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Original Paper

Factors Influencing the Continuous Usage Behavior of Short Video App Douyin Based on the Information System Continuance Model

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Abstract

With the proliferation of mobile internet, short video platforms like Douyin have become central to digital lifestyles. This study investigates factors influencing users' continuous usage behavior by integrating the Expectation-Confirmation Model (ECM-IT) with variables such as perceived pleasure, IT Identity, and habit. Data from online questionnaires were analyzed via structural equation modeling (SEM). Key findings reveal: (1) Satisfaction is most strongly driven by perceived pleasure, followed by expectation confirmation and perceived usefulness, while perceived ease of use shows no significant impact. (2) Continuous usage intention is primarily influenced by IT Identity (self-relevance of the app), satisfaction, and perceived pleasure. (3) Habit negatively moderates the relationship between intention and behavior, reducing intention's predictive power. (4) Perceived ease of use does not enhance IT Identity. These results highlight the critical role of entertainment value and user identity in sustaining engagement. Practical recommendations include optimizing content diversity to boost perceived pleasure, fostering IT Identity through personalized interactions, and leveraging habit formation via intuitive design. The study advances ECM-IT by validating IT Identity as a novel construct and offers actionable insights for retaining users in competitive short video markets.

Keywords

Douyin, ECM-IT, structural equation modeling, continuous usage behavior, IT Identity

1. Introduction

The rapid proliferation of mobile internet in China, with a penetration rate of 99.7% and over 1 billion internet users by 2024, has catalyzed the rise of short video platforms as a dominant force in digital engagement. Among these platforms, Douyin (TikTok) has emerged as a global leader, boasting 847

million monthly active users (MAU) domestically and 550 million MAU worldwide by early 2024. Its success underscores the transformative role of short videos—characterized by brevity, rich content, and ease of dissemination—in reshaping media consumption, social interaction, and commercial activities. However, in a saturated market marked by a "multi-polar" competitive landscape, sustaining user engagement remains a critical challenge for Douyin and similar platforms.

Existing research on short video apps predominantly focuses on their communication features, marketing strategies, or regulatory issues, with limited exploration of user retention mechanisms from an information systems (IS) perspective. This gap is particularly evident in studies addressing continuous usage behavior—why users persistently engage with platforms like Douyin despite abundant alternatives. To address this, our study integrates the Expectation-Confirmation Model of Information System Continuance (ECM-IT) with novel constructs tailored to Douyin's unique context, including perceived pleasure (entertainment value) and IT Identity (users' self-perceived indispensability of the app).

Theoretical frameworks such as ECM-IT and habit theory have traditionally emphasized utilitarian factors (e.g., perceived usefulness) and automatic behaviors. However, Douyin's success hinges on its ability to blend entertainment, social interaction, and personalized content, necessitating a broader analytical lens. By introducing IT Identity—a construct reflecting users' emotional and cognitive alignment with the platform—we extend ECM-IT to better capture the psychological drivers of sustained engagement.

2. Theoretical Review

Research on continuous usage originates from studies of information systems, drawing on theories such as the Unified Theory of Acceptance and Use of Technology (UTAUT), Expectation Confirmation Theory (ECT), Perceived Value Theory, Habit Theory, and IT Identity Theory.

2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh [1] integrated eight prior theoretical models—including the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Motivational Model (MM), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), and Combined TAM and TPB (C-TAM-TPB)—into the UTAUT. Compared with earlier models, UTAUT significantly enhances the explanation of variance variation, establishing itself as the most comprehensive model for predicting users' intention to use information technology. Empirical results show that UTAUT explains up to 70% of usage behavior, more efficiently than any previous model. This integration makes UTAUT a more robust framework for understanding technology acceptance and use.

2.2 Expectation Confirmation Theory (ECT)

Widely applied in consumer purchase behavior research, ECT [2] posits that consumers form pre-purchase expectations about products or services. After experiencing them, they compare perceived

performance with pre-purchase expectations to determine the degree of expectation confirmation, which influences satisfaction. Satisfaction, in turn, serves as a reference for repurchase intention. Lower pre-purchase expectations combined with higher perceived performance lead to greater confirmation, higher satisfaction, and stronger repurchase intention. Conversely, high expectations with low perceived performance result in low confirmation, reduced satisfaction, and weaker repurchase intention.

