

Enabling and Inhibiting Factors of the Continuous Use of Mobile Short Video APP: Satisfaction and Fatigue as Mediating Variables Respectively

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Purpose: The short video APP has entered the stage of competition for stock, making it crucial to keep users engaged in their APP to promote continuous usage. Previous studies on the continuous use intention of mobile short video APP were relatively limited, with most studies focusing only on promoting factors. Therefore, based on the dual-factor theory of “enabling-inhibiting”, and drawing on the Information System Continuance Model (ECM-ISC) and Cognitive Load Theory, this study extracted two variables, satisfaction and fatigue, to construct an integrated model to explore their enabling and inhibiting effects on continuous use intention.

Methods: This study selected TikTok APP users as the respondents, obtained 681 valid questionnaires and analyzed with structural equation modeling (SEM) using SPSS24.0 and Amos23.0 software.

Findings: The study investigated the factors that influence users’ continuous use intention of short video APP. It shows that in enabling mechanism, perceived usefulness and social influence will increase user satisfaction and thus promote their continuous use intention, and perceived playfulness has a direct effect on the continuous use intention. In inhibiting mechanism, information overload and communication overload are positively correlated with emotional fatigue, which further reduces the continuous use intention.

Contribution/Conclusion: Based on the dual-factor theory of “enabling-inhibiting”, the study established an integration model to more comprehensively reveal the impact mechanism of short video APP users’ continuous use intention. The study found that the fatigue caused by information and communication overload can inhibit users’ continuous use intention of short video APP. Therefore, to improve users’ continuous use intention, short video APP should not only increase users’ satisfaction but also reduce the fatigue caused by overload.

Keywords: short video APP, continuous use intention, satisfaction and fatigue, enablers, inhibitors, ECM-ISC model

Introduction

In recent years, the short video industry in China, represented by TikTok and Kwai, has experienced rapid growth. The short video is a form of internet content dissemination that typically lasts less than 5 minutes and is disseminated on new internet media. It is a video expression form that relies on UGC and PUC as the main production methods and relies on clients, websites, or social media as the main communication channels.¹ As of December 2021, the number of short video users had reached 930 million, and the utilization rate was as high as 90.5%.² However, despite the large user base, users’ satisfaction with short videos has decreased, leading to a loss of users. Some users have even returned to traditional media such as television.³ From 2019 to 2021, the growth rate of short-video APP users slowed down significantly, the dividend of user scale gradually “peaked”, and the degree of users overlap kept rising. Repeat users of TikTok and Kwai,⁴ the two major short video APP in China, reached 291 million. In addition, competitors such as WeChat Mini

Video and Bilibili are constantly improving their marketing strategies to carve up market share. So it is crucial for short video APP providers to retain users and encourage their continuous usage.

The prior studies on short videos primarily focused on development trends, industry integration, communication strategies, business models, and user experience.⁵⁻⁷ However, researches on users' continuous use intention of mobile short video APP are relatively limited, with most studies focusing solely on enablers and neglecting inhibitors. In fact, a 2021 survey by CSM (China Guangshi Sofrey Media Research) found that users' in-depth evaluation of short video content has decreased, with some users expressing boredom due to a large amount of homogeneous information and lack of nutrition after long-time watching.⁸ Ignoring negative attributes may hinder the actual effect of positive attributes.⁹

Meanwhile, most existing studies use a single model as the theoretical basis and mainly focus on the enabling factors of users' using short video APP. The perspective is relatively single, and there is relatively little exploration of inhibiting factors. In fact, even slight resistance can lead to a decrease in participation in social networks.¹⁰ Therefore, relying solely on a single theoretical model to understand the factors that affect the users' continuous use intention of short video APP may not be sufficient. This study employs the dual-factor theory of "enabling-inhibiting", drawing on the information system persistence model (ECM-ISC) and cognitive load theory, and utilizes the variables of satisfaction and fatigue as "enablers" and "inhibitors" to investigate their dual-influence mechanism on the intention to continue using mobile short video APP. The contributions of this study are as follows:

1. This study establishes an integrated model based on the dual-factor theory of "enabling-inhibiting" to more comprehensively reveal the formation mechanism of short video users' continuous use intention.
2. The inhibitor of "fatigue" is introduced as a complex emotion, and it is found that information and communication overload can lead to fatigue, which in turn inhibits the continuous use intention of short videos.
3. It is verified that the perceived playfulness also has an impact on the continuous use intention of users, not involving satisfactory evaluation. This indicates that perceived playfulness initiates the experiential system of user cognitive processing. According to the Dual Processing Theories,^{11,12} there are two systems for users to process information: experiential and rational. Among them, the experiential system is an intuitive, automatic, and emotion driven cognitive processing that does not require or requires less cognitive resources and effort. In this study, perceived playfulness activated the experiential system, directly affecting users' continuous use intention of short video APP without the need for a rational cognitive process of satisfactory evaluation.

Literature Review

At present, the research on short videos from the perspective of users mainly includes user behavior characteristics,^{13,14} user addiction behavior^{15,16} and user motivation.^{17,18} Among them, in the research on the continuous use intention of short videos, scholars mostly use some theoretical models, mainly from the three aspects of users, technology and society.

Studies have shown that user factors, such as perceived usefulness, perceived entertainment,¹⁹ and perceived ease of use,²⁰ as well as perceived value and well-being,²¹ have a positive impact on continuous use intention. Users' demands for information, entertainment, and communication,²² as well as their needs for achievement,²³ also promote continuous use intention. Additionally, user characteristics, such as narcissism and personality traits, can influence users' engagement behaviors in short videos.²⁴

From the perspective of technical factors, the original words provided by short videos, the functional support of live broadcast and recommendation, as well as the recommendation algorithm of the short video have all been confirmed by research to promote the continuous participation of users.^{25,26} However, it has also been found that over-recommendation can result in information redundancy, information overload, and emotional exhaustion, leading users to stop using short videos.²⁷

In terms of social factors, video creation and sharing behaviors in short videos have been shown to have a positive impact on user stickiness.²⁸ In addition, the study also found that social attachment,²⁹ sense of belonging,¹⁹ subjective norms²⁰ all have an important impact on the continuous use of short video users. We summarized the key theories and variables of the research on the continuous use of short videos in [Table 1](#).

