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Understanding MOOC Continuance Intention through Social Motivation and MOOC Performance: An Extended S-O-R Perspective

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ABSTRACT

Despite the rapid growth of Massive Open Online Courses (MOOCs), learner retention remains a major challenge, particularly in developing countries. This study examines MOOC continuance intention in Indonesia by extending the Stimulus-Organism-Response (S-O-R) framework with social motivation and learning performance factors. Data from 436 MOOC users were analyzed using Structural Equation Modeling (SEM) with AMOS 26. The findings show that social recognition and social influence significantly enhance perceived benefit, which positively influences satisfaction. Satisfaction was the strongest predictor of continuance intention, while system interactivity also had a significant direct effect. In contrast, course design and instructor quality did not significantly influence satisfaction or continuance intention. These findings highlight the importance of social and interactive elements in sustaining MOOC usage. The study extends the S-O-R framework and provides evidence from Indonesia, offering practical insights for improving learner retention through socially engaging and interactive learning environments.

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1. INTRODUCTION

Massive Open Online Course (MOOC) platforms promote learning by offering both free and paid online courses, increasing learner engagement, and improving user experience. MOOCs have attracted millions of learners globally and are widely regarded as an excellent means of encouraging lifelong learning [1]. MOOCs have attracted millions of learners worldwide and are widely recognized as an effective medium for promoting lifelong learning [1]. They provide virtual classrooms that connect students and instructors across regions, thereby addressing resource limitations in local colleges and universities [2].

MOOCs first appeared in Indonesia in 2013, coinciding with Ministerial Regulation No. 109 of 2013 on the Implementation of Distance Education in Higher Education. This rule demonstrates the Indonesian government's commitment to online education and MOOCs by allowing students to earn credits recognized by the universities that offer these courses [3]. MOOCs are a relevant solution for developing nations like Indonesia, which face challenges due to their vast territory, dispersed population, and limited resources. They can bridge formal and non-formal education and expand access to quality learning for communities in remote areas by overcoming geographical barriers.

The adoption and development of Massive Open Online Courses (MOOCs) have expanded considerably over the past decade. MOOCs have evolved from an experimental form of online education into a key component of global education delivery, giving learners broader access to high-quality educational resources [4]. The COVID-19 pandemic further accelerated this development by increasing reliance on online learning platforms and strengthening MOOCs' role as an alternative to traditional education. Recent research also indicates growing global interest in MOOCs, including increasing contributions from emerging countries such as Malaysia and China [4]. Despite this continued development, learner engagement and retention remain

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persistent challenges, highlighting the need to better understand the factors that encourage learners to continue using MOOCs.

However, this rapid growth has not eliminated learner dropout. High dropout rates remain a significant obstacle to MOOCs' long-term viability, despite growing recognition of them as a novel educational approach [5]. In Indonesia, the MOOC dropout rate was 69% in 2018 [6]. A dropout is defined as one who has not participated in any form of learning for seven consecutive days. Extremely low completion and retention rates were a pressing concern [7]. Therefore, identifying factors that sustain learner motivation and promote continued MOOC use is crucial, particularly in the Indonesian context.

In developing countries, various factors influenced MOOC user continuance and retention, including perceived reputation, self-efficacy, perceived usefulness, flow experience, and MOOC satisfaction [8], [9]. Previous studies indicated that poor course design and limited interaction may reduce learner engagement and increase dropout rates [5]. In contrast, learners with strong self-efficacy and adequate social support tend to be more motivated to complete online courses [10]. Therefore, understanding these factors is essential for improving learner engagement, increasing retention, and supporting the long-term sustainability of MOOCs as an accessible educational platform [11].

Previous studies have identified various factors influencing MOOC continuance intention, including satisfaction, perceived usefulness, habit, system quality, and interaction quality [12]-[14]. Cheng [15] further examined how media richness and social interaction contribute to learning engagement and continuance intention. These studies demonstrate the importance of both technological and social factors in sustaining MOOC participation. However, further investigation is needed to understand how different types of external stimuli jointly shape learners' cognitive and emotional evaluations and their intention to continue using MOOCs.

To address this issue, the present study integrates Social Motivation and MOOC Performance within the Stimulus-Organism-Response (S-O-R) framework. Social Motivation includes Social Recognition and Social Influence, while MOOC Performance encompasses Course Design, Content Quality, Instructor Quality, and System Interactivity. Unlike approaches that primarily examine individual determinants of continuance intention, this study investigates how these social and platform-related factors relate to perceived benefit, Satisfaction, and Continuance Intention within a unified theoretical framework. Furthermore, the study focuses on Indonesian MOOC users, providing additional empirical evidence from a developing-country context where understanding sustained participation in online learning remains important.

2. THE COMPREHENSIVE THEORETICAL BASIS

2.1. Literature Review

As the role of MOOCs continues to expand globally, many previous studies have examined factors influencing user behavior in online learning environments. However, most studies have focused more on technology acceptance and user perceptions rather than on continuance intention and long-term retention [5]. As shown in Table 1, previous studies generally emphasized psychological and experiential factors, such as perceived usefulness, satisfaction, emotional engagement, and user experience quality. Several studies also highlighted the importance of interaction, learning engagement, and system quality in shaping users' perceptions and behaviors toward MOOCs.