2.3 Information System Continuous Use Model

Bhattacherjee [3] and others argued that continuous usage of information systems resembles consumer repurchase behavior, where users base their decision to continue using on a comparison of satisfaction and pre-use expectations. They proposed the ECM-IT model, where expectation confirmation positively influences perceived usefulness and satisfaction, and satisfaction positively affects continuous usage intention. This model has been widely adopted and adapted across domains, with scholars introducing context-specific variables to enhance its applicability. For example, Hong [4] highlighted that perceived ease of use significantly impacts satisfaction, perceived usefulness, and continuance intention among mobile internet users (perceived value theory). Dabholkar [5] emphasized that users' perceived pleasure during system use affects their perception of overall service effectiveness. Nysveen [6] found that pleasure is a precursor to repeated mobile device use, while Bhattacherjee [7] and Lin [8] linked perceived pleasure to satisfaction and subsequent continuous usage intention. Bhattacherjee [9] also noted that continuous usage intention is influenced by multiple subjective and objective factors and does not always translate directly into continuous usage behavior.

2.4 Habit Theory

In the social science of information systems, habit is widely used to explain behavioral sustainability. Ye [10] defines habit as a series of learned behaviors that respond spontaneously to specific cues, influencing goal achievement and outcomes. Habits are characterized by unconscious, automatic actions and the ability to react to situational stimuli. Triandis [11]'s behavior theory posits that the probability of taking action is a function of habit strength and execution intention, with habits influencing both behavior and attitude. Limayem [12] found that in stable environments, as habits strengthen through repetition, continuous usage intention becomes a weaker predictor of behavior, with habit emerging as a more critical factor. Towler [13] suggested that habits and continuous usage intention jointly affect continuous usage behavior, while Green [14] demonstrated that habits predict continuous usage behavior more effectively than intention alone.

2.5 IT Identity Theory

Proposed by Carter [15], IT Identity is a construct describing the extent to which users perceive IT usage as indispensable to their self-concept. A strong IT Identity indicates that IT usage is a vital component of positive self-cognition, emerging from frequent user-IT interaction. Carter [16] measured IT Identity across three dimensions:positive energy(passion for IT),relatedness(emotional connection to IT), anddependence(reliance on IT). As IT Identity reflects individuals' historical interaction with IT in

social contexts, it shapes normative behavioral expectations. Integrating IT Identity into post-adoption models (e.g., the information system continuous use model) helps control variables related to how individuals perceive social contexts and experimental IT use, making it a better predictor of voluntary usage behavior than variables like habit or expectation that overlook external social environments.

3. Method

3.1 Research Model

Bhattacherjee [3] introduced the Expectation Confirmation Theory into the research on the continuous use behavior of information systems and proposed a continuous use model of information systems. As a new type of music short video entertainment information system in the era of mobile Internet, Douyin App can draw on this model to conduct research.

Based on Bhattacherjee's continuous use model of information systems, this study adds two variables, perceived pleasure and perceived ease of use, according to the characteristics of Douyin as a music entertainment short video. IT Identity, an emerging construct, is used as a mediating variable, and a habit variable is added as a moderator between the intention to continuously use the information system and the continuous use behavior of the information system. A continuous use model of the Douyin information system is constructed.

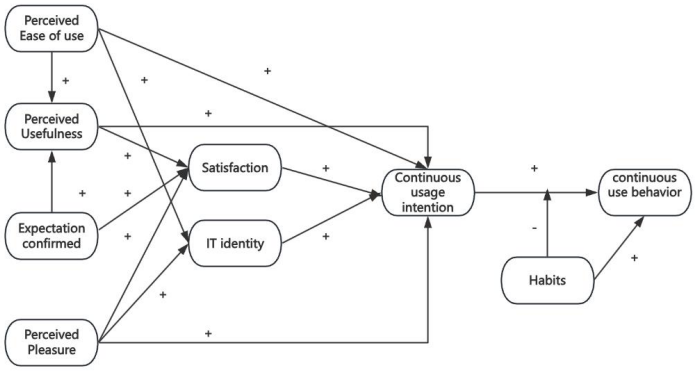

Figure 1. Continuous Use Model of Douyin

3.2 Research Hypotheses

Relationships Among Expectation Confirmation, Perceived Usefulness, Satisfaction, and Perceived Ease of Use. Expectation Confirmation refers to the degree to which users' pre-use expectations of Douyin are confirmed by their actual usage experience, which influences users' favorability toward the app. Perceived Usefulness is the extent to which users believe Douyin can assist in their life or work, and expectation confirmation affects users' judgment of the system's usefulness. Satisfaction denotes the psychological improvement users experience after using Douyin, influenced by both pre-use expectations and perceived usefulness during usage. Perceived Ease of Use represents users' subjective perception of the time, effort, and cost required to learn Douyin, impacting their perceptions of

usefulness and satisfaction. Based on this, the following hypotheses are proposed:

H1: Users' expectation confirmation positively influences their perceived usefulness of Douyin.