The Information System Continuance Model (ECM-ISC) and its extensions have been applied to the study of continuous use of various social media,³²⁻³⁴ which is considered a strong theoretical basis for studying users' continuous

Table I Relevant Theories and Variables of the Research on the Continuous Use of Short Videos

Theory	Explanatory Variable	Explained Variable	Author
Uses and Gratifications Theory (UGT)	Information / entertainment and communication motivation	Continuous use intention	Shao and Lee (2020) ²²
	Satisfaction, narcissism and personality traits	TikTok participation behavior	Meng and Leung (2021) ²⁴
	Continuous motivation, video sharing behavior and video creation ability	Platform stickiness	Cuesta-Valiño et al (2022) ²⁸
Technology Acceptance Model (TAM)	Perceived usefulness, perceived pleasure, perceived ease of use and subjective norms; User participation, need for achievement, and perceived usefulness	Continuous use intention	Chong (2021) ²⁰ Huang and Tan (2020) ²³
Information Systems Continuous Use Model (ECM-ISC)	Sense of belonging, perceived entertainment and user satisfaction	Continuous use intention → loyalty	Ye and Cho (2021) ¹⁹
	Social usefulness, mimic relationship requirements, functional usefulness, and content quality needs met	Continuous use intention	Zhang et al (2021) ³⁰
	System characteristic factor → user perception factor	Intention of continuous participate	Tian et al (2022) ³¹
Others	Affordance Theory	Continuous use intention	Four types of functional visibility (live broadcast, search, original discourse and recommendation)
	Information Systems Success Model		Recommended algorithm
	Social Attachment Theory		Social connection, social dependence, and social identity
	Stressor-Strain-Outcome	Non continuous use	Greedy recommendation → information narrowing, information redundancy and information overload
			Song et al (2021) ²⁶
			Mou et al (2021) ²⁵
			Yang et al (2021) ²⁹
			Ma et al (2021) ²⁷

use intention in a relatively new technological environment. Its applicability in continuous use of short video APP has also been widely tested. The ECM-ISC model focuses on examining the joint effects of satisfaction, perceived usefulness, and expected confirmation on the continuous use intention of information systems.³⁵ However, the shortcomings of the ECM-ISC model are that the model focuses on the enabling factors that promote the continuous usage of information systems, and the research perspective is single, without focusing on the inhibiting factors of continuous use intention, that is, what factors may hinder users from continuing using information systems. However, current studies have found that the users' continuous use intention of social media largely depends on inhibiting factors.⁹

To explore these inhibiting factors, this study introduced the Cognitive Load Theory. This theory proposes that the space of human cognitive structure is limited. When a large amount of redundant content and social information appear, the human body also needs to process more information, but the user's cognitive ability is limited, resulting in cognitive load.³⁶ As stated in the previous CSM research, negative feedback from users on short video Apps has already indicated cognitive load issues such as "fatigue" in the user experience. This study proposes an integrated model based on the dual-factor theory.³⁷ On the one hand, based on the ECM-ISC model, a sub model of enabling factors was constructed; on the other hand, based on the Cognitive Load Theory, a sub model of inhibiting factors was constructed by selecting fatigue, and the two were integrated to construct an integrated model. The integrated model will get better and more comprehensive disclosure of influence factors on the continuous use intention of short video APP.

Research Hypothesis and Model Development

The dual-factor theory holds that the promotion factor and the inhibition factor can coexist and be independent of each other, and jointly affect users' continued adoption of information systems. User satisfaction is an emotional state based on users' cognitive evaluation, mainly derived from users' evaluation of their previous use of mobile software and experience. When the evaluation meets the user's goals or expectations, users will feel high satisfaction.³⁸ Bhattacharjee³⁵ pointed out that satisfaction has become a key goal for mobile social media to maintain their competitiveness, and proposed that satisfied users will have a higher willingness to continue using.

Previous researches have shown that satisfaction is a significant facilitator^{14,15} and mediator of continuous use intention for short videos.³⁹ For example, Lin et al found that satisfaction has a significant positive impact on the continuous use intention of social media.³⁸ The higher the level of satisfaction felt during the interaction with government short videos, the more likely it is to encourage users to generate sustained participation intention.³¹ Therefore, this study focuses on satisfaction and examines the "enabling mechanism" for continuous use of short videos by integrating ECM-ISC. Therefore, the hypotheses of this study are as follows:

H1: Satisfaction has a positive impact on users' continuous use intention.

In the research of inhibiting mechanism, "social network fatigue" is considered as a negative emotional response to social network activities, including fatigue, boredom, decreased interest, indifference and other feelings.⁴⁰ The important impact of fatigue on users' continuous use has been verified in many studies,^{40,41} and some studies even found that the impact of social network fatigue on continuous use is greater than dissatisfaction perception,⁴² which leads to non-sustained use behavior.⁴⁰ This implies that fatigue may be the most crucial inhibiting factor in the continuous use of short videos. Thus, this study introduces emotional fatigue in short video users as an inhibiting factor and assumes the following:

H2: Fatigue has a negative impact on users' continuous use intention of short videos.

