strongly supports the use of MOOCs and sees it as a platform to integrate learning technology, lifelong learning, and simultaneously lead the way toward new directions in teaching methodology (Ministry of Education, Culture, Research, and Technology, 2019). The MOOC online course platform launched in 2022 is a form of non-formal education conducted via the internet, allowing course participants to attend lessons without having to meet face-to-face with instructors.

Indonesia's educational landscape is marked by its diversity and dynamic nature. Course and Training Institutions cater to a wide range of learners with diverse needs and backgrounds. Understanding how MOOCs, with their global appeal, align with and enhance the unique characteristics of the Indonesian educational setting becomes a crucial inquiry. This exploration delves into the potential contributions of MOOCs to address local educational challenges and provide tailored solutions that resonate with the specific needs of Indonesian learners. The incorporation of MOOCs into Course and Training Institutions signifies a fundamental change in the dynamics of education delivery and reception. Although the potential advantages of MOOCs are substantial, the process of adoption is not devoid of intricacies. It is imperative to comprehend the elements propelling Course and Training Institutions (LKPs) towards the adoption of MOOCs and the obstacles encountered in this transformative journey. This study is specifically crafted to delve into the complexities of MOOC adoption within Course and Training Institutions in Indonesia. The investigation revolves around two research questions:

RQ1: What are factors that influence Course and Training Institutions in Indonesia to adopt Massive Open Online Courses (MOOCs) in their training programs?
RQ2: What are the primary barriers and challenges faced by Course and Training Institutions in Indonesia during the adoption of Massive Open Online Courses (MOOCs)?

To navigate these research questions, the study employs a methodological approach that combines quantitative and qualitative methods. Surveys and statistical analyses will be employed to quantify the influence of various factors on MOOC adoption. Additionally, qualitative methods such as interviews and case studies will be utilized to capture the perspectives of Course and Training Institutions, providing a deeper understanding of the challenges they face. This study aims to contribute valuable insights to the academic community, policymakers, and educational practitioners, fostering a deeper understanding of MOOC adoption dynamics in the context of Course and Training Institutions in Indonesia.

2. Literature Review and Hypotheses Development

Massive Open Online Courses (MOOCs) have emerged as a transformative force in the field of education, offering open-access, online courses to a diverse global audience (Urbach & Ahlemann, 2010; Vululleh, 2018). MOOCs hold the potential to overcome traditional barriers to education, providing flexibility and accessibility to learners worldwide.

The theoretical foundation of this research is grounded in the integration of two established frameworks: the Technology Acceptance Model (TAM) and the Technological, Organizational, and Environmental (TOE) framework. Thus are two widely used theories for understanding technology adoption at the organizational level. The TOE framework and TAM complement each other in understanding the complex dynamics of technology adoption at the organizational level. These theories provide valuable insights for policymakers and organizations to promote technology adoption and improve operational efficiency. It is expected that these frameworks collectively provide a strong theoretical lens to understand and analyze the factors influencing the adoption of Massive Open Online Courses (MOOCs) in Course and Training Institutions in Indonesia.

2.1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was initially developed by Davis in 1985 and first published in 1989. It focused on end-users of information systems and emphasized the importance of perceived usefulness (PU) and perceived ease of use (PEOU) in influencing behavioral intention to use a particular technology, forms the cornerstone of this research's theoretical framework. TAM is a framework used to understand the factors that influence the acceptance and adoption of new technologies. TAM focuses on explicating how users perceive and accept new technologies. This model has been applied to various domains, including retail technology adoption, e-learning, and the acceptance of disruptive technologies. Overall, TAM provide a valuable framework for understanding and predicting technology acceptance and adoption. In the context of this study, the following hypotheses are proposed:

H1: System Quality (SQ) positively influences LKP's intention to adopt MOOC.

H2: Service Quality (ServQ) positively influences LKP's intention to adopt MOOC.
H3: Perceived Ease of Use (PEOU) positively influences LKP's intention to adopt MOOC.
H4: Perceived Usefulness (PU) positively influences LKP's intention to adopt MOOC.

These hypotheses aim to explore the cognitive and perceptual aspects that shape the Course and Training Institutions' willingness to adopt MOOCs, emphasizing the significance of system quality, service quality, ease of use, and perceived usefulness.

2.2. Technological, Organizational, and Environmental (TOE) Framework

The Technology, Organization and Environment (TOE) framework was introduced by Tornatzky and Fleischer in 1990. The TOE Framework is a theoretical model used to understand the factors influencing the adoption of various technologies in different contexts. The framework combines technological factors, organizational factors, and environmental factors to explain technology adoption and implementation. by offering a broader perspective on the factors influencing technology adoption in organizations. In the context of MOOC adoption in LKP, The TOE framework is used in the following hypotheses:

H5: Leadership Support (LS) positively influences LKP's intention to adopt MOOC.
H6: Financial Support (FS) positively influences LKP's intention to adopt MOOC.
H7: Human Resources (HR) positively influences LKP's intention to adopt MOOC.
H8: Government Policy (GP) positively influences LKP's intention to adopt MOOC.