H2: Users' expectation confirmation positively influences their satisfaction with Douyin.

H3: Users' perceived usefulness of Douyin positively influences their satisfaction with Douyin.

H4: Users' perceived ease of use of Douyin positively influences their perceived usefulness of Douyin.

H5: Users' perceived ease of use of Douyin positively influences their satisfaction with Douyin.

Relationships Among Perceived Pleasure, Perceived Usefulness, Satisfaction, IT Identity, and Continuous Usage Intention

Perceived Pleasure refers to the degree of enjoyment users experience while using Douyin. IT Identity represents the extent to which users perceive IT usage as indispensable to their self-concept. Continuous Usage Intention is the likelihood and willingness of existing users to continue using Douyin in the foreseeable future. As a music and entertainment short-video app primarily used for entertainment and social interaction, perceived pleasure significantly impacts satisfaction, continuous usage intention, and IT Identity. The hypotheses are as follows:

H6: Users' perceived pleasure of Douyin positively influences their satisfaction with Douyin.

H7: Users' perceived pleasure of Douyin positively influences their IT Identity.

H8: Users' perceived pleasure of Douyin positively influences their continuous usage intention for Douyin.

H9: Users' perceived pleasure of Douyin positively influences their perceived usefulness of Douyin.

H10: Users' satisfaction with Douyin positively influences their continuous usage intention for Douyin.

H11: Users' IT Identity positively influences their continuous usage intention for Douyin.

H12: Users' perceived usefulness of Douyin positively influences their continuous usage intention for Douyin.

Relationships Among Perceived Ease of Use, IT Identity, Continuous Usage Intention, Habit, and Continuous Usage Behavior

Continuous Usage Behavior refers to users' ongoing and repetitive use of Douyin. Habit is defined as the spontaneous and unconscious repetitive use of Douyin formed through prolonged usage. The hypotheses are:

H13: Users' perceived ease of use of Douyin positively influences their continuous usage intention for Douyin.

H14: Users' continuous usage intention positively influences their continuous usage behavior of Douyin.

H15: Users' habits positively influences their continuous usage behavior of Douyin.

H16: Users' habit has a negative moderating effect on the relationship between continuous usage intention and continuous usage behavior.

3.3 Summary of Research Hypotheses

The research hypotheses regarding the relationships among variables in the model of users' continuous

usage intention for the mobile short-video app Douyin are summarized in Table 1.

Table 1. Summary of Research Hypotheses

Research Hypothesis	Description
H1	Users' expectation confirmation positively influences their perceived usefulness of Douyin.
H2	Users' expectation confirmation positively influences their satisfaction with Douyin.
H3	Users' perceived usefulness of Douyin positively influences their satisfaction with Douyin.
H4	Users' perceived ease of use of Douyin positively influences their perceived usefulness of Douyin.
H5	Users' perceived ease of use of Douyin positively influences their satisfaction with Douyin.
H6	Users' perceived pleasure of Douyin positively influences their satisfaction with Douyin.
H7	Users' perceived pleasure of Douyin positively influences their IT Identity.
H8	Users' perceived pleasure of Douyin positively influences their continuous usage intention for Douyin.
H9	Users' perceived pleasure of Douyin positively influences their perceived usefulness of Douyin.
H10	Users' satisfaction with Douyin positively influences their continuous usage intention for Douyin.
H11	Users' IT Identity positively influences their continuous usage intention for Douyin.
H12	Users' perceived usefulness of Douyin positively influences their continuous usage intention for Douyin.
H13	Users' perceived ease of use of Douyin positively influences their continuous usage intention for Douyin.
H14	Users' continuous usage intention positively influences their continuous usage behavior of Douyin.
H15	Users' habits positively influence their continuous usage behavior of Douyin.
H16	Users' habit has a negative moderating effect on the relationship between continuous usage intention and continuous usage behavior.

3.4 Definition and Measurement of Research Variables

The Expectation Confirmation Theory (ECT) [2] is widely used in consumer purchase behavior research, positing that consumers form pre-purchase expectations about products or services. After experiencing them, they compare perceived performance with pre-purchase expectations to determine the degree of expectation confirmation, which influences satisfaction and repurchase intention. Bhattacherjee [3] argued that continuous usage of information systems resembles consumer repurchase behavior, where users base their decision to continue using on satisfaction and expectation comparison. The definition and measurement items for expectation confirmation are designed as follows based on established scales:

Table 2. Expectation Confirmation Definition

Variable Name	Definition and Measurement Items	Reference
Expectation Confirmation	The difference between users' pre-use expectations of Douyin and their actual usage experience, i.e., the degree to which actual experience confirms expectations.	Oliver [2] Bhattacherjee [3]
EC1	The experience of using Douyin is better than I expected.	
EC2	The interactive effects of using Douyin are better than I expected.	
EC3	The content obtained from Douyin is better than I expected.	
EC4	Overall, my expectations of Douyin have been met.	