In terms of enabling mechanism, combined with the ECM-ISC, perceived usefulness is a key motivating factor for users' satisfaction and intention to continue using.⁴³ According to Davis,⁴⁴ combined with the characteristics of mobile short video APPs, perceived usefulness refers to the help for users' experience in life, leisure and entertainment during the use of mobile short video APPs, which is an expression of utilitarian value.⁴⁵ Kim found that when users perceive high utility of mobile data services, their overall evaluation significantly improves, and their continuous use intention further increases.⁴⁶ Research on short video has also found that perceived usefulness has a significant impact on attitudes towards using short video APP.¹⁷ Therefore, this study proposes the following hypotheses:

H3a: Perceived usefulness has a positive effect on satisfaction.

H3b: Perceived usefulness has a positive effect on users' continuous use intention.

Short video is a type of information system that primarily aims to provide enjoyment and entertainment to its users, and the presence of interesting content is a significant factor that influences users to use and engage with short video products.⁴⁷ Studies have shown that perceived playfulness, as an internal motivation, has a significant impact on user satisfaction and persistent behavior.⁴⁸ In addition, Liang et al¹⁷ found that interesting content is the main factor affecting users' use of short video products by analyzing the behavioral factors of TikTok short video users. Therefore, this study proposes the following hypotheses:

H4a: Perceived playfulness has a positive effect on satisfaction.

H4b: Perceived playfulness has a positive effect on users' continuous use intention.

Wang et al proposed that social influence means that the attitudes, beliefs and behaviors of individual users are affected by reference group, and the reference group can come from different social levels.⁴⁹ The importance of social influence has been widely supported in relevant research on information systems. For example, Zhou and Li verified that

social influence has a significant impact on the continuous use of China Mobile's SNS.⁵⁰ According to the survey, a significant majority of users (75.8%) believe that their motivation to use short videos is to "follow the crowd", which suggests that social influence is an important factor that affects the continuous use of short videos. The attitude of the reference group will affect the user's overall satisfaction evaluation and usage attitude toward mobile short videos.⁴⁹ Therefore, the hypotheses of this study are as follows:

H5a: Social influence has a positive effect on satisfaction.

H5b: Social influence has a positive effect on users' continuous use intention.

In terms of inhibiting mechanism, according to the theory of perceived load, social overload and information overload are considered to be the stressors leading to social media fatigue and dissatisfaction, which further enhances the users' intention of non-continuous use.^{42,51} Among them, social overload is essentially a form of communication overload, which occurs when communication demands exceed the user's communication capacity.⁵² In reality, social behaviors such as liking, commenting, and chatting on social media platforms can increase as users expand their social circle and communication demands, leading to a sense of obligation to use social media and indirectly resulting in user stress and negative emotions.⁵³ This can lead to emotional exhaustion, and ultimately, to the interruption or cessation of social media use.⁵⁴ Thus, this study proposes the following hypothesis:

H6a: Communication overload has a positive effect on short video users' fatigue.

H6b: Communication overload has a negative effect on the continuous use intention of short video users.

On the other hand, a large body of studies has also demonstrated that information overload can lead to emotional fatigue among consumers.^{55,56} Information overload refers to a state in which an individual has more information than they can effectively process given their information processing capacity.⁵⁷ Too much information too quickly can be like noise that prevents effective information processing, causing psychological stress and negative emotions among users.⁵⁸ In particular, the greedy recommendation algorithms of short video artificial intelligence can lead to information overload, causing users to experience emotional exhaustion and further promoting their intention to discontinue.²⁷ Therefore, this study proposes the following hypothesis:

H7a: Information overload has a positive effect on the fatigue of short video users.

H7b: Information overload has a negative effect on short video users' continuous use intention.

In the study of continuous use intention, satisfaction is considered an important mediating variable.³⁸ For example, Zhang et al demonstrated that satisfaction plays a mediating role in the impact of expectation confirmation on continuous use intention.⁵⁹ Satisfaction has also been supposed to be a key mediating variable for the continuous use of web learning systems.⁶⁰ From this perspective, the impact of satisfaction on the continuous use of information systems is crucial. Therefore, based on the above content, this study selects satisfaction as the mediating variable, and takes perceived usefulness, perceived playfulness, and social influence as the antecedent variables of satisfaction to explore their promoting effect on continuous use intention, and propose the following hypotheses:

H8a: Satisfaction plays a mediating role in the impact of perceived usefulness on users' continuous use intention.

H8b: Satisfaction plays a mediating role in the impact of perceived playfulness on users' continuous use intention.

H8c: Satisfaction plays a mediating role in the impact of social influence on users' continuous use intention.

The significant impact of fatigue on the continuous use intention of social media users has been confirmed,^{40,41} and Zhang et al found that the impact of social network fatigue on continuous use is greater than the perception of dissatisfaction.⁴² Therefore, in

the context of the continuous use intention of short video APP, the indirect role of fatigue is crucial. Therefore, based on the above content, this study selects fatigue as the mediating variable, and communication overload and information overload as the antecedent variables of fatigue to explore their inhibitory effect on continuous use intention. The hypotheses is as follows:

H9a: Fatigue plays a mediating role in the impact of communication overload on users' continuous use intention.

H9b: Fatigue plays a mediating role in the impact of information overload on users' continuous use intention.

The model for this study is shown in Figure 1:

Materials and Methods

Variable Measurement

The measurement scales used in this study were derived from existing studies, and some items were revised to fit the research background. To ensure the validity of the questionnaire, 247 short video users were surveyed and analyzed in this study to adjust the scale according to the reliability and validity of the pre-survey. The results showed that the Cronbach's Alpha coefficients of the 8 latent variables were all above 0.8, and the Cronbach's Alpha coefficient of the overall reliability analysis was 0.915, indicating high reliability of the questionnaire. The KMO value of the scale was 0.877, and the significance of Bartlett's spherical test was less than 0.001, meeting the validity test criteria. The factor analysis showed that the factor loadings of all items were above 0.5, and the eight factors extracted from the 37 items were consistent with the initial classification of this study, indicating good construct validity of the questionnaire. In summary, the pre-survey data showed that the scale had good reliability and validity, and did not need to be revised. Table 2 provides the final measurement items and their sources.