These hypotheses extend the theoretical framework to include organizational and environmental factors, acknowledging the influence of leadership support, financial support, human resources, and government policies on MOOC adoption within Course and Training Institutions. By integrating TAM and TOE, this research aims to achieve a comprehensive understanding of the technological, organizational, and environmental factors that shape the adoption of MOOCs in the specific context of Course and Training Institutions in Indonesia. This theoretical foundation guides the formulation of hypotheses and provides a structured framework for empirical investigation, aiming to contribute nuanced insights to the broader discourse on educational technology adoption in the Indonesian educational landscape.

RESEARCH METHOD

The research methodology employed in this study is designed to provide a comprehensive understanding of the adoption of MOOCs in Course and Training Institutions in Indonesia, with a specific focus on the vocational training sector. The methodology integrates both quantitative and qualitative approaches to capture a nuanced and holistic perspective. The research model (Figure 1) aims to provide insights into the factors shaping MOOC adoption in Course and Training Institutions, guiding the formulation of hypotheses and supporting empirical investigation. The outcomes will contribute to the broader discourse on educational

technology adoption and inform strategic decision-making for enhancing learning experiences within the Indonesian educational landscape.

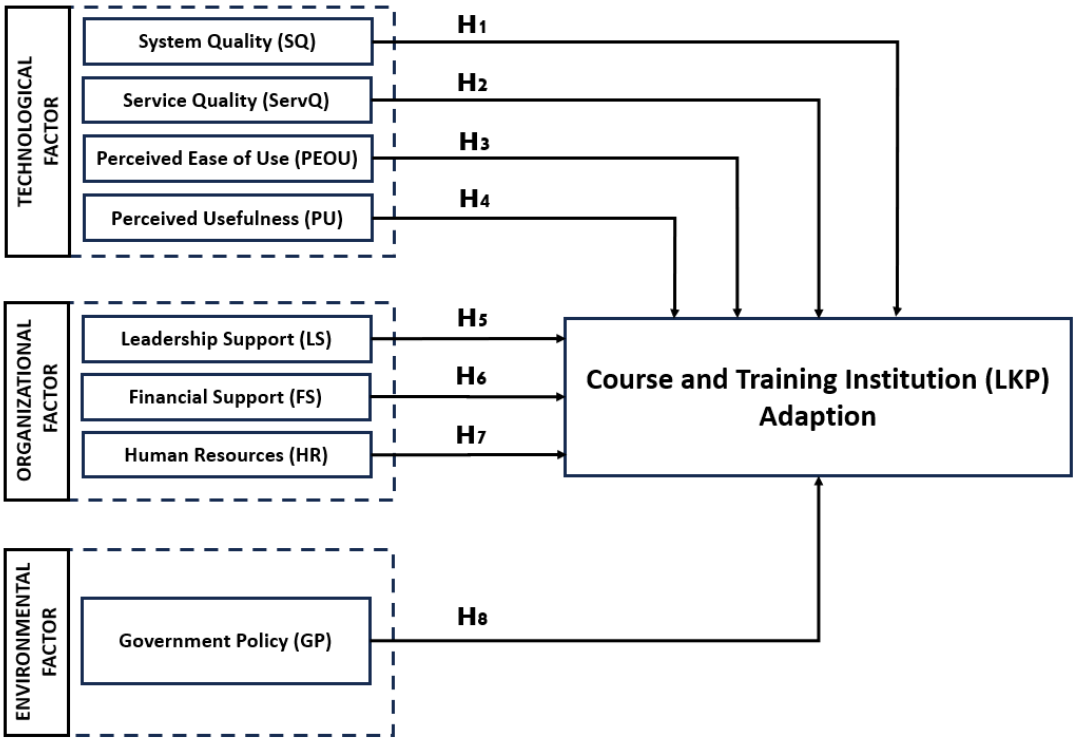

Figure 1. The Research Framework

The quantitative phase of the research focuses on collecting and analyzing numerical data to assess the factors influencing Massive Open Online Course (MOOC) adoption. This phase employs a structured survey based on the research model. The survey was conducted online among Course and Training Institutions in Indonesia. The sampling method employed was convenience sampling, chosen for its practicality in obtaining responses from an easily accessible population. A total of 104 LKPs responded to the questionnaire comprehensively, and were utilized for data analysis.