Perceived Usefulness

Perceived usefulness refers to the degree to which users believe using an information system enhances work efficiency. In this study, it denotes users' subjective perception of how Douyin improves the efficiency of their work, study, and daily life, i.e., the extent to which Douyin is perceived as positive and useful. The definition and survey items are shown in the table below:

Table 3. Perceived Usefulness Definition

Variable Name	Definition and Measurement Items	Reference
Perceived Usefulness	Users' subjective perception of how Douyin improves the efficiency of their work, study, and daily life; the extent to which Douyin is perceived as positive and useful.	Venkatesh & Davis [1]
PU1	Douyin provides me with useful information or knowledge.	
PU2	Using Douyin helps me solve problems in my life.	
PU3	Using Douyin increases my frequency of contact with friends.	

PU4	Overall, using Douyin is beneficial to me.

Perceived Ease of Use

Hong noted that Perceived Ease of Use significantly influences constructs such as satisfaction, perceived usefulness, and continuous usage intention among mobile internet users. It refers to users' subjective perception of the effort, time, or difficulty required to learn Douyin. As an entertainment and social short-video app, Douyin requires simple interaction design; high learning costs may reduce satisfaction, perceived usefulness, and usage intention, leading to abandonment. The definition and measurement items are shown in Table 4:

Table 4. Perceived Ease of Use Definition

Variable Name	Definition and Measurement Items	Reference
Perceived Ease of Use	Users' subjective perception of the time, effort, or difficulty required to use Douyin.	Venkatesh & Davis [1] Hong & Thong [4]
PEU1	I find it easy to learn how to use Douyin.	
PEU2	The operational steps of Douyin are simple.	
PEU3	Douyin's interactive interface is simple and clear, making it convenient and comfortable to use.	

Perceived Pleasure

Perceived Pleasure refers to the enjoyment users experience while using an information system, specifically the subjective sense of delight when using Douyin (e.g., filming, uploading, or watching videos). The definition and measurement items are designed as follows (Table 5):

Table 5. Perceived Pleasure Definition

Variable Name	Definition and Measurement Items	Reference
Perceived Pleasure	The degree of enjoyment users feel while using Douyin.	Dabholkar [5, 6] Bhattacherjee & Lin [7]
PP1	Time passes quickly when I use	

	Douyin.
PP2	One reason I use Douyin is that it helps me pass leisure time.
PP3	Using Douyin makes me feel happy and relaxed.
PP4	Using Douyin gives me mental satisfaction.

Satisfaction

Satisfaction is widely used in consumer behavior research, where post-purchase satisfaction influences repurchase intention. Bhattacherjee [3] suggested that continuous usage of information systems is analogous to repurchase behavior, with users' decisions based on satisfaction and expectation comparison. The definition and measurement items for satisfaction in this study are shown in Table 6:

Table 6. Satisfaction Definition

Variable Name	Definition and Measurement Items	Reference
Satisfaction	The psychological experience resulting from comparing users' actual post-use performance with pre-use expectations of Douyin.	Oliver [2] Bhattacherjee [3]
SAT1	I think using Douyin was a wise decision.	
SAT2	I am overall very satisfied with Douyin after using it.	
SAT3	Compared with other short-video apps (e.g., Huoshan, Kuaishou, Miaopai, Meipai), I am more satisfied with Douyin.	

IT Identity

IT Identity, proposed by Carter [15], is a construct describing the extent to which users perceive IT usage as indispensable to their self-concept. A strong IT identity means IT usage is a crucial part of positive self-cognition. For Douyin users, filming, uploading, and sharing life through the app have become part of their self-identity. The definition and measurement items are shown in Table 7:

Table 7. IT Identity Definition

Variable Name	Definition and Measurement Items	Reference
IT Identity	The extent to which users perceive IT usage as indispensable is based on self-cognition and feelings.	Carter & Grover [15] Carter [16]
ID1	I consider myself somewhat dependent on Douyin.	
ID2	I am passionate about Douyin.	
ID3	I feel a certain connection with Douyin.	
ID4	Douyin makes me feel energetic.	