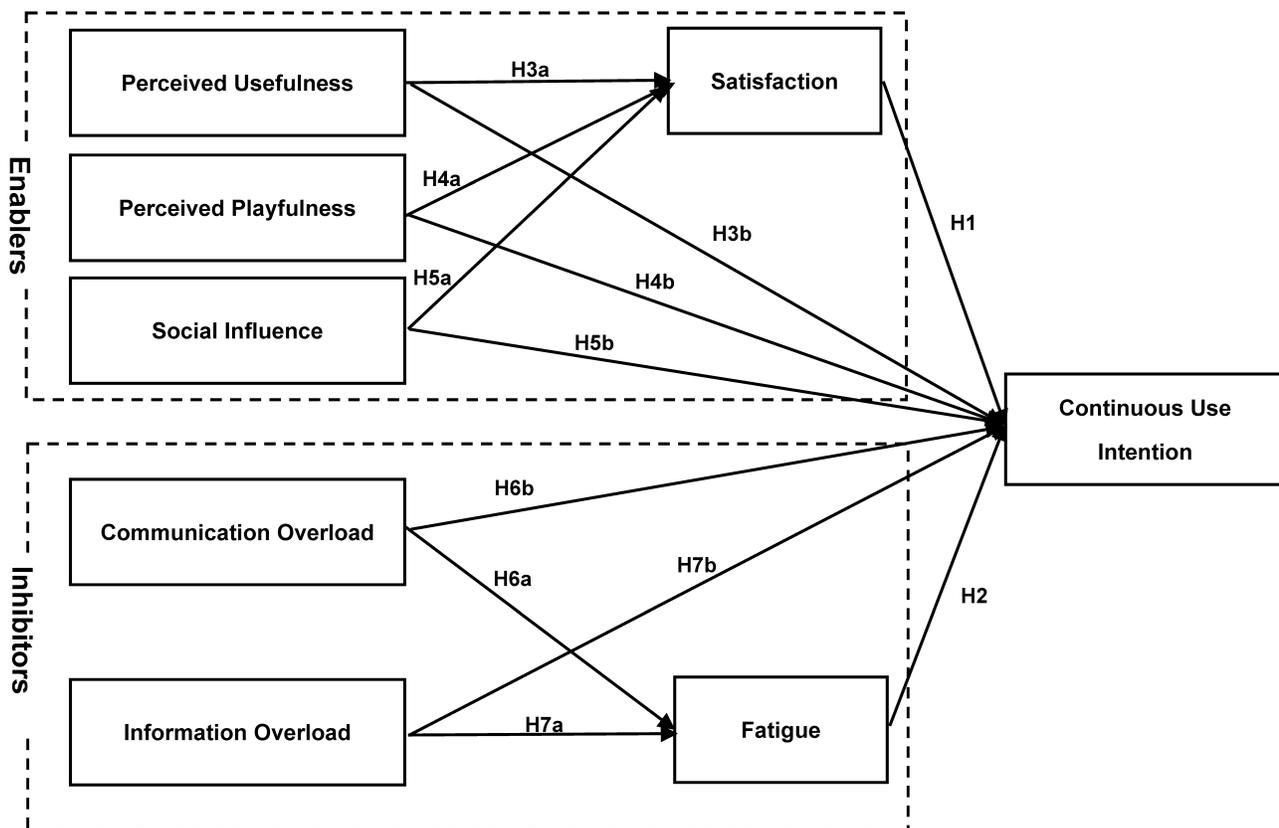


Figure 1 Research model.

Questionnaire Design and Data Collection

The TikTok APP is currently the leading platform in the short video industry, with significant scale advantages and a large user base. Therefore, this study selected TikTok short video APP users as the survey objects. The first part of the questionnaire included screening questions to ensure that only TikTok users were able to complete the survey.

Table 2 Variable Measurement and Source

Variable	Measurement Item	Source
Perceived Usefulness (PU)	TikTok short video APP can relieve my study / work pressure TikTok short video APP can kill time TikTok short video APP can help me get information more effectively The TikTok short video APP provides rich information and content, which is helpful to me Overall, TikTok short video APP is very helpful to my life	Bhattacharjee (2001) ^{35,61} Davis (1989) ⁴⁴
Perceived Playfulness (PP)	When using the TikTok short video APP, you will forget the time, and the time passes quickly Using TikTok short video APP is a kind of enjoyment Using TikTok short video APP brings me a lot of fun The actual process of using TikTok short video APP is pleasant I like to use TikTok short video APP	Lin et al (2005) ⁶² Moon and Kim (2001) ⁶³
Social Influence (SI)	Many people around me are playing TikTok short video APP My idol, leader, respected person or concerned person is playing TikTok short video APP Someone around me once recommended TikTok short video APP to me I think playing TikTok short video APP is a popular trend	Bandura (1986) ⁶⁴ Viswanath et al (2003) ⁶⁵
Communication Overload (CO)	I received too many messages from my friends through TikTok I think I send more messages to my friends through TikTok than I want to I think that when I perform other tasks, I usually receive too many notifications from TikTok short video APP, such as push content, message reply, etc I often feel the communication overload from TikTok short video APP I receive more information and messages from my friends than I can handle	Karr-Wisniewski and Lu (2010) ⁵¹ Lee et al (2016) ⁵⁵ Zhang et al (2016) ⁴²
Information Overload (IO)	I am often distracted by too much information on TikTok short video APP There is a lot of information on the TikTok short video APP every day, and there is a feeling of being submerged in it Usually, my problem is that there is too much information to watch on the TikTok short video APP, rather than not enough information I found that only a small part of the information on the TikTok short video APP is what I need TikTok short video has a lot of recommended content information, which sometimes feels like a burden when dealing with them	Chen et al (2009) ⁶⁶ Karr-Wisniewski and Lu (2010) ⁵¹ Zhang et al (2016) ⁴²
Satisfaction (S)	I am very satisfied with the decision to use the TikTok short video APP I think using TikTok short video APP is a wise decision My experience of using TikTok short video APP is pleasant In general, I am satisfied with the use of TikTok short video APP	Bhattacharjee (2001) ^{35,61} Lin and Wang (2012) ⁶⁷
Fatigue (F)	Sometimes using TikTok short video APP makes me feel sick Sometimes using TikTok short video APP makes me feel bored Sometimes using TikTok short video APP makes me feel exhausted Sometimes I am not interested in the new content on the TikTok short video APP Sometimes using TikTok short video APP will make me feel tired	Ayyagari et al (2011) ⁶⁸ Zhang et al (2016) ⁴²
Continuous Use Intention (CUI)	I am willing to continue to use the TikTok short video APP I would like to recommend others to use TikTok short video APP I will use the TikTok short video APP regularly If I can choose, I will still choose to use TikTok short video APP	Bhattacharjee (2001) ^{35,61} Moez et al (2007) ⁶⁹ Lin and Wang(2012) ⁶⁷