This study takes an exploratory approach, aiming to identify factors influencing the behavioral intention of LKPs to adopt MOOCs. Data analysis involves statistical methods, and the results are anticipated to provide valuable insights into the adoption of MOOCs in the context of LKPs in Indonesia. Demographic factors, as illustrated in Table 1, offer useful context for understanding sample characteristics and may indicate variations in perceptions and acceptance of MOOCs based on various factors.

Table 1. Demographic factors

Characteristics	*Type*	*Frequency*	*Percentage*
Participants	Adopter	42	40,4%
	Non-Adopter	62	59,6%

Domain	Housekeeping	45	43,3%
	Hospitality	25	24,0%
	Business and Management	18	17,3%
	Technical	15	14,4%
	Language	1	1,0%
Location	*Jabodetabek*	6	5,8%
	Java Island (Non *Jabodetabek*)	51	49,0%
	Sumatera Island	22	21,2%
	Kalimantan Island	6	5,8%
	Sulawesi Island	3	2,9%
	Bali Island	1	1,0%
	NTT and NTB Island	7	6,7%
	Maluku/Papua Island	0	0,0%
	Others	8	7,7%

The survey questionnaire is composed of several sections. The first section contains questions about the participants demographics, and the second section includes questions to measure the constructs of the proposed research model. The design of the measurement items is based on previous studies, and the original items are adjusted to fit the current study's context. A five option Likert scale ranging from "1= strongly disagree" to "5= strongly agree" is used to measure the items of all the constructs (Hair et al., 2013; Hair Jr et al., 2021).

In qualitative phase, the research takes a deep dive into the multifaceted landscape of Massive Open Online Course (MOOC) adoption within Course and Training Institutions in Indonesia. This qualitative inquiry is designed to complement the quantitative findings, unraveling the layers of factors that shape the adoption of MOOCs through the lens of LKPs experiences, perceptions, and organizational dynamics. Qualitative analysis is to enrich the overall validity and reliability of the study, the qualitative insights were integrated with the quantitative findings through a process of triangulation. This merging of perspectives aimed to provide a holistic picture of MOOC adoption, marrying statistical relationships with the nuanced contextual understanding derived from qualitative exploration.

RESULT AND DISCUSSION

Data Analysis and Results

This research adopts Structure Equation Modeling (SEM) as the primary statistical method to examine the proposed relationships, hypotheses, and paths within the research model. For this purpose, Smart-PLS 4.0 software is employed as the statistical tool for data analysis and testing the research model. The analysis follows the two-step procedure outlined by Hair et al. (Hair et al., 2013), encompassing the measurement model and the structural model.

The first stage, the measurement model, focuses on evaluating the reliability and validity of each construct within the model. This ensures the robustness of the

measurement instruments used in the study. The second stage, the structural model, delves into examining the statistical significance and direction of the proposed relationships among the constructs of the research model.

The chosen methodology involves Multivariate Data Analysis using Partial Least Square Structural Equation Modeling (PLS-SEM), commonly known as PLS path modeling. PLS-SEM emerges as a highly advantageous tool for this exploratory research endeavor, given its unique focus on changes in the dependent variable during model examination, as emphasized by Chin (1998). This method proves valuable, particularly when the goal is to predict optimal outcomes on a dependent variable or identify statistically significant predictors among independent variables, aligning well with the objectives of the study as outlined by Hair (Hair Jr et al., 2021).

4.1. Measurement Model Analysis

Prior to the assessment of the measurement model, the examination of the loadings and statistical significance of the indicators was conducted. In accordance with the research by Hair et al. (Sarstedt et al., 2021), it is recommended that the outer loading of an indicator should exceed 0.70. However, a loading ranging between 0.4 and 0.7 may be excluded if its omission leads to an enhancement in the consistency and reliability of the construct.

Table 2. Construct Reliability and Validity

Constructs	*Items*	*Cross-Loading*	*Cronbach's Alpha*	*Rho _A*	*Composite Reliability*	*AVE*
System Quality	SQ1	0.896	0.921	0.934	0.944	0.808
	SQ2	0.936				
	SQ3	0.871				
	SQ4	0.892				
Service Quality	ServQ1	0.964	0.948	0.948	0.966	0.905
	ServQ2	0.954				
	ServQ3	0.937				
Perceived Ease of Use	PEOU1	0.931	0.922	0.930	0.950	0.864
	PEOU2	0.936				
	PEOU3	0.923				
Perceived Usefulness	PU1	0.947	0.951	0.955	0.968	0.911
	PU2	0.971				
	PU3	0.945				
Leadership Support	LS1	0.931	0.947	0.951	0.966	0.904
	LS2	0.964				
	LS3	0.956				
Financial Support	FS1	0.961	0.961	0.963	0.974	0.927
	FS2	0.977				
	FS3	0.950				

Human Resources	HR1	0.955	0.956	0.959	0.972	0.920
	HR2	0.975				
	HR3	0.947				
Government Policy	GP1	0.954	0.930	0.934	0.955	0.877
	GP2	0.945				
	GP3	0.910				
Adoption	A1	0.968	0.970	0.971	0.981	0.944
	A2	0.978				
	A3	0.969				

Table 2 presents the constructs along with their accepted indicators. To assess the reliability of the reflective measurement model, various measures such as Cronbach's alpha, Rho-a, Composite Reliability, and the commonality of each construct were evaluated. The convergent validity was determined by computing the Average Variance Extracted (AVE) and comparing it with the Convergent Validity measure. Additionally, the divergent validity was evaluated through the utilization of the cross-loading test and the Fornell-Larcker criterion.