Habit

In the social science of information systems, habit is widely used to explain the sustainability of behavior. It refers to learned behaviors that respond spontaneously to specific cues, influencing goal achievement and outcomes. Douyin's easy operation (e.g., scrolling to watch videos) allows users to form habits unconsciously. The definition and survey items are shown in Table 8:

Table 8. Habit Definition

Variable Name	Definition and Measurement Items	Reference
Habit	Spontaneous, unconscious, and repetitive usage of Douyin formed through prolonged use.	Limayem [12]
HAB1	I use Douyin for entertainment spontaneously.	
HAB2	Using Douyin feels natural to me.	
HAB3	Using Douyin has become a habit for me.	

Continuous Usage Intention

Continuous Usage Intention refers to the likelihood and willingness of existing Douyin users to continue using the app in the foreseeable future, a key indicator of the system's success. The definition and measurement items are shown in Table 9:

Table 9. Continuous Usage Intention Definition

Variable Name	Definition and Measurement Items	Reference
Continuous Usage Intention	The likelihood and willingness of existing Douyin users to continue using the app in the foreseeable future.	Bhattacherjee [3]
CUI1	I plan to continue using Douyin in the future.	
CUI2	I am willing to recommend Douyin to my friends.	
CUI3	If I could go back in time, I would still choose to use Douyin.	

Continuous Use Behavior

Continuous Use Behavior refers to users' ongoing and repetitive usage of Douyin. Three measurement items are proposed as follows (Table 10):

Table 10. Continuous Use Behavior Definition

Variable Name	Definition and Measurement Items	Reference
Continuous Use Behavior	Users' ongoing and repetitive usage of Douyin.	Bhattacherjee [3]
CUB1	Based on memory, how long have you currently used Douyin?	
CUB2	How frequently have you used Douyin in the past two weeks?	
CUB3	What is the average duration of each Douyin usage in the past	

two weeks?

3.5 Questionnaire Design

1. Screening Questions

The first part of the questionnaire consists of screening questions to identify valid respondents. Participants who have used Douyin will answer "Yes" and proceed to the subsequent questions, while those who answer "No" will be redirected to submit an invalid response or choose to stop voluntarily. This design aims to preliminarily filter effective data, ensure questionnaire quality, and validate the conclusions derived from data analysis.

2. Demographic Information

The second part collects basic demographic information of respondents, including: Gender, Age, Highest educational level, Occupation.

3. Measurement Items for Research Variables

The third part adapts mature domestic and international scales to design specific measurement items for the nine variables in the Douyin information system continuous use model: Expectation Confirmation, Perceived Usefulness, Perceived Ease of Use, Perceived Pleasure, Satisfaction, IT Identity, Habit, Continuous Usage Intention, and Continuous Use Behavior. A total of 32 measurement items are included to explore users' continuous usage intention and behavior toward Douyin. Scaling Method:

Except for Continuous Use Behavior, all variables adopt the Likert five-point scale, where:1 = "Completely Disagree", 2 = "Somewhat Disagree", 3 = "Uncertain", 4 = "Somewhat Agree", 5 = "Completely Agree". Continuous Use Behavior uses five time-range options for respondents to select based on their actual usage experience. Respondents are required to choose answers according to their real-life usage experiences of Douyin.

4. Result

4.1 Measurement Model

Convergent Validity

Convergent validity assesses the degree to which different items measuring the same construct yield consistent results, ensuring that indicators of the same latent variable load onto a common factor. This study usesStandardized Factor Loading,Composite Reliability (CR), and Average Variance Extracted (AVE) to evaluate reliability, with criteria:1. Standardized factor loading > 0.6 (or 0.7 for strict criteria); Composite reliability (CR) > 0.6; Average variance extracted (AVE) > 0.5. Items with inadequate factor loadings were removed to improve convergent validity. The final results for factor loadings, CR, and AVE are presented in Table 11, demonstrating that all constructs meet the criteria, indicating good composite reliability and convergent validity.

Table 11. Composite Reliability and Average Variance Extracted (AVE)

Construct	Items	Factor Loading	CR	AVE
Perceived Ease of Use	PEU1	0.7503	0.7527	0.5041
	PEU2	0.6891		
	PEU3	0.6888		
Expectation Confirmation	EC1	0.6885	0.8416	0.5641
	EC2	0.6671		
	EC4	0.7255		
Perceived Usefulness	PU1	0.8531	0.9062	0.7203
	PU2	0.8413		
	PU3	0.8517		
	PU4	0.8171		
Satisfaction	SAT1	0.6608	0.7517	0.5032
	SAT2	0.7668		
	SAT3	0.6964		
Perceived Pleasure	PP1	0.7491	0.8825	0.6721
	PP3	0.8663		
	PP4	0.7728		
IT Identity	ID1	0.9453	0.9339	0.8253
	ID2	0.8460		
	ID3	0.9309		
Habit	HAB1	0.8781	0.8973	0.7444
	HAB2	0.8568		
	HAB3	0.8533		
Continuous Usage Intention	CUI1	0.8871	0.9066	0.7642
	CUI2	0.9030		
	CUI3	0.8308		
Continuous Use Behavior	CUB1	0.6070	0.6425	0.4765
	CUB2	0.7646		

Note. EC3 was removed due to inadequate factor loading; AVE for Continuous Use Behavior is slightly below 0.5 but retained due to theoretical significance and item relevance.