Moreover, prior studies have shown that continuance intention in MOOCs is commonly associated with satisfaction, expectation confirmation, perceived usefulness, habit, system quality, and learning engagement [12]-[14]. Other studies further emphasized the importance of interaction quality, media richness, and social interaction in improving learning experiences and encouraging continued participation [15]. In addition, [11] and [16] highlighted the influence of motivational and value-related factors, including intrinsic motivation, social value, emotional value, and perceived benefits. These findings indicate that continuance intention in MOOCs is influenced not only by technological factors but also by psychological, social, and experiential aspects of online learning.

Table 1. Research Related to MOOCs and Continuance Intention

No	Reference	Journal	Country	Topic	Variables
1	[11]	Interactive Learning Environments	Spanyol	Motivation for participation	Intrinsic motivation, Extrinsic motivation, Perceived usefulness, Perceived ease of use, Attitude, Loyalty, Satisfaction, Participation behaviors
2	[12]	Computers in Human Behavior	China	Psychological factors	Confirmation, Satisfaction, Attitude, Continuance intention, Habit, Knowledge transmission quality, Interaction quality
3	[17]	Australasian Journal of	Vietnam	Sustainability factors	Learning content, Online reliability, Online responsiveness, Empathy, Assurance,

No	Reference	Journal	Country	Topic	Variables
		Educational Technology			Classroom reliability, Tangibles, Classroom responsiveness, Student satisfaction, Continuance intention, Recommendation
4	[14]	Education and Information Technologies	China	Sustainability factors	Expectation confirmation, Satisfaction, Perceived usefulness, Flow experience, Learning self-efficacy, Continuance usage intention
5	[13]	European Journal of Psychology	South Korea	Sustainability factors	Expectation confirmation, Perceived usefulness, Satisfaction, Continuance intention, System quality, Service quality, Information quality
6	[15]	Interactive Technology and Smart Education	Taiwan	Sustainability factors	Media richness, Behavioral learning engagement, Psychological learning engagement, Social interaction, Continuance intention, Task performance
7	[18]	International Journal of Educational Management	Somalia	Effects of MOOC implementation	Student attitude, Information quality, Course quality, System quality, Service quality, MOOC implementation, Student satisfaction, Continuance intention
8	[16]	Journal of Computer Information Systems	US	Perception & Subscription	Functional value, Flexibility, Epistemic value, Social value, Emotional value, Conditional value, Perceived benefits, Perceived risks, MOOC subscription intention

Researchers [19] proposed the Stimulus-Organism-Response (S-O-R) framework to explain how external stimuli influence individuals' internal psychological processes and subsequent decisions. According to this theory, environmental cues influence an individual's cognition, emotions, and behavior [20]. Specifically, the stimulus (S) encompasses the broader environmental context surrounding an individual, functioning as a driver of their internal emotional states; the organism (O) refers to the individual's internal perceptions and processes after encountering a stimulus in a specific context, occurring immediately before the manifestation of an overt response; and the response (R) represents the individual's natural behavioral reaction following the perception. The S-O-R framework has become a popular technique in many areas of user behavior research. Table 2 shows its applications across various industries, including healthcare, digital tourism, marketing, education, and human-computer interaction.

Table 2. Research in Stimulus-Organism-Response (S-O-R) Framework

Reference	Topic	Field
[21]	Unusual purchasing behavior during the early stages of the COVID-19 pandemic: The stimulus-organism-response approach	Health
[22]	Exploring Consumer Behavior in Virtual Reality Tourism Using an Extended Stimulus-Organism-Response Model	Digital Tourism
[23]	Pictorial content, sequence of conflicting online reviews and consumer decision-making: The stimulus-organism-response model revisited	Digital Marketing
[24]	The SOR (stimulus-organism-response) paradigm in online learning: an empirical study of students' Pembelajaran Online knowledge hiding perceptions	Online Learning
[25]	Understanding the Impact of the Psychological Cognitive Process on Student Learning Satisfaction: Combination of the Social Cognitive Career Theory and the SOR Model	Psychology and Education
[26]	How does anthropomorphism improve human-AI interaction satisfaction: a dual-path model	Human Computer Interaction
[27]	Teachers' e-readiness, self-regulated learning, and graduate students' intention to continue online learning	Online Learning
[28]	Platform quality, confirmation, satisfaction, and learners' continuance intention and actual use in MOOCs	Online Learning / MOOCs

The model is a useful explanatory tool for all these applications. It helps explain how external circumstances might trigger internal reactions that lead to specific behavioral outcomes. The S-O-R model's logical framework remains strong and consistent for analyzing human behavior, although context shapes stimuli, organismic states, and reactions.