Cronbach Alpha serves as a metric to evaluate the internal consistency of a measurement instrument employed in research endeavors. In accordance with the criteria established by Haenlein and Kaplan (2004), a Cronbach Alpha value exceeding 0.7 signifies that the measurement tool is reliable, as it provides a robust estimate of consistency and dependability. The acceptance of a Cronbach Alpha value meeting this standard demonstrates that the utilized indicators exhibit a strong correlation, thereby yielding reliable outcomes.

Composite Reliability (CR) is calculated for various outer loadings of indicators, and values surpassing 0.7 are deemed acceptable according to Hair et al. (Hair et al., 2013). The acceptance of CR values meeting this benchmark indicates that the measurement tool attains an adequate level of reliability. CR offers a more comprehensive perspective on the reliability of the measurement model in comparison to Cronbach Alpha, thereby furnishing additional certainty regarding the consistency of the measurement tool.

Average Variance Extracted (AVE) gauges the extent to which constructs within the measurement model elucidate the variability of their associated items. The acceptance of AVE values surpassing 0.5, in alignment with the criteria established by Sarstedt et al. (Sarstedt et al., 2021), suggests that each construct makes a substantial contribution to the variation observed in the associated items. Consequently, this implies that the measurement model accurately reflects the measured constructs.

The Cross-Loading of Indicators provides evidence of the discriminant validity of constructs. If indicators possess outer loadings that surpass their cross-loadings or correlations with other constructs, then it can be inferred that discriminant validity is fulfilled. By adhering to the criteria set by Henseler et al. (2015), wherein all indicators exhibit outer loadings exceeding 0.1, the discriminant validity of constructs is acknowledged. This signifies that the indicators in the measurement model exhibit low to moderate levels of correlation with other constructs, thereby reinforcing the convergent validity of the model.

Table 3. Discriminant Validity

	Adoption	FS	GP	HR	LS	PEOU	PU	SQ	ServQ
Adoption	0.972								
FS	0.697	0.963							
GP	0.679	0.455	0.936						
HR	0.719	0.727	0.629	0.959					
LS	0.743	0.633	0.785	0.769	0.951				
PEOU	0.589	0.551	0.572	0.584	0.657	0.930			
PU	0.623	0.481	0.712	0.630	0.725	0.832	0.954		
SQ	0.599	0.515	0.630	0.585	0.775	0.872	0.818	0.899	
ServQ	0.570	0.529	0.618	0.603	0.703	0.928	0.866	0.879	0.952

The Fornell-Larcker criterion, frequently referenced in scholarly discourse, is employed to evaluate convergent validity. This criterion entails calculating the square root of the Average Variance Extracted (AVE) values for each structure and recording them in a matrix generated by this test. In accordance with this method, the square root of each construct's AVE must exceed its correlation with other constructs (Henseler et al., 2009, 2015).

As illustrated in Table 3, the Fornell-Larcker matrix verifies convergent validity. the primary elements situated along the diagonal of the matrix correspond to the square roots of the extracted average variance. It is noteworthy that all AVE square measurements significantly surpass the other correlation coefficients, which serves as an indication that the construct possesses discriminant validity.

4.2 Structural Model Analysis

Significant tests of hypotheses were conducted to evaluate the structural model's strength and direction after the validity and reliability of the measurement model had already been established. Metrics for both structural model quality and model fit were calculated. Each hypothesis's significance and associated path coefficients are listed in Table 4 and Figure 2.

Table 4. Path coefficient and t-statistics

Hypothesised Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values	Result
SQ -> Adoption	-0.005	-0.003	0.080	0.065	0.948	Not Supported
ServQ -> Adoption	-0.316	-0.311	0.090	3.523	0.000	Supported
PEOU -> Adoption	0.237	0.236	0.095	2.486	0.013	Supported
PU -> Adoption	0.129	0.116	0.091	1.418	0.156	Not Supported
LS -> Adoption	0.215	0.217	0.113	1.902	0.057	Not Supported
FS -> Adoption	0.330	0.330	0.056	5.939	0.000	Supported
HR -> Adoption	0.131	0.133	0.071	1.851	0.064	Not Supported