Discriminant Validity

Discriminant validity confirms that constructs are distinct and independent. Using bootstrap to

calculate the 95% confidence interval (CI) of correlations between constructs, discriminant validity is established if the CI does not include 1. Table 12 presents the results, showing all 95% CIs exclude 1, confirming that each construct is statistically distinct from others.

Table 12. 95% Confidence Intervals of Construct Correlations

Parameter	Estimate	Lower CI	Upper CI	p-value
PE ↔ EC	0.9074	0.8205	0.9792	<0.001
PE ↔ PU	0.7953	0.7067	0.8668	<0.001
PE ↔ PP	0.9541	0.8991	1.0084	<0.001
PE ↔ SAT	0.8919	0.7925	0.9707	<0.001
PE ↔ IT	0.7054	0.5884	0.7919	<0.001
PE ↔ HAB	0.8291	0.7453	0.9018	<0.001
PE ↔ CUI	0.8430	0.7649	0.9059	<0.001
PE ↔ CUB	0.4093	0.2480	0.5782	<0.001
EC ↔ PU	0.7118	0.6161	0.7868	<0.001
EC ↔ PP	0.8504	0.7809	0.9044	<0.001
EC ↔ SAT	0.9471	0.8784	1.0031	<0.001
EC ↔ IT	0.8322	0.7690	0.8869	<0.001
EC ↔ HAB	0.8796	0.8252	0.9291	<0.001
EC ↔ CUI	0.8046	0.7331	0.8649	<0.001
EC ↔ CUB	0.4387	0.2794	0.5898	<0.001
PU ↔ PP	0.7901	0.7191	0.8465	<0.001
PU ↔ SAT	0.8258	0.7234	0.8976	<0.001
PU ↔ IT	0.5989	0.4974	0.6803	<0.001
PU ↔ HAB	0.6468	0.5464	0.7197	<0.001
PU ↔ CUI	0.8368	0.7804	0.8824	<0.001
PU ↔ CUB	0.2222	0.0537	0.3637	0.0138
PP ↔ SAT	0.9024	0.8329	0.9661	<0.001
PP ↔ IT	0.7357	0.6590	0.8003	<0.001
PP ↔ HAB	0.8489	0.7911	0.8973	<0.001
PP ↔ CUI	0.8608	0.8014	0.9055	<0.001
PP ↔ CUB	0.4138	0.2613	0.5511	<0.001
SAT ↔ IT	0.8299	0.7531	0.8942	<0.001
SAT ↔ HAB	0.9150	0.8492	0.9693	<0.001
SAT ↔ CUI	0.9364	0.8770	0.9913	<0.001
SAT ↔ CUB	0.3510	0.1608	0.5302	<0.001

IT ↔ HAB	0.9249	0.8888	0.9548	<0.001
IT ↔ CUI	0.7835	0.7082	0.8337	<0.001
IT ↔ CUB	0.5097	0.3605	0.6404	<0.001
HAB ↔ CUI	0.8536	0.8001	0.8981	<0.001
HAB ↔ CUB	0.6223	0.4786	0.7447	<0.001
CUI ↔ CUB	0.4493	0.3091	0.5824	<0.001
Parameter	Estimate	Lower CI	Upper CI	p-value

All 95% CIs exclude 1, confirming that each construct is distinct, thus establishing discriminant validity.

To test the proposed hypotheses, this study used Amos 24.0 to construct a Structural Equation Model (SEM) based on the theoretical continuous use model of Douyin's information system, as shown in Figure 3. The model analyzed influencing factors of users' continuous usage behavior by validating both the measurement model and structural model. Through iterative fitting of the questionnaire data, hypotheses with negative standardized regression coefficients were removed, and corresponding paths were deleted from the structural model, resulting in a revised model. The goodness-of-fit indices of the revised model met the recommended values for evaluation criteria, indicating a good fit. The fit indices for the measurement and structural models are presented in Table 13.