The second part was the formal questionnaire, which used a Likert 5-level scale to investigate user behavior and psychology regarding their use of short videos. Finally, basic user information was collected.

After completing the questionnaire design, a preliminary survey was conducted on 247 students from a certain university. Based on the preliminary investigation results, expressive questions such as inappropriateness, semantic ambiguity, and leading responses have been modified, and questions with low reliability have been removed. Subsequently, a formal questionnaire survey was conducted. The survey was conducted using the Questionnaire Star platform. A total of 701 questionnaires were collected, and incomplete, duplicate IP addresses, and questionnaires less than one minute were excluded. Finally, a total of 681 valid questionnaires were obtained, with an effective rate of 97.1%. The geographical distribution of respondents is in 30 provinces and over 102 cities, therefore it is believed that the research sample has strong representativeness.

Common Method Variance Test

In order to avoid common method bias caused by self-reported data collection, this study modified the scale on the basis of preliminary survey to ensure the comprehensibility of subjects. At the same time, anonymity was adopted during the formal survey. Statistically, Harman's single-factor test, which is widely used at present, was used in this study to test whether a single factor explained most of the variance variation, namely, principal component analysis was carried out for all the measurement items of variables without factor rotation. We followed Podsakoff's the cut value (first factor < 50% of the total variance explained).⁷⁰ The results showed that the eight principal components explained 77.04% variance, and the first principal component explained only 24.31% of the total variance. Therefore, the data suggest that common method bias is not a problem for this study.

Results

Descriptive Statistics

According to the survey data, the majority of users have been using the service for at least six months, with a proportion of 78%. Additionally, the frequency of use is generally high, with 80.5% of users utilizing the APP three or more times a week. The majority of users' daily usage time is less than one hour. Table 3 displays the characteristics of the final sample.

Reliability and Validity Analysis

SPSS24.0 and Amos23.0 are used to test the reliability and validity of the measurement model. The results show that the α value of all variable coefficients and the combined reliability CR value are higher than the critical value of 0.7 (see Table 4),^{71,72} indicating that the questionnaire had high reliability. The validity test shows that the AVE value of each variable is greater than 0.5 (see Table 4),⁷¹⁻⁷³ indicating that the convergent validity is good. As shown in Table 5, the square root of the AVE value of each variable is greater than the correlation coefficient between the variable and other factors, indicating that the discriminant validity of the scale is also good.⁷³

The results of the structural model are presented in Figure 2. The data shows that the value of the fit index CFI is $0.935 > 0.9$, and the goodness of fit index (GFI) is $0.865 > 0.85$, which meets the evaluation criteria.⁷⁴ Therefore, it is assumed that the overall fitness of the model meets the requirements of model fitness, and it is assumed that the model has a good model fit.

Structural Model

The structural model analyze results are illustrated in Figure 2. According to the hypothesis test results, it can be seen that except for hypotheses H4a, H6b, and H7b, all other hypotheses are supported. Specifically, in terms of enabling mechanisms, H1 is supported, indicating that satisfaction positively and significantly affects users' intention to continue using (path coefficient = 0.127). Among the factors influencing satisfaction, perceived usefulness (path coefficient = 0.406) and social influence (path coefficient = 0.084) of the short video platform are both found to have a positive impact on user satisfaction, supporting H3a and H5a. However, the relationship between perceived enjoyment and satisfaction is not significant. This

Table 3 Sample Characteristics

Indicator	Classification	Frequency	Percentage (%)	Indicator	Classification	Frequency	Percentage (%)
Gender	Man	272	39.9	Usage time of TikTok short video APP Usage frequency of TikTok short video APP Daily use time of TikTok short video APP	Within 6 months	150	22
	Woman	409	60.1		6 months - 1 year	213	31.3
Age	Under 18	22	3.2		1-2 years	199	29.2
	18-24	303	44.5		More than 2 years	119	17.5
	25-30	235	34.5		Use daily	166	24.4
	Over 30	121	17.8		5-6 days/week	162	23.8
Education	High school and below	83	12.2		3-4 days/week	220	32.3
	College	165	24.2		1-2 days/week	92	13.5
	Undergraduate	349	51.2		Hardly used	41	6.0
	Master degree and above	84	12.4		Within 10 minutes	49	7.2
Profession	Student	233	34.2	10-30 points	180	26.4	
	Government agencies	69	10.1	30 minutes - 1 hour	263	38.6	
	Professional technology	121	17.8	1 hour	140	20.6	
	Staff	120	17.6	1-2 hours	33	4.8	
	Business Personnel	38	5.6	2-3 hours	16	2.3	
	Service industry	26	3.8	More than 3 hours			
	Other	74	10.9				
City	First-tier cities	106	15.6				
	Other cities	575	84.4				

Table 4 Reliability and Convergent Validity Test Results

Variable	Measurement Item	Factor Loading	Composite Reliability	AVE	Cronbach's Alpha
Perceived Usefulness(PU)	PU1	0.700	0.831	0.501	0.828
	PU2	0.510			
	PU3	0.794			
	PU4	0.761			
	PU5	0.740			
Perceived Playfulness(PP)	PP1	0.944	0.947	0.782	0.946
	PP2	0.866			
	PP3	0.955			
	PP4	0.859			
	PP5	0.788			
Social Influence(SI)	SI1	0.887	0.930	0.77	0.929
	SI2	0.869			
	SI3	0.856			
	SI4	0.898			

(Continued)

Table 4 (Continued).