In educational settings, the S-O-R framework offers a systematic lens for examining how contextual cues shape learners' internal cognitive and affective states, influencing their behavioral responses [29]. In traditional education, the stimulus component may include various elements such as the physical classroom environment, teaching methods, learning materials, and social interactions; the organism component refers to learners' specific cognitive and affective conditions (e.g., motivation, engagement, frustration, or satisfaction); and the response encompasses outcomes such as academic performance, participation in class activities, and

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overall learning achievement. In online learning contexts, the S-O-R model adapts to digital environments by redefining stimuli, organismic states, and responses based on the dynamics of virtual interaction [24].

Previous studies have demonstrated that various technological, psychological, and social factors influence MOOC continuance intention. Dai et al. [12] examined the roles of habit and MOOC performance in explaining learners' continuance intention, while Lee et al. [13] investigated the influence of quality-related factors on continued MOOC usage. In addition, Cheng [15] highlighted the roles of media richness, social interaction, and learning engagement in supporting MOOC learning persistence. These studies indicate that learners' decisions to continue using MOOCs are influenced by multiple aspects of their learning experiences. However, a more integrated explanation is needed to understand how social motivation and platform-related characteristics relate to learners' internal evaluations and continuance intention.

The Stimulus-Organism-Response (S-O-R) framework provides a theoretical foundation for examining these relationships. According to this framework, external stimuli influence individuals' cognitive and emotional states, which subsequently shape their behavioral responses [19], [20]. In the present study, Social Recognition and Social Influence represent social stimuli, while Course Design, Content Quality, Instructor Quality, and System Interactivity represent MOOC performance-related stimuli. These factors may shape learners' Perceived Benefit and Satisfaction, which are conceptualized as organismic states. Perceived Benefit reflects learners' cognitive evaluation of the value gained from MOOCs, whereas Satisfaction represents their affective evaluation of the learning experience. Continuance Intention is considered the behavioral response. This framework allows the study to examine both relationships operating through learners' internal evaluations and direct relationships between external stimuli and continuance intention.

2.2. Research Model and Hypothesis Development

This study uses the S-O-R framework to describe how external stimuli affect users' psychological processes and behaviors. The constructs derived from the S-O-R framework encompass a range of factors that influence learning experiences. Social Recognition (SR) and Social Influence (SIF) are crucial components of Social Motivation and serve as stimuli in this paradigm. Course Design (CD), Content Quality (CQ), Instructor Quality (IQ), and System Interactivity (SIT) are also essential components of MOOC Performance and serve as stimuli. The model's Organism phase is represented by Perceived Benefit (PB) and Satisfaction (SAT), which indicate how people internalize and respond to stimuli. Finally, the Response is Continuance Intention (CI), indicating the likelihood of continued involvement or participation based on prior impacts.

As [30] notes, social motivation (SM) plays a crucial role in sustaining participation in MOOCs, especially in developing countries. SM includes both peer interaction and social influence, which together promote active engagement and reinforce learners' commitment to the platform [31]. Social media enhances the learning experience by increasing user engagement and shaping perceptions of MOOCs [32]. This study views social media as a source of perceived impact and social interaction that foster continued use. This concept is framed through two key aspects: social recognition (SR) and social influence (SI) [33].

Social Recognition (SR) is an essential component of social motivation (SM). It pertains to the extent to which MOOC platforms recognize users' abilities or accomplishments. This recognition, typically in the form of badges, diplomas, or positive comments, can boost students' confidence, motivation to learn, and willingness to continue attending online classes. According to [34], SR significantly affects behavior in online learning contexts, as Social Cognitive Theory (SCT) posits. Peers or teachers typically provide feedback in MOOCs [31], [35]. SR helps consumers perceive the platform as more valuable, which keeps them using it longer [33], [36]. This classifies it as an external stimulus in the S-O-R framework. Thus, the following hypotheses are proposed:

H1: Social recognition positively influences users’ perceived benefits from continuous MOOC use.

H2: Social Recognition positively influences users’ continuance intention to use MOOCs.

Social Influence (SIF), a component of social motivation (SM), refers to the extent to which individuals are influenced by their social environment to continue using MOOCs because of perceived benefits. It reflects how interactions and others' perceptions within one's social circle can shape decisions and behaviors regarding e-learning platforms [37]. When learners see others benefit from MOOCs, their perceived usefulness increases, which can increase motivation to continue using them [31], [38]. Positive social influence plays a critical role in improving user retention and sustaining engagement over time [2], [32]. As an environmental factor that drives user behavior, SIF is categorized as a Stimulus in the S-O-R framework. Adopting Perceived Benefit as a substitute for Perceived Usefulness [39], this study proposes the following:

H3: Social Influence positively influences users’ Perceived Benefit in the continuous use of MOOCs.

H4: Social Influence positively influences users’ continuance intention to use MOOCs.