GP -> Adoption	0.248	0.251	0.094	2.649	0.008	Supported

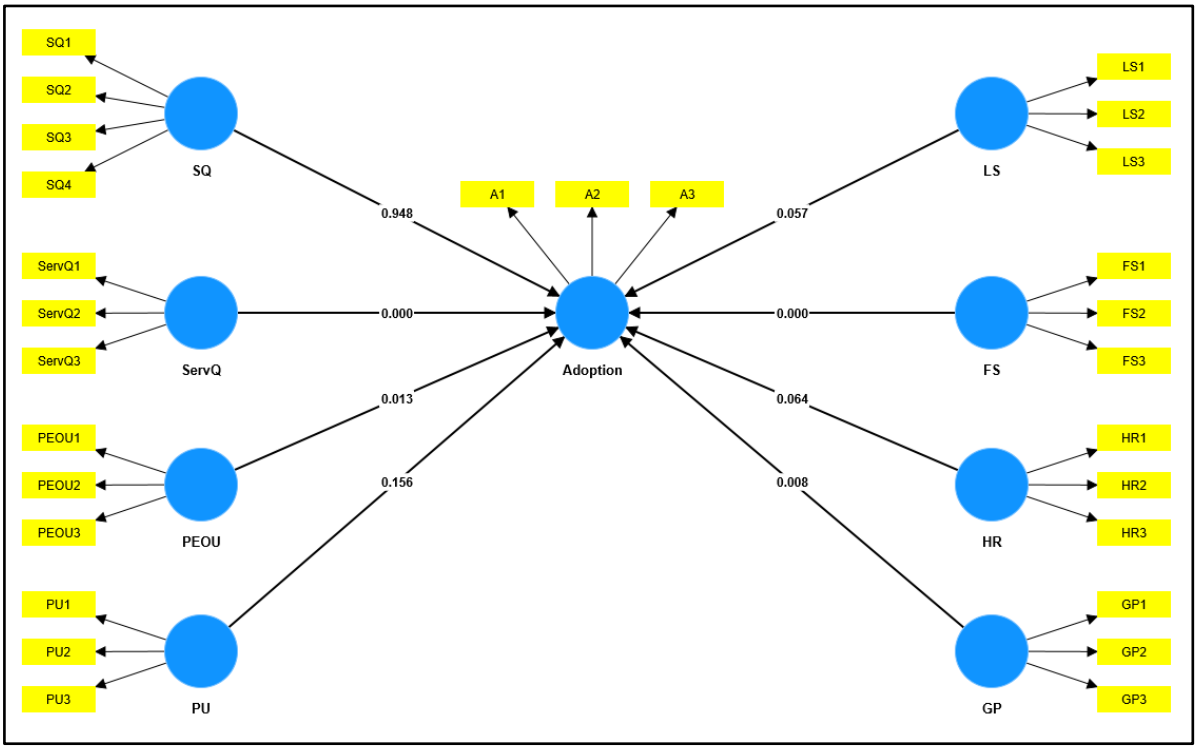

Figure 2. Structural Framework Result

4.3 Results of Open-Ended Questions: Barriers and Challenges

Adopters of Massive Open Online Courses (MOOCs) expressed concerns primarily centered around the insufficient support and promotion from government entities. Despite promises, these institutions with MOOCs feel neglected and not prioritized for necessary assistance. Additionally, adopters encountered challenges related to inadequate facilities for online learning, such as the lack of specialized rooms and cameras, impacting the effectiveness of the learning environment. Technical and operational hurdles were also noted, including internal challenges tied to commitment and team strength for platform management. Moreover, there were perception and image-related challenges, particularly in persuading participants, especially those with age-related skepticism, about the effectiveness of online learning, especially in traditional health skills. However, adopters reported positive experiences, noting improved accessibility and reduced challenges for participants attending offline courses.

On the other hand, non-adopters highlighted their need for offline training, emphasizing government-related support and prioritization challenges impacting MOOC adoption. Facility-related challenges were prevalent among non-adopters, with difficulties in online courses stemming from a lack of equipment, competent personnel, and adequate infrastructure. Technical and operational challenges were also significant, encompassing difficulties in preparing materials, proficiency-related challenges with online platforms, and limitations in practical learning for

courses requiring instructor presence. Perception and image-related challenges were expressed by non-adopters, who doubted the value or benefits of online learning compared to traditional teaching methods, and raised concerns about potential damage to the institution's image. Connectivity issues and a lack of information related to MOOC platforms further contributed to challenges faced by non-adopters in accessing and utilizing these online learning resources effectively.