Table 13. Goodness-of-Fit

Statistical Check	Goodness-of-Fit Criteria	Measurement Model	Structure Model	Result
χ^2/df	1–5	2.10	3.85	Good
PGFI (Parsimonious GFI)	>0.5	0.65	0.59	Good
PCFI (Parsimonious CFI)	>0.5	0.79	0.73	Good
PNFI (Parsimonious NFI)	>0.5	0.76	0.69	

Structural Model Analysis

1. Path Analysis

Using Amos 24.0 to fit the structural equation model, the standardized path coefficients and hypothesis significance for each construct are presented in Table 14.

Table 14. Path Coefficients

Path	Standardized Path Coefficient	Result
Expectation Confirmation → Perceived Usefulness	0.1956*	Supported
Perceived Ease of Use → Perceived Usefulness	0.3549**	Supported
Perceived Pleasure → Perceived Usefulness	0.5576***	Supported
Perceived Usefulness → Satisfaction	0.2671**	Supported
Perceived Usefulness → IT Identity	0.122 (non-significant)	Unsupported
Perceived Pleasure → IT Identity	0.6432***	Supported
Perceived Pleasure → Satisfaction	0.5267***	Supported
Expectation Confirmation → Satisfaction	0.5124***	Supported
Perceived Ease of Use → Satisfaction	0.063 (non-significant)	Unsupported
IT Identity → Continuous Usage Intention	0.4267***	Supported
Satisfaction → Continuous Usage Intention	0.3537**	Supported
Perceived Pleasure → Continuous Usage Intention	0.1648 (non-significant)	Unsupported
Perceived Usefulness → Continuous Usage Intention	0.1605*	Supported
Perceived Ease of Use → Continuous Usage Intention	0.0984 (non-significant)	Unsupported
Continuous Usage Intention →	0.8902***	Supported

Habit		
Continuous Usage Intention → Continuous Use Behavior	0.37***	Supported
Habit → Continuous Use Behavior	1.2306***	Supported
Note:*p < 0.05; **p < 0.01; **p < 0.001. Arrows indicate the direction of influence between constructs.		

Key Findings:

a) Perceived ease of use does not significantly affect continuous usage intention or satisfaction.

PathsPerceived Ease of Use → Satisfaction(0.063) andPerceived Ease of Use → Continuous Usage Intention(0.0984) are non-significant, rejecting Hypotheses H5 and H13.

b) Perceived usefulness, perceived pleasure, and expectation confirmation significantly and positively affect satisfaction. Significant positive paths:Expectation Confirmation → Satisfaction(0.5124***, H2),Perceived Usefulness → Satisfaction(0.2671**, H3),Perceived Pleasure Satisfaction(0.5267***, H6).

c) Perceived pleasure significantly and positively affects users' IT Identity. PathPerceived Pleasure → IT Identity(0.6432***, H7) is significant, confirming a positive influence.

d) User satisfaction and IT Identity significantly and positively affect continuous usage intention.

Significant positive paths:Satisfaction → Continuous Usage Intention(0.3537**, H10),IT Identity → Continuous Usage Intention(0.4267***, H11).

e) Expectation confirmation, perceived ease of use, and perceived pleasure significantly and positively affect perceived usefulness. Significant positive paths:Expectation Confirmation → Perceived Usefulness(0.1956*, H1),Perceived Ease of Use → Perceived Usefulness(0.3549**, H4),Perceived Pleasure → Perceived Usefulness(0.5576***, H9).

f)Habit significantly and positively affects continuous use behavior. PathHabit → Continuous Use Behavior(1.2306***, H15) is significant, indicating a strong direct effect.

g)Continuous usage intention significantly and positively affects habit— a new path discovered during model revision. Path Continuous Usage Intention → Habit(0.8902***), not initially hypothesized, was retained after removing non-significant paths, indicating a bidirectional relationship between intention and habit.

2. Negative Moderating Effect of Habit

The moderating role of habit on the relationship between continuous usage intention and continuous use behavior was identified by comparing path coefficients with and without the habit variable:

Without habit as a moderator: Continuous Usage Intention → Continuous Use Behaviorwas

significantly positive (0.37***, $p < 0.001$). With habit as a moderator: The path coefficient decreased in significance ($p < 0.01$) and turned negative (-0.71), indicating that habit weakens the direct effect of intention on behavior. This supports Hypothesis H16, confirming thathabit negatively moderates the relationship between continuous usage intention and continuous use behavior.

Summary of Hypothesis Testing

The validation results of all hypotheses are summarized in Table 15.