MOOC Performance (MP) refers to learners' evaluations of the quality and effectiveness of a MOOC platform in supporting their learning experience. Previous research has examined MOOC performance through instructional, system, and interaction quality [12]. In this study, MP encompasses four platform-related factors: Course Design (CD), Content Quality (CQ), Instructor Quality (IQ), and System Interactivity (SIT). These factors reflect learning environment characteristics that may influence learners' evaluations and their intention to continue using MOOCs. Therefore, they are positioned as external stimuli within the S-O-R framework. Each factor is examined as a separate construct rather than as an indicator of a single higher-order MOOC Performance construct.

Course Design (CD), an important part of MP, refers to how a course is planned and organized to help students achieve effective learning outcomes. A well-structured course improves user satisfaction and motivates learners to stay engaged with online courses [40], [41]. It involves planning the curriculum, teaching methods, and creating learning experiences that meet students' needs and preferences. CD is key to improving satisfaction and learning success [42], and it helps keep students engaged by enhancing the overall learning experience [43]. Poor course design can increase dropout rates [5], while good design supports retention and students' desire to continue [32]. As an external factor that affects user behavior, CD is considered a Stimulus in the S-O-R framework. Therefore, the following hypotheses are suggested:

H5: Course Design positively influences satisfaction with the continued use of MOOCs.

H6: Course Design positively influences users' continuance intention to use MOOCs.

Content Quality (CQ), a component of MOOC performance (MP), refers to how well the course materials and information meet learners' educational needs. In MOOCs, CQ involves how relevant, clear, well-organized, and up-to-date the course content is, as well as how well it is designed for teaching [44]. High-quality content grabs learners' attention, improves their learning experience, and helps them finish the course and keep using the platform. Learner satisfaction often depends on how well the course content meets expectations, with clear, relevant materials boosting motivation and continued participation [2], [45]. As an external factor influencing user behavior, CQ is considered a Stimulus in the S-O-R framework and plays a key role in MOOC retention and continued use [32]. Based on this, the following hypotheses are proposed:

H7: Content Quality positively influences satisfaction with the continued use of MOOCs.

H8: Content Quality positively influences users' continuance intention to use MOOCs.

Instructor Quality (IQ), an important part of MOOC performance (MP), refers to instructors' skills, knowledge, and involvement in providing effective support, quick feedback, and a meaningful learning experience. Good teaching is essential in influencing learner satisfaction in online education. It includes not just teaching abilities but also the instructor's capacity to motivate and help students [40], [42]. Skilled instructors improve learners' experiences and contribute to higher retention rates [41]. Students are more likely to be satisfied and continue using the MOOC platform when they feel supported by knowledgeable and responsive instructors [42]. As a key external factor affecting learner behavior, IQ is considered a Stimulus in the S-O-R framework. Based on this, the study proposes the following hypotheses:

H9: Instructor Quality positively influences satisfaction with the continued use of MOOCs.

H10: Instructor Quality positively influences users' continuance intention to use MOOCs.

System Interactivity (SIT) refers to the extent to which a MOOC platform supports interaction between learners, instructors, and learning resources through its interactive features. These features may include discussion forums, quizzes, feedback mechanisms, and communication tools that allow learners to participate actively in the learning process [12], [37]. Unlike Course Design, which focuses on organizing and structuring learning activities, SIT emphasizes the platform's interactive capabilities. Within the S-O-R framework, SIT is considered an external stimulus because it reflects a learning-environment characteristic that may influence learners' satisfaction and continuance intention [44]. Thus, the following hypotheses are postulated:

H11: System Interactivity positively influences satisfaction with the continued use of MOOCs.

H12: System Interactivity positively influences users' continuance intention to use MOOCs.

Perceived Benefit (PB) refers to learners' evaluations of the advantages gained from using MOOCs. While Perceived Usefulness focuses on how much using a technology improves performance, Perceived Benefit reflects a broader evaluation of the value obtained from its use [39]. In the MOOC context, these benefits may include acquiring new knowledge, developing skills, improving career opportunities, and gaining personal or social value [14], [46]. Therefore, this study adopts Perceived Benefit rather than Perceived Usefulness to capture learners' broader evaluations of their MOOC experiences. Within the S-O-R framework,

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PB represents a cognitive organismic state that may influence Satisfaction and Continuance Intention. Therefore, this study proposes the following hypotheses:

H13: Perceived Benefit positively influences satisfaction with the continued use of MOOCs.

H14: Perceived Benefit positively influences users' continuance intention to use MOOCs.

Satisfaction (SAT) refers to the extent to which users perceive a MOOC platform as meeting their expectations. When users are satisfied and get positive results from the service, they are more likely to continue using the system [31]. In the case of MOOCs, SAT reflects learners' positive views and experiences after finishing a course, influenced by different factors [44]. This satisfaction shows how well the platform meets users' needs and expectations and plays an important role in encouraging Continuance Intention, or the desire to keep using the online learning platform [34], [37]. As an internal emotional response to external factors, SAT is considered an Organism in the S-O-R framework. Accordingly, the following hypothesis is proposed:

H15: Satisfaction (SAT) positively influences Continuance Intention in using MOOCs.