Variable	Measurement Item	Factor Loading	Composite Reliability	AVE	Cronbach's Alpha
Communication Overload(CO)	CO1	0.870	0.944	0.771	0.944
	CO2	0.874			
	CO3	0.887			
	CO4	0.866			
	CO5	0.893			
Information Overload(IO)	IO1	0.954	0.952	0.8	0.952
	IO2	0.893			
	IO3	0.858			
	IO4	0.846			
	IO5	0.917			
Satisfaction(S)	S1	0.841	0.929	0.766	0.927
	S2	0.960			
	S3	0.853			
	S4	0.842			
Fatigue(F)	F1	0.761	0.886	0.609	0.886
	F2	0.762			
	F3	0.742			
	F4	0.787			
	F5	0.844			
Continuous Use Intention(CUI)	CUI1	0.758	0.845	0.577	0.984
	CUI2	0.715			
	CUI3	0.777			
	CUI4	0.785			

Table 5 Discriminant Validity Test Results

	PU	PP	SI	CO	IO	S	F	CUI
PU	0.708							
PP	0.090*	0.885						
SI	0.380***	0.096*	0.877					
CO	0.064	0.472***	0.093*	0.878				
IO	0.355***	0.215***	0.245***	0.120**	0.894			
S	0.443***	0.113**	0.245***	0.04	0.195***	0.875		
F	0.365***	0.678***	0.034	0.372***	0.209***	0.208***	0.78	
CUI	0.351***	0.175***	0.319***	0.05	0.160***	0.283***	0.116**	0.759

Notes: *p<0.05, **p<0.01, ***p<0.001.

may be because the impact of perceived enjoyment on users’ intention to continue using is an automatic processing process and does not exert an effect through cognitive-based satisfaction evaluation. In addition, it was found that perceived usefulness (path coefficient = 0.248), perceived enjoyment (path coefficient = 0.214), and social influence (path coefficient = 0.181) all have a direct positive impact on users’ intention to continue using, supporting H3b, H4b, and H5b.

In terms of inhibiting mechanism, H2 is supported, that is, there is a significant negative correlation between fatigue and users’ Continuous Use Intention (path coefficient = -0.114). Among the perceived overload factors of users, communication overload (path coefficient = 0.367) and information overload (path coefficient = 0.173) have been both proved to have positive effects on fatigue, and H6a and H7a are validated. However, communication overload and