Table 5. Adopters' Perspectives

No	Answer	Barriers	Challenges
1	Lack of government support and promotion affecting platform access. Institutions with MOOCs not prioritized for assistance despite promises.	Lack of government support and promotion	Government-related support and prioritization challenges impacting MOOC adoption.
2	Positive adoption experiences with improved accessibility, content clarity, and reduced challenges for offline participants.	Facility-related challenges affecting learning goals despite operational effectiveness.	-
3	Insufficient facilities for online learning, lacking specialized rooms and cameras impacting learning goals despite operational effectiveness.	Facility-related challenges affecting learning goals despite operational effectiveness.	-
4	Positive experiences with effective learning, but internal challenges related to commitment and team strength for platform management.	Internal challenges	Positive experiences with effective learning, but internal challenges related to commitment and team strength for platform management.
5	Age-related scepticism and challenges in persuading participants about the efficacy of online learning, particularly for traditional health skills.	Age-related scepticism and challenges in persuasion	Age-related scepticism and challenges in persuading participants about the efficacy of online learning, particularly for traditional health skills.
6	MOOC-related challenges for those unfamiliar and operational ease in reporting and program implementation.	MOOC-related challenges	MOOC-related challenges for those unfamiliar and operational ease in reporting and program implementation.

Table 6. Non-adopters' Perspectives

No	Answer	Barriers	Challenges
1	Connectivity issues in areas with poor internet signals.	Connectivity issues	Technical difficulties and challenges for instructors.
2	Lack of experience due to not being part of the MOOC. Suggestion for non-YouTube content uploads.	Lack of experience	Lack of experience due to not being part of the MOOC ecosystem.
3	Doubt about the value or benefits compared to traditional teaching methods.	Doubt about value or benefits compared to traditional teaching methods	Doubt about the value or benefits compared to traditional teaching methods.
4	Technical difficulties and operational challenges in preparing materials. Limitations in effective practical learning in beauty-related subjects.	Technical difficulties and operational challenges	Technical difficulties and operational challenges in preparing materials. Limitations in effective practical learning in beauty-related subjects.
5	Proficiency-related challenges with online platforms and the need for rapid learning and adaptation by administrative staff.	Proficiency-related challenges with online platforms	Proficiency-related challenges with online platforms and the need for rapid learning and adaptation by administrative staff.
6	Challenges in practical learning for courses requiring instructor presence.	Challenges in practical learning	Challenges in practical learning for courses requiring instructor presence.
7	LKP's need for offline training on platform account creation and usage in MOOC adoption.	Government-related support and prioritization challenges	Government-related support and prioritization challenges impacting MOOC adoption.
8	Lack of information related to MOOC platforms.	Lack of information	Connectivity challenges impacting the seamless operation of online platforms.
9	Positive aspects related to recognition and credibility. Difficulty in lacking supportive IT equipment for online course implementation.	Facility-related challenges affecting learning goals despite operational effectiveness.	Difficulty in lacking supportive IT equipment for online course implementation, especially in beauty-related fields.
10	Tradition-related barriers when institutions or individuals tend to maintain conventional teaching methods due to traditional factors.	Tradition-related barriers	Need for ongoing government support and improved platform accessibility.
11	Cost-related challenges arise when e-learning	Cost-related challenges	Facility-related challenges affecting learning goals

	adoption requires significant financial investment.		despite operational effectiveness.

4.3 Result

Based on the analysis, the following hypotheses were accepted: Service Quality (ServQ) as a significant influencer on Course and Training Institutions intention to adopt MOOC is a pivotal discovery. Financial Support (FS) emphasizes the critical role of financial resources in the decision-making process. The acknowledgment of Government Policy (GP) as a positive influence on LKP's intention to adopt MOOC accentuates the pivotal role of supportive governmental policies. Additionally, the recognition of Perceived Ease of Use (PEOU) as a contributing factor to Course and Training Institutions intention to adopt MOOC indicates that institutions place substantial emphasis on user-friendliness (Henderikx et al., 2019; Tang & Xing, 2022; Urbach & Ahlemann, 2010; Yang, 2023).

Table 7. Comparison of Barriers Between Non-Adopters and Adopters

Categories	Adopters	Non-Adopters
Government Support and Prioritization	Express concerns about the lack of government support and promotion affecting platform access. Institutions with MOOCs feel they are not prioritized for assistance despite promises.	Acknowledge a need for offline training on platform account creation and usage, emphasizing government-related support and prioritization challenges impacting MOOC adoption.
Facility-Related Challenges	Encounter challenges related to insufficient facilities for online learning, such as lacking specialized rooms and cameras, impacting learning goals despite operational effectiveness.	Face difficulties in online courses due to a lack of equipment, competent personnel, and adequate infrastructure.
Technical and Operational Challenges	Report internal challenges related to commitment and team strength for platform management, as well as social media-related challenges for those unfamiliar.	Highlight technical difficulties and operational challenges in preparing materials, proficiency-related challenges with online platforms, and challenges in practical learning for courses requiring instructor presence.
Perception and Image-Related Challenges	Mention age-related scepticism and challenges in persuading participants about the efficacy of online learning, particularly for traditional health skills.	Express doubt about the value or benefits of online learning compared to traditional teaching methods and mention image-related challenges when e-learning adoption can damage the institution's image.
Connectivity and Information Challenges	Experience positive adoption experiences with improved	Face connectivity issues in areas with poor internet signals and cite

	accessibility and reduced challenges for offline participants.	a lack of information related to MOOC platforms.