Based on the literature and hypotheses discussed, this study's research model is presented in Figure 1. This model visually shows the relationships and key concepts, clarifies the study's framework, and helps guide the research process.

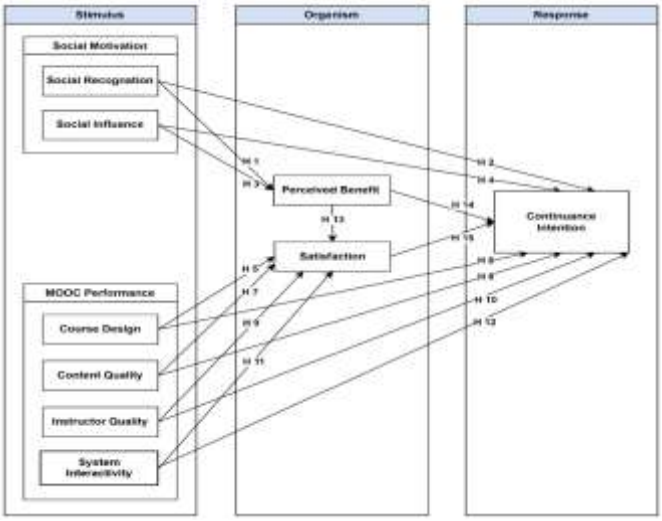


Figure 1. Research Model

3. METHOD

The target respondents were students enrolled in diploma, undergraduate, and graduate programs, living in several major cities in Indonesia. These students were actively participating in learning through Massive Open Online Courses (MOOCs). Age groups were classified according to [47]. The study used non-probability sampling, and the minimum sample size was calculated using guidelines from [48]. The minimum required sample size was 400, which is suitable for populations over 100,000 with a 5% margin of error and a 95% confidence level.

Primary data were gathered through an online questionnaire with 36 items using a five-point Likert scale (1=strongly disagree to 5=strongly agree). To protect respondents' privacy and encourage honest responses, the survey was distributed anonymously, reducing social desirability bias [49]. Preliminary statistical tests were conducted to ensure the data were suitable. These included validity assessment using Confirmatory Factor Analysis (CFA), reliability testing with Cronbach's Alpha, and normality assessment based on skewness and kurtosis in SPSS 27. The main data analysis used Structural Equation Modeling (SEM) with AMOS 26. Hypothesis testing was interpreted based on acceptable model fit indices [50]. This approach follows [49]'s emphasis on methodological rigor, conceptual consistency, and minimizing bias. It ensures that the data are statistically robust, contextually appropriate, and meaningful for understanding continued MOOC usage in Indonesia.

4. RESULTS AND DISCUSSION

4.1. Results

From the 481 responses collected, an initial data-cleaning procedure was performed to ensure data quality. Responses that provided identical answers across all items, such as consistently choosing "neutral" for each question, were removed to eliminate uniformity and ensure a range of varied responses. In addition, Z-score filtering removed responses with Z-scores below -3 or above +3, following recommended practices for managing outliers and ensuring the data is suitable for valid interpretation and analysis [51]. This process excluded 45 responses, leaving 436 valid responses for further analysis.

Table 3 shows the demographic details of the 436 respondents. Most of the sample is Generation Z (born between 1997 and 2012), accounting for 86.9% (n = 379) of MOOC users in this study. Regarding education, 67.7% (n = 295) of respondents were working towards an undergraduate degree. Geographically, most respondents were from universities in Surabaya (22.2%), followed closely by those from Jakarta (21.6%). The remaining participants came from various other cities, each contributing between 6% and 15% of the total sample. This shows a strong representation of younger students from specific urban areas, with a more diverse spread from other regions.

Table 3. Respondent Characteristics

Criteria	Classification	Respondent	Percentage (%)
Birth Year Range	1965-1980	11	2.5
	1981-1996	46	10.6
	1997-2012	379	86.9
	Total	436	100.0
Education Level	Diploma	65	15.0
	Undergraduate	295	67.7
	Graduate	76	17.3
	Total	436	100.0
City	Bandung	66	15.1
	Denpasar	48	11.0
	Jakarta	94	21.6
	Makassar	46	10.6
	Semarang	56	12.8
	Surabaya	97	22.2
	Ternate	29	6.7
	Total	436	100.0

Convergent and discriminant validity of all constructs were evaluated using Confirmatory Factor Analysis (CFA). As shown in Table 4, indicators were required to meet the threshold for construct validity, with factor loadings of at least 0.5, and preferably above 0.7, to be considered significant [51]. Indicators falling below the threshold, specifically CQ1, CQ2, and CQ3, were removed. Consequently, the final model excluded the Content Quality (CQ) variable because it lacked sufficient validity. The remaining constructs demonstrated adequate construct validity, confirming their suitability for further analysis.