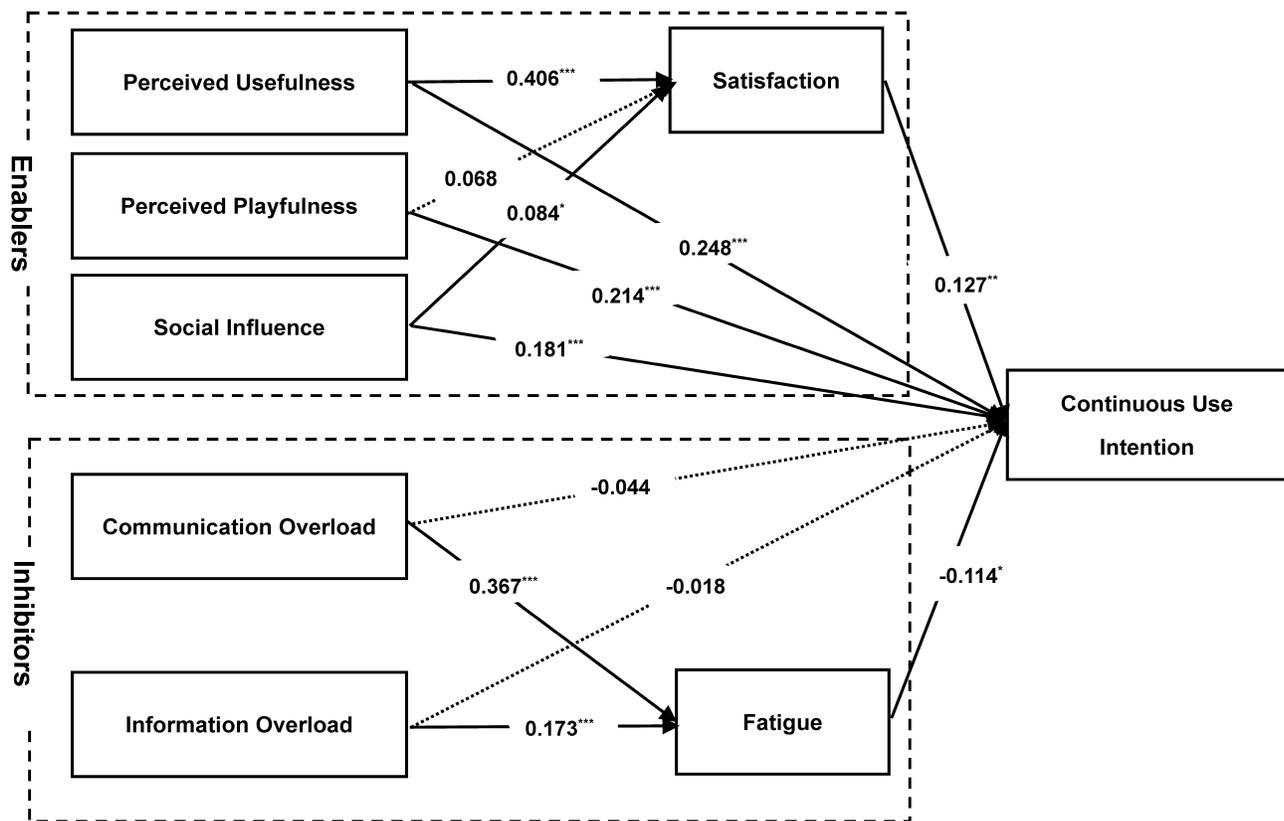


Figure 2 Modified model.
Notes: *p<0.05, **p<0.01, ***p<0.001.

information overload cannot directly affect their Continuous Use Intention, but indirectly through fatigue. This shows that the perception of communication overload and information overload is due to the user’s negative feelings of exhaustion, boredom, and reduced interest, which further inhibits the user’s Continuous Use Intention.

Mediation Analysis

Based on established hypotheses, the Bootstrap sampling test results were obtained by using Amos23 (see Table 6). Determine whether the mediating effect is significant by the judgment of whether 0 is between the upper and lower bounds of the BootCI value.⁷⁵ The results show that satisfaction plays a mediating role in the impact of perceived usefulness and social influence on the continuous use intention; fatigue plays a mediating role in the impact of communication overload and information overload on the continuous use intention.

The results of hypothesis testing are summarized in Table 7.

Table 6 Mediation Test

Mediation Path	Indirect Effect Size	Bootstrap Bias-Corrected 95% CI	
		Lower	Upper
PU→S→CUI	0.054*	0.013	0.103
SI→S→CUI	0.012*	0.000	0.039
CO→F→CUI	-0.042*	-0.091	-0.002
IO→F→CUI	-0.020*	-0.048	-0.003

Note: *p<0.05.

Table 7 Hypothesis Test Results

Hypothesis		Results
H1	Satisfaction has a positive impact on users' continuous use intention.	Supported
H2	Fatigue has a negative impact on users' continuous use intention of short videos.	Supported
H3a	Perceived usefulness has a positive effect on satisfaction.	Supported
H3b	Perceived usefulness has a positive effect on users' continuous use intention.	Supported
H4a	Perceived Playfulness has a positive effect on satisfaction.	Not supported
H4b	Perceived Playfulness has a positive effect on users' continuous use intention.	Supported
H5a	Social influence has a positive effect on satisfaction.	Supported
H5b	Social influence has a positive effect on users' continuous use intention.	Supported
H6a	Communication overload has a positive effect on short video users' fatigue.	Supported
H6b	Communication overload has a negative effect on the continuous use intention of short video users.	Not supported
H7a	Information overload has a positive effect on the fatigue of short video users.	Supported
H7b	Information overload has a negative effect on short video users' continuous use intention.	Not supported
H8a	Satisfaction plays a mediating role in the impact of perceived usefulness on users' continuous use intention.	Supported
H8b	Satisfaction plays a mediating role in the impact of perceived playfulness on users' continuous use intention.	Not supported
H8c	Satisfaction plays a mediating role in the impact of social influence on users' continuous use intention.	Supported
H9a	Fatigue plays a mediating role in the impact of communication overload on users' continuous use intention.	Supported
H9b	Fatigue plays a mediating role in the impact of information overload on users' continuous use intention.	Supported

Discussion

The integrated model of this study verified that the continuous use intention of short videos is both promoted by satisfaction and inhibited by fatigue, and the path coefficients suggest that both factors have roughly equal influence. This indicates that to promote continuous use of short video APP, one not only needs to focus on promoting factors but also needs to address the negative effects of inhibiting factors. Enablers and inhibitors are two fundamentally different constructs, and the negative attributes may have a greater impact than the positive effects.⁷⁶

In terms of the promotion mechanism, perceived usefulness, perceived enjoyment, social influence, and satisfaction were found to promote short video users' continuous use intention, which is consistent with previous research on traditional social media.^{50,77} At the same time, the mediating effect of satisfaction between perceived usefulness, social influence, and continuous use intention was also verified. Perceived enjoyment directly influenced continuous use intention, and satisfaction did not mediate this relationship. This is different from some previous researches.^{78–80} This may be because in the context of short video use, more than 60% of users view watching short videos as an entertainment and relaxation behavior before going to bed, and this specific use scenario may have become a habit for users. Habit is the degree to which people tend to automatically use a particular information system in specific situations,⁶⁹ and habits can directly promote users' continuous use intention.^{81,82} At the same time, according to dual-processing theory, when users use short videos as a habit, behavior does not require cognitive resources and is an automated process,⁸³ which leads to perceived enjoyment not affecting satisfaction evaluations based on cognition.

The inhibitory mechanism has validated that information overload and communication overload in the use of short videos lead to fatigue, and that fatigue emotion has a significant negative impact on continuous use intention, which is consistent with previous research findings.^{40,42} However, this study found that fatigue played a completely mediating role between them, meaning that information overload and communication overload could not directly affect continuous usage intention, but would have an indirect effect through the impact on fatigue emotions. This is consistent with Bagozzi's⁸⁴ self-regulation framework's explanation mechanism, which states that personal evaluations can lead to emotional responses and deepen or change positive or negative emotional responses through different coping strategies. This suggests that when high levels of fatigue emotions are generated, users may change their usage habits of short video APP to reduce the negative impact of fatigue emotion.