Table 15. Hypothesis Testing Results

Hypothesis	Description	Validation Result
H1	Expectation confirmation positively affects perceived usefulness of Douyin.	Supported
H2	Expectation confirmation positively affects user satisfaction with Douyin.	Supported
H3	Perceived usefulness positively affects user satisfaction with Douyin.	Supported
H4	Perceived ease of use positively affects perceived usefulness of Douyin.	Supported
H5	Perceived ease of use positively affects user satisfaction with Douyin.	Unsupported
H6	Perceived pleasure positively affects user satisfaction with Douyin.	Supported
H7	Perceived pleasure positively affects users' IT Identity.	Supported
H8	Perceived pleasure positively affects continuous usage intention.	Unsupported
H9	Perceived pleasure positively affects perceived usefulness of Douyin.	Supported
H10	Satisfaction positively affects	Supported

	continuous usage intention.	
H11	IT Identity positively affects continuous usage intention.	Supported
H12	Perceived usefulness positively affects continuous usage intention.	Supported
H13	Perceived ease of use positively affects continuous usage intention.	Unsupported
H14	Continuous usage intention positively affects continuous use behavior.	Supported
H15	Habit positively affects continuous use behavior.	Supported
H16	Habit negatively moderates the relationship between continuous usage intention and continuous use behavior.	Supported

Practical Recommendations

Based on the Information System Continuous Use Model (ECM-IT) and the characteristics of Douyin, this study introduces new constructs—Perceived Pleasure, Perceived Ease of Use, IT Identity, and Habit—to develop a research model, which is validated via Structural Equation Modeling (SEM). Drawing on the research conclusions, this section proposes practical recommendations for Douyin's future development:

Enhance Content Quality and Build a Diverse Content Creation Ecosystem

The study finds thatPerceived Pleasuresignificantly influences user satisfaction, which in turn indirectly influences users' continuous usage intention. As a content-centric platform, Douyin's core value lies in providing entertainment and relaxation. Therefore, efforts should focus on:

- Improving the quality of short videos by curating high-value content (e.g., educational, creative, or humorous videos).
- Cultivating a vibrantcontent creation ecosystemby supporting creators through resources, incentives, and tools (e.g., filming tutorials, editing features, or monetization opportunities).
- Strengthening the platform's entertainment attributes through interactive functions (e.g., live streaming, challenges, or virtual gifts) to enhance users' emotional engagement and pleasure.

Foster User Habits to Enhance Stickiness

The findings reveal thathabitreplaces continuous usage intention as a stronger predictor of continuous

usage behavior once formed. To make Douyin usage an automatic and unconscious behavior, the platform should:

- Design user-friendly features that lower the threshold for engagement (e.g., one-click access, personalized recommendations based on viewing history).
- Encourage regular usage through gamification elements (e.g., daily check-in rewards, streaks, or progress badges).
- Leverage the "short-video consumption loop" (e.g., infinite scrolling, quick content updates) to reinforce habitual interactions, making Douyin a natural part of users' daily routines.

Strengthen Users' IT Identity through Personalized Interaction

SinceIT Identitysignificantly and positively affects continuous usage intention, Douyin should focus on helping users construct and reinforce their self-concept through platform interaction:

Create interactive activities that allow users to express individuality (e.g., customized avatars, unique filters, or user-generated content challenges).

Launch community-driven campaigns or topics that align with users' self-identity (e.g., niche interest groups, personal branding workshops).

Highlight user contributions (e.g., featuring popular creators, showcasing user stories) to enhance their sense of dependence and emotional connection to the platform, making Douyin an indispensable part of their digital identity.

Research Limitations

This study explores the influencing factors and mechanisms of Douyin users' continuous usage behavior through theoretical synthesis and SEM analysis. However, due to constraints in time, funding, and personal capacity, several limitations exist:

Limited Theoretical Synthesis

While the research model integrates theories such as Expectation Confirmation Theory, Habit Theory, and Technology Acceptance Theory, the literature review is not exhaustive. The sheer volume of literature on these theories precludes a comprehensive and in-depth synthesis, potentially missing nuanced theoretical connections or emerging perspectives.

Sample Representativeness and Quality

All data were collected through online channels (WeChat groups, QQ groups, social media shares, and Douyin private messages), without paper-based surveys in campus or public settings. This approach may have led to:

- Non-representative samples, as online recruitment might over-represent tech-savvy or younger users, underrepresenting older or less digitally engaged groups.
- Low data quality, due to potential inattentive responses common in online surveys (e.g., random answers, incomplete submissions). Future research could employ mixed-method sampling (online and offline) to expand sample diversity and improve data reliability.

Ignored Mediating Effects

While the study examines direct effects of Perceived Pleasure, Perceived Usefulness, and Perceived Ease of Use on continuous usage intention, it does not investigate themediating roles of IT Identity and Satisfaction. These constructs may act as intermediaries through which antecedent variables influence intention or behavior. Exploring these mediating pathways could provide a more nuanced understanding of the theoretical model, which is recommended for future research.

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