Table 4. Initial Analysis Factors

Indicator	Component							
	1	2	3	4	5	6	7	8
SIF2	0.818							
SIF3	0.817							
SIF1	0.811							
SIF4	0.758							
SIF5	0.723							
PB2		0.693						
PB3		0.692						
PB4		0.684						
PB5		0.647						
PB1		0.605						
CQ2								
SIT3			0.727					
SIT5			0.720					
SIT2			0.695					
SIT1			0.662					

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SIT4	0.634				
CD2		0.666			
CD5		0.640			
CD3		0.638			
CD4		0.625			
CD1		0.598			
CQ1					
SAT3			0.758		
SAT4			0.748		
SAT2			0.735		
SAT1			0.723		
SR2				0.812	
SR1				0.796	
SR3				0.729	
IQ1					0.836
IQ2					0.775
IQ3					0.750
CI2					0.782
CI1					0.773
CI3					0.769
CQ3					

Extraction Method: Principal Component Analysis.
Rotation Method: Equamax with Kaiser Normalization.a
a. Rotation converged in 9 iterations.

The internal consistency of each construct was measured using Cronbach's Alpha (CA). According to [52], a construct is considered reliable if its CA value is ≥ 0.70. As shown in Table 5, all constructs had CA values above the threshold, indicating strong reliability. To ensure the data were suitable for Structural Equation Modeling (SEM), the skewness and kurtosis values of all latent variables were analyzed. The descriptive statistics showed skewness below 3 and kurtosis below 7, which align with normality standards [50]. These findings confirm that the data meet the normality requirements for SEM analysis.

Table 5. Cronbach's Alpha Value

Construct	CA Value	Indicator	CA if Item Deleted	Interpretation
Social Recognition	0.753	SR1	0.615	Acceptable
		SR2	0.643	
		SR3	0.746	
Social Influence	0.886	SIF1	0.858	Good
		SIF2	0.847	
		SIF3	0.854	
		SIF4	0.865	
		SIF5	0.882	
Course Design	0.761	CD1	0.697	Acceptable
		CD2	0.692	
		CD3	0.723	
		CD4	0.743	
		CD5	0.730	
Instructor Quality	0.759	IQ1	0.532	Acceptable
		IQ2	0.709	
		IQ3	0.759	
System Interactivity	0.827	SIT1	0.779	Good
		SIT2	0.773	
		SIT3	0.811	
		SIT4	0.807	
		SIT5	0.790	
Perceived Benefit	0.874	PB1	0.865	Good
		PB2	0.844	
		PB3	0.837	
		PB4	0.844	
		PB5	0.847	
Satisfaction	0.773	SAT1	0.728	Acceptable
		SAT2	0.722	
		SAT3	0.713	
		SAT4	0.713	

Construct	CA Value	Indicator	CA if Item Deleted	Interpretation
Continuance Intention	0.753	CI1	0.662	Acceptable
		CI2	0.699	
		CI3	0.647	

Data analysis was performed using Structural Equation Modeling (SEM) in AMOS 26 to show how variables relate and assess the strength and significance of the paths in the proposed research model. Figure 2 shows the SEM path diagram, created using AMOS. Table 6 presents the estimated path coefficients (estimates) along with their respective p-values for each hypothesized relationship in the model. A p-value less than 0.05 indicates statistical significance, suggesting the relationship between the variables is likely meaningful. A p-value marked with *** (i.e., $p < 0.001$) signifies an extremely significant relationship, suggesting a very high level of certainty in the connection. These values are crucial for evaluating the strength and relevance of the relationships and clarifying which factors most impact the study's outcomes. The lower the p-value, the greater the confidence that the relationship is true and valid within the model.

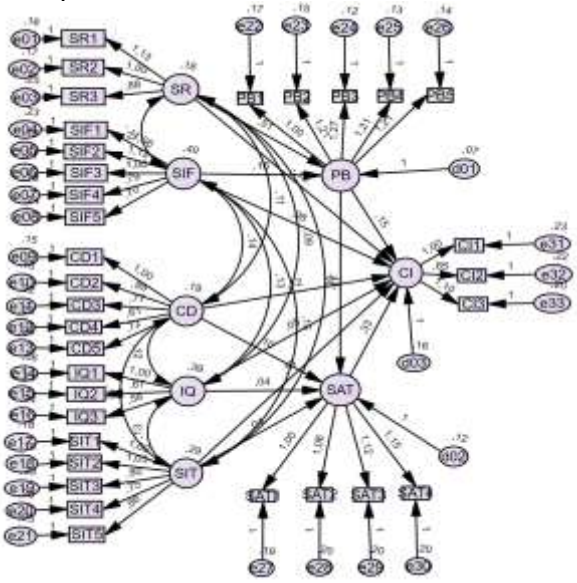


Figure 2. SEM Path Diagram

Table 6. Hypotheses Result

Hypothesis	Path	Estimate	p-value	Result
H1	SR→PB	0.506	***	Supported
H2	SR→CI	-0.100	0.384	Not Supported
H3	SIF→PB	0.164	***	Supported
H4	SIF→CI	0.081	0.123	Not Supported
H5	CD→SAT	0.098	0.178	Not Supported
H6	CD→CI	0.122	0.213	Not Supported
H9	IQ→SAT	0.040	0.361	Not Supported
H10	IQ→CI	0.047	0.465	Not Supported
H11	SIT→SAT	0.042	0.415	Not Supported
H12	SIT→CI	0.152	0.027	Supported
H13	PB→SAT	0.292	***	Supported
H14	PB→CI	0.152	0.151	Not Supported
H15	SAT→CI	0.328	***	Supported