5. Discussion

The discussion on MOOC adoption within Course and Training Institutions involves a nuanced examination of both quantitative findings, where specific hypotheses were accepted, and qualitative insights derived from the perspectives of adopters and non-adopters. This integrated analysis aims to unravel the interplay between statistical results and the practical challenges encountered by institutions in the real world.

Respondent recognition of Perceived Ease of Use (PEOU) emphasizing the importance they place on user-friendliness. Qualitatively, challenges faced by adopters related to technical and operational aspects, as well as social media unfamiliarity, highlight the significance of user-friendly platforms. The synthesis of these insights reinforces the finding that ease of use is a critical factor in adoption decisions. This is in line with the acceptance of the Service Quality hypothesis indicates that adopters recognize the significant influence of service quality on their intention to adopt MOOC. This aligns with the qualitative dimension where respondents express underscoring the importance of a positive user experience. The emphasis on service quality, including course content delivery and overall user experience, underscores the institutions' prioritization of excellence and reliability (Scerbakov et al., 2023; Yang, 2023). This aligns with existing literature highlighting the pivotal role of service quality in shaping institutions' attitudes toward MOOC adoption (Haenlein & Kaplan, 2004; Ma & Lee, 2020). The integration of these findings highlights the paramount role of service quality in influencing adoption decisions.

Recognition of the Financial Support (FS) hypothesis among respondents emphasizes the important role of financial resources. This is in line with the qualitative challenges faced by users related to lack of facilities, indicating the need for financial support. The convergence of quantitative and qualitative insights reinforces the understanding that financial support is critical to overcoming barriers to adoption, especially regarding infrastructure. The importance of financial support has been highlighted in previous research (Chin, 1998; Klobas et al., 2014; Tornatzky & Fleischer, 1990).

The positive influence of Government Policy on adoption is supported by respondents concerns about the lack of government support. Qualitatively, the experiences of adopters underscore the pivotal role of supportive governmental policies. The cross-verification between quantitative and qualitative data emphasizes the impact of external policies on adoption decisions within the institutional context. Both adopters and non-adopter express concerns about government support, providing extent perspectives. While adopters seek prioritization and highlight challenges tied to facilities, non-adopters acknowledge the need for offline training and face difficulties due to a lack of equipment and infrastructure. This cross-verification emphasizes the importance of government backing in differing ways for both groups and underscores the diverse facets of facility-related challenges. Institutions display a heightened inclination when the regulatory environment aligns with such

adoption, emphasizing the significance of external factors, particularly government support (Yang, 2023).

Government policies can manifest in various forms, including rewards, financial assistance, or other incentives that encourage and motivate Learning and Training Institutions to embrace MOOCs. These policies act as catalysts, fostering an environment conducive to the integration of online courses. One notable aspect is the provision of rewards or recognition for institutions actively engaging with MOOCs in their training programs. In many cases, governments may institute reward systems that highlight and celebrate the achievements of institutions embracing innovative educational technologies like MOOCs. Recognition could come in the form of awards, accolades, or special designations, creating a positive competitive environment among Institutions to adopt and excel in MOOC implementation. Financial assistance is another facet of government policies that can significantly impact MOOC adoption. Governments may provide grants, subsidies, or financial incentives to Institutions for incorporating MOOCs into their training programs. This support can alleviate the financial burden associated with technology integration, making it more feasible for institutions, especially those with limited resources, to adopt and sustain MOOC initiatives. Moreover, governments can establish specific programs or initiatives aimed at promoting MOOC adoption. These programs may include capacity-building workshops, training sessions, or collaborative platforms that bring together policymakers, educators, and MOOC providers. Such initiatives not only provide guidance on the effective utilization of MOOCs but also create a supportive network for institutions navigating the adoption process.

6. Theoretical contributions and practical implications

The findings of this research make significant theoretical contributions to the field of educational technology adoption. The identification of Service Quality (ServQ), Financial Support (FS), Government Policy (GP), and Perceived Ease of Use (PEOU) as key influencers in MOOC adoption provides a nuanced understanding of the factors shaping institutional decisions. This theoretical framework can serve as a foundation for future research in the realm of technology adoption within educational settings. Researchers can build upon these identified factors to deepen comprehension of the intricacies surrounding the integration of Massive Open Online Courses in Course and Training Institutions.