Theoretical Significance

Firstly, based on the dual-factor theory of “enabling-inhibiting”, combined with the information system continuance model (ECM-ISC) and cognitive load theory, this study established an integrated model that verified the promoting effect of satisfaction and the inhibiting effect of fatigue on the continuous use intention of short video. The study also verified the direct or indirect effects of perceived usefulness, perceived playfulness, social influence, information overload, and communication overload on continuous use intention, providing a more comprehensive understanding of the formation mechanism of continuous use intention among short video users.

Secondly, this study focuses on the fatigue phenomenon in current social media, and introduces the complex emotion of “social media fatigue”, which includes various feelings such as exhaustion, boredom, reduced interest, and indifference, into the research. The study found that this inhibitory factor and the promotion factor centered on satisfaction are equally important, so this study not only conducts research on continuous use intention from the aspects of promotion and inhibition but also verifies the dual influence paths of continuous use of short videos from both cognitive (satisfaction evaluation) and emotional (fatigue) aspects.

Thirdly, the study found that users’ perceived playfulness of short videos is an automatic processing process that directly promotes continuous use of short videos. At the same time, social influence also has a promoting effect on continuous use intention of short videos, indicating that short video usage is easily influenced by reference groups and can affect the satisfaction evaluation of short video users. This enriches the research on continuous use of short videos to a certain extent.

Practical Significance

For short video operators, only by comprehensively considering the different conflicts and perceptions that users may have, can they ultimately improve users’ attitudes and choices. Therefore, it is necessary to pay attention to user needs, and consider the potential enabling and inhibiting factors comprehensively, in order to provide users with richer content and better user experiences.

To enhance the growth of short video platforms, it is important to prioritize the promotion factors. One of the most crucial factors is to provide valuable content to the users, which can help them recognize the usefulness of short videos. According to a survey conducted by CSM in 2021,⁸ users are mostly motivated to use short videos for “increasing knowledge” and “learning practical skills”. Even though TikTok has a separate knowledge content section, these videos may lack the depth required. To cater to different user needs, the platform can explore various ways to segment its content, such as offering short videos for popular knowledge and medium to long videos for complex content such as skill learning.

Secondly, telecom operators need to focus on enhancing users’ social experience. In socializing with acquaintances, features such as video sharing and “watching videos together” on TikTok are important explorations in improving users’ social experience. However, since they are limited to specific scenarios of sharing and discussion, interactions between friends are not very strong. Therefore, short-video operators can further expand social scenarios to strengthen interaction between users and acquaintances. In socializing with strangers, short-video media algorithms can not only be based on user interests, but also strengthen content recommendation based on users’ social networks to increase interaction between users and enhance social influence.

On the other hand, in terms of the negative inhibiting factors of short videos, short video operators need to be aware of the fatigue caused by information overload and communication overload. Currently, in order to solve the problem of information overload, TikTok has launched a search engine function to meet users’ search needs, further strengthening the connection between users and the platform. TikTok also introduced the “not interested” function to make up for the shortcomings of personalized recommendations.

In fact, many users engage in behaviors such as “like, favorite, and recommend” during their using short videos. However, these behaviors express more recognition and allow more people to see them, but are not completely equivalent to “I want to continue watching such videos”. Therefore, the users need should be satisfied more accurately. For example, short video APP providers can add the choice of “interested” on the basis of “not interested”. The addition of this option can provide a deeper understanding of users’ preferences, thereby better meeting their needs and avoiding personalized

recommendations solely based on “watch, like, and recommend”. In view of the negative emotions caused by a large amount of advertising information, Tiktok has set the option of canceling the display of programmed advertising and personalized advertising in “Understanding and Managing Advertising Recommendation”. Users can choose to turn off display advertisements or certain types of advertisements that they are not interested in, but this feature may be not obvious for many users. Therefore, short video APP providers can make the management of advertising functions explicit and clearly by regularly recommending video information such as “understanding and managing advertising” to users, allowing them to increase their direct choice and sense of control.

In addition, in order to reduce fatigue, short video APP can also limit the daily number of posts by publishers; at the same time, strengthen regulatory mechanisms to reduce the appearance of vulgar content. Secondly, short video media can help users reduce social interference and communication overload by optimizing their operational interface, such as improving friend review systems and group settings, to help users better manage social relationships.

Limitations and Research Prospects

Firstly, all data in this study were collected through online surveys, which may have certain limitations in terms of sample randomness. Secondly, leisure and relaxation are important motivations for users to use short videos, and this study may have overlooked some other important variables. In future research, researchers can add some antecedent variables, such as seeking relaxation, to conduct more in-depth studies. Finally, this study did not consider some potential moderating variables, such as gender. A. Adam⁸⁵ pointed out that if gender issues are not adequately studied, the gender impact of potential changes in new information and communication technologies will continue to be ignored. Therefore, subsequent research can conduct moderated analysis based on demographic characteristics, etc.

Conclusions

The empirical research results of this study indicate that the mechanisms that affect the continuous use intention of short video APP include enabling and inhibiting factors. Among the enabling factors, perceived usefulness, perceived playfulness, and social influence promote the continuous use intention of short video APP. Perceived usefulness and social influence will have an impact on users’ continuous use intention of short video APP through users satisfaction, while perceived playfulness activates the users’ experience system of information processing, directly affecting users’ continuous use intention of short video APP. Among the inhibiting factors, communication overload and information overload have been shown to have a negative impact on the continuous use intention, and this effect is mediated by fatigue. The integrated model established in this study reveals more comprehensively the impact mechanism of users’ continuous use intention of short video APP.

Data Sharing Statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics Approval and Informed Consent

This study’s ethics approval was obtained from the Special Committee on Ethics of Professor Committee of Business School, Sichuan University. The participants provided their informed consent to participate in survey questionnaire of this study. The parents /legal guardian of the participants under 18 years of age provided informed consent also.

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Disclosure

The authors report no conflicts of interest in this work.

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