Additionally, Table 7 summarizes the model fit indices for the SEM analysis, highlighting key indicators of how well the model fits the data. The results show that the model meets the recommended criteria for a good fit, which is crucial for drawing accurate conclusions. This confirms that the path coefficients and the relationships between constructs are reliable and can be interpreted with confidence. These findings validate the analysis and reinforce the model's reliability and robustness.

Table 7. Fit Model

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Fit Index	Value	Range	Interpretation
CMIN/DF	1.585	<2.0 = good 2.0–3.0 = acceptable >3.0 = poor	Good
RMSEA	0.037 (LO90: 0.032 – HI90: 0.042)	<0.05 = close 0.05–0.08 = reasonable 0.08–0.10 = mediocre >0.10 = poor	Close
GFI	0.905	≥0.90 = good	Good
AGFI	0.888	≥0.90 = good 0.89 = acceptable	Acceptable
CFI	0.952	≥0.95 = excellent ≥0.90 = acceptable	Excellent
TLI	0.947	≥0.95 = excellent ≥0.90 = acceptable	Excellent
RMR	0.021	<0.05 = good	Good

4.2. Discussion

Social Recognition (SR) demonstrated the strongest positive influence on Perceived Benefit (PB) with a path coefficient of 0.506. This finding indicates that social rewards, such as badges, positive feedback, and public recognition, enhance users' perceptions of the benefits gained from using MOOCs. The effect appears particularly relevant among Generation Z users, who generally respond more strongly to digital social validation. These findings align with Social Cognitive Theory and support prior studies [34] and [31]. In addition, the results reinforce the relevance of Perceived Benefit as a construct, rather than Perceived Usefulness, in earlier studies [39].

However, SR did not show a significant direct effect on Continuance Intention (CI). This suggests that although social recognition can strengthen users' perceptions of the platform's value, it does not necessarily encourage them to continue using MOOCs. One possible explanation is that Generation Z users prioritize practical value and learning outcomes over social approval. This tendency may be particularly evident among the 89.2% of respondents who had used MOOCs for less than three years. These users may still prioritize functional benefits over social recognition features.

Social Influence (SIF) also had a strong positive effect on Perceived Benefit (PB). This finding suggests that peers' opinions, suggestions, and shared experiences play an important role in shaping users' perceptions of benefits. This aligns with previous research that highlights social influence as an important factor in determining PB [31], [34], [37]. However, SIF did not significantly affect Continuance Intention (CI), which contrasts with earlier studies. This suggests that for Generation Z users, social influence alone may not be enough to keep them using MOOCs unless they see clear personal benefits. This suggests they take a more individual, logical approach to evaluating technology, focusing more on practical results than social pressure.

Course Design (CD) did not have a significant effect on either Satisfaction (SAT) or Continuance Intention (CI). This differs from previous studies that emphasize the role of well-organized course design in improving user satisfaction and keeping learners engaged [40]-[42]. The findings suggest that a structured course alone isn't enough to ensure satisfaction, especially for Gen Z learners. They prefer interactive, flexible courses with real-time feedback over traditional formats. As a result, while course design matters, it may not be the primary reason they continue using the platform.

Instructor Quality (IQ) also did not significantly affect either Satisfaction (SAT) or Continuance Intention (CI), which contradicts earlier studies that emphasize the importance of instructor involvement in online learning [40]-[42]. This may be because Gen Z learners prefer independent, visual, systems-based learning, where instructors play a smaller role. Most respondents, especially those new to MOOCs, rely more on other learning materials and value flexibility and practicality over direct instructor guidance. This shift in learning preferences may explain why instructor quality doesn't strongly affect satisfaction or continued platform use.

System Interactivity (SIT) did not significantly affect Satisfaction (SAT), suggesting that current interactive features in MOOCs may not meet the high expectations of tech-savvy users. Many participants, particularly those with less experience (most with fewer than 3 years), may not have fully taken advantage of the interactive tools. However, SIT had a significant direct effect on Continuance Intention (CI), indicating that it plays an important role in shaping users' willingness to continue using the platform. This supports previous findings that system interactivity enhances both cognitive and emotional engagement, giving learners more control and boosting their loyalty to the platform [37], [17]. As learners feel more engaged and empowered by interactive features, they are more likely to stay committed to using the platform.

Contrary to expectations, Perceived Benefit (PB) did not significantly affect Continuance Intention (CI). This finding suggests that perceived value alone may not be sufficient to encourage continued use, particularly among new users who are still becoming familiar with the platform. In contrast, Satisfaction (SAT) had a strong positive impact on CI, highlighting that user satisfaction is a crucial factor in whether users will continue using the platform. This finding supports previous research [31], [37], [44] and shows that Gen Z values a meaningful and enjoyable user experience. For them, satisfaction with the platform is a major reason to keep using it, beyond the perceived benefits.