The practical implications of this study extend to various stakeholders, including the Ministry of Education, Course and Training Institutions, and online course platforms. Based on the findings of this research, there are several recommendations for the Government (Ministry of Education, Culture, Research, and Technology) to enhance the utilization of Massive Open Online Courses (MOOCs) within course and training institutions. Firstly, Government should consider formulating supportive policies that incentivize the adoption of MOOCs. This may include financial incentives, recognition, or awards for institutions actively integrating MOOCs into their training programs. Creating a policy framework that fosters a positive environment for MOOC adoption can play a crucial role in encouraging institutions to embrace online learning. Secondly, allocating specific financial

support for institutions planning to adopt MOOCs could be instrumental. Recognizing that financial backing is a critical factor in overcoming adoption barriers, the ministry could allocate funds to support institutions in the integration of MOOCs. This financial assistance could help alleviate the financial burden associated with technology integration, making it more feasible for institutions, especially those with limited resources, to adopt and sustain MOOC initiatives. These steps, along with targeted training programs and awareness campaigns, can collectively contribute to a more conducive environment for the digital learning landscape in Indonesia.

One of the pivotal findings is the recognition of the significant influence of Service Quality (ServQ) on the intention of Course and Training Institutions to adopt MOOCs. This emphasizes the paramount importance institutions place on the quality of services, including content delivery and overall user experience. The alignment of quantitative findings with qualitative insights underscores the critical role of a positive user experience in shaping adoption decisions. The acknowledgment of Perceived Ease of Use (PEOU) as a contributing factor to the intention to adopt MOOC indicates the emphasis placed by institutions on user-friendliness. The qualitative dimension brought forth challenges faced by adopters related to technical and operational aspects, reinforcing the critical role of user-friendly platforms in adoption decisions.

The study also presented a comprehensive comparison of barriers between adopters and non-adopters, providing a nuanced understanding of the challenges faced by different groups. From government support and facility-related challenges to technical and operational issues, the findings underscore the diverse nature of obstacles that institutions encounter on their MOOC adoption journey. This research not only enhances our understanding of the factors shaping institutional decisions regarding MOOC adoption but also provides a basis for informed strategies and policies to promote the effective integration of online learning within the educational landscape.

7. Future work

Future work in the field of Massive Open Online Course (MOOC) adoption within Course and Training Institutions presents several promising avenues for research and exploration. Researcher could delve deeper into the nuances of Service Quality (ServQ) and explore specific aspects of content delivery and user experience. A more detailed analysis could provide a comprehensive understanding of the elements that contribute most significantly to the perceived service quality in the context of MOOC adoption. There is an opportunity to conduct comparative studies across diverse regions and educational sectors. Investigating how MOOC adoption varies in different cultural and institutional contexts could uncover additional insights into the factors influencing decision-making processes. This approach would contribute to the development of more tailored strategies for diverse educational environments.

The integration of emerging technologies within MOOC platforms could be a focal point for future research. Exploring the impact of technologies such as artificial intelligence, virtual reality, or interactive simulations on the user experience and learning outcomes may offer valuable insights into the evolving landscape of

online education. Longitudinal studies could provide a temporal perspective on MOOC adoption trends. Tracking the evolution of attitudes and practices over time would offer a dynamic understanding of how institutions adapt to and leverage MOOCs as educational technology continues to advance.

Moreover, investigating the role of learner engagement and motivation within MOOCs could contribute to a more holistic understanding of the factors influencing the success of online learning initiatives. Exploring strategies to enhance learner engagement and mitigate dropout rates could be a valuable area of inquiry. Future research could explore the potential synergies between MOOCs and traditional educational methods. Investigating how institutions can effectively integrate MOOCs into blended learning models or as supplementary resources within existing courses could pave the way for a more comprehensive and adaptable educational framework. MOOC adoption should aim to deepen our understanding of the intricacies surrounding online learning initiatives, adapt strategies to diverse educational contexts, and explore the evolving landscape of educational technology. Addressing these areas can contribute significantly to the enhancement of online education and its seamless integration into traditional educational systems.

CONCLUSION

This research reveals the importance of factors such as Service Quality, Financial Support, Government Policy, and Perceived Ease of Use in the decision-making process of MOOC adoption by Course and Training Institutions. These findings provide deep insights into the complex dynamics influencing institutional decisions in adopting new educational technologies. The practical implications include recommendations for the government to formulate supportive policies, allocate specific funds for financial support, as well as targeted training programs and awareness campaigns. Additionally, the research highlights future potential for further exploration in the field of MOOC adoption, including the integration of new technologies, deeper understanding of learner engagement and motivation, and exploration of synergies between MOOCs and traditional educational methods. With a focus on developing informed strategies and policies, this research provides a strong foundation for strengthening online education and its seamless integration into traditional educational systems.

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