This study contributes to educational technology theory by using the Stimulus-Organism-Response (S-O-R) framework to explore MOOC user behavior in Indonesia, a developing country. The results show that both social factors (Social Recognition and Social Influence) and system-based factors (System Interactivity) significantly impact user perceptions and their intention to continue using MOOCs. The effect of social factors on Perceived Benefit (PB) aligns with Social Cognitive Theory, emphasizing the role of external social cues in shaping internal responses. Using PB as an alternative to perceived usefulness also broadens its application in online learning. Interestingly, System Interactivity directly influences Continuance Intention (CI) without a mediating variable, suggesting that technology-driven factors can independently drive user behavior. The strong link between PB and Satisfaction (SAT) highlights the role of cognitive and emotional processes in the S-O-R model, while SAT's direct effect on CI supports key ideas from Expectation Confirmation Theory (ECT) and the Technology Acceptance Model (TAM). On the other hand, the lack of significant effects from Course Design (CD), Instructor Quality (IQ), and Content Quality (CQ) suggests that in developing countries, social and technological factors may be more important than traditional instructional elements in influencing user satisfaction and retention, highlighting the need to rethink MOOC performance theory in this context.

This study also provides practical ideas for improving and managing MOOC platforms in Indonesia. First, offering social rewards such as digital certificates, badges, leaderboards, and peer or instructor recognition can boost user motivation and increase the platform's value. Additionally, building social influence through community involvement, discussion forums, and partnerships with academic experts can create a more reliable, supportive learning environment. Second, interactivity is key to keeping users engaged, so add features like live discussions, real-time quizzes, gamification, and two-way communication. Third, prioritize user satisfaction by regularly evaluating the platform's usability, content relevance, and responsiveness. Clearly communicating the benefits of courses, especially skill development and career opportunities, can increase perceived value. Finally, MOOC success in Indonesia depends on blending advanced technology with social and emotional engagement to ensure learners feel supported, appreciated, and connected. These elements are key to lowering dropout rates and fostering long-term loyalty to the platform.

5. CONCLUSION

This study examined the factors influencing continuance intention (CI) to use Massive Open Online Courses (MOOCs) in Indonesia using the Stimulus-Organism-Response (S-O-R) framework. The findings indicate that Social Recognition (SR) and Social Influence (SIF), as components of Social Motivation, significantly influence Perceived Benefit (PB). Furthermore, PB has a significant positive effect on Satisfaction (SAT), but it does not directly affect CI. In contrast, SAT significantly influences CI, highlighting its important role in encouraging continued MOOC use. System Interactivity (SIT) also has a significant direct effect on CI, emphasizing the importance of interactive features in supporting sustained participation. These findings suggest that learners' perceptions of benefits and their satisfaction play distinct roles in explaining MOOC continuance intention.

The study also found that Course Design (CD) and Instructor Quality (IQ) did not significantly affect Satisfaction (SAT) or Continuance Intention (CI). This result suggests that the current course structure and instructor quality may not be sufficient to provide a positive learning experience for MOOC users in Indonesia. Meanwhile, the influence of user satisfaction (SAT) on CI highlights the importance of a good user experience for continued platform use. This study emphasizes that MOOC success in Indonesia depends not only on technology but also on incorporating social and emotional aspects into the platform’s design.

This study has a few limitations. First, the sample was limited to students from specific universities in Indonesia, which may not fully represent the country's entire MOOC user population. Second, while the sample size meets the minimum requirement for SEM, it may still affect how widely the findings can be applied. Third, using only a quantitative questionnaire limited the ability to explore user experiences in more depth. Fourth, the self-administered survey might have influenced the objectivity and accuracy of the data. Future research may include a larger, more diverse group of participants from different regions and institutions across Indonesia to improve the generalizability of the results. Using a mixed-methods approach that combines surveys with interviews or focus groups could provide more detailed insights into user experiences. Additionally, including more experienced MOOC users could offer valuable perspectives on long-term engagement and platform use.

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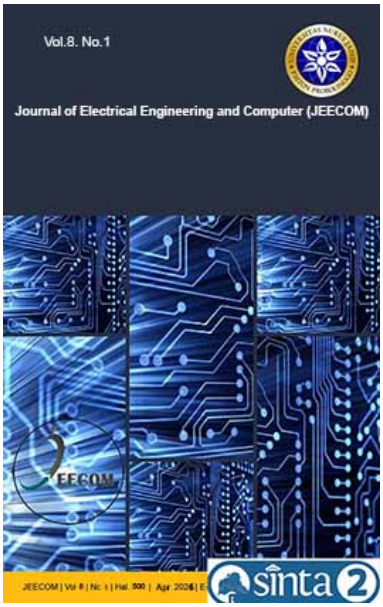
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