

Postprint: Analysis of Factors Influencing Mobile Short Video Users' Viewing and Creation Behaviors

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Abstract

[Purpose/Significance] How to satisfy short video user needs, stimulate user engagement behaviors, and successfully retain users has become a pressing issue for the short video industry. Existing literature is deficient in research on short video user engagement behavior. Therefore, this study constructs a model based on socio-technical theory to investigate the factors influencing browsing and creation behaviors among male and female users of mobile short videos. [Method/Process] This study employs a questionnaire survey method, collecting 877 valid responses, and utilizes SPSS 24.0 and AMOS 23.0 to test the proposed hypotheses. [Results/Conclusions] The findings reveal that for both male and female users, individual extraversion and the entertainment function of short videos positively influence usage behavior; users' narcissistic traits and need for belonging positively affect creation behavior; users' need for popularity and the information recording function of short videos positively affect browsing behavior. Furthermore, male users' narcissistic traits negatively influence their browsing behavior, while no significant relationship exists between female users' narcissistic traits and browsing behavior; the information recording function exerts no significant influence on male users' browsing behavior. These findings provide a theoretical foundation for investigating user behavior in mobile short videos and offer strategic references for the development of the short video industry.

Full Text

Preamble

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Abstract

[Purpose/Significance] How to meet the needs of short video users, stimulate user participation behavior, and successfully retain users has become an urgent problem to be solved in the short video industry. Existing literature lacks research on user participation behavior in short videos. Therefore, this paper constructs a model based on social-technical theory to study the factors affecting the browsing and creation behaviors of male and female users of mobile short videos. **[Method/Process]** This study collected 877 valid questionnaires using a survey method and tested the proposed hypotheses using SPSS 24.0 and AMOS 23.0. **[Result/Conclusion]** The results show that for both male and female users, individual extroversion and the entertainment function of short videos positively influence usage behavior; users' narcissistic traits and need to belong positively affect creation behavior; and users' need for popularity and the information recording function of short videos positively affect browsing behavior. Additionally, male users' narcissistic traits negatively influence their browsing behavior, while female users' narcissistic traits show no significant relationship with browsing behavior; the information recording function has no significant effect on male users' browsing behavior. The findings provide a theoretical basis for exploring user behavior in mobile short videos and offer reference strategies for the development of short videos.

Mobile short video applications (hereinafter referred to as short videos) represent a new social service based on mobile terminals, where users share videos shot on their phones to major social platforms to interact with numerous netizens [1]. Compared with images and text, short videos are more intuitive and vivid, significantly reducing the time users need to understand information, providing visual impact, and being highly attractive. 2016 marked the "first year" for short video content creators, with a large number of creators continuously emerging. Distinctive short video applications such as Meipai, Xiaokaxiu, and Kuaishou have appeared in people's lives, and short videos have truly entered a period of explosive growth. Taking Douyin, a music creative short video APP under Toutiao, as an example, it allows users to create music short videos of no more than 15 seconds through video shooting, post-production editing, and music matching. It provides both audio-visual information and satisfies users' consumption needs during fragmented time, occupying an important position in mobile short videos with rapid momentum. From February to March 2018, Douyin continuously ranked first in daily downloads in China's App Store, becoming the hottest mobile application in China's internet [2]. On May 17, 2018, the "2018 China Social Short Video Platform Report" released by iiMedia Research predicted that the number of short video users in China would reach 353 million in 2018 [3].

Browsing short videos satisfies the needs of the majority of users for boredom relief and loneliness alleviation [2]. Additionally, creation behavior in short videos is also extremely important. Users can enjoy entertainment activities and express emotional appeals on short video platforms, showcasing themselves and

meeting social needs. The diverse content of short videos not only brings “industry dividends” to creators but also attracts capital attention to the short video field, promoting the prosperity and development of the short video industry. The fragmented consumption method, vivid content, and “self-entertainment” participation mode of short videos enrich users’ entertainment life [3]. However, while short videos are booming, hidden concerns remain: short video content is uneven in quality, with high repetition rates, which can easily cause boredom and lead to user loss on short video platforms. Therefore, how to grasp user needs, stimulate users to browse and create more short videos, and retain users has become an urgent problem for the industry to solve.

Currently, academic research on short videos lags significantly behind the rapid industry development, with relevant literature mainly focusing on qualitative analysis of the rise, current status, and development trends of short videos, and few quantitative studies on factors influencing user participation in short videos. Previous scholars have conducted empirical research on user behavioral intentions toward online video services under Web 2.0 [4-5], but short videos differ from general online video services in their technical means and user needs. They are mainly characterized by: (1) Compared with streaming media or online video services, short videos have stronger social attributes and carry users’ emotional appeals for recognition and achievement [6]. For example, both Douyin and Kuaishou have increased active users by optimizing social scenarios [3]. Therefore, research on short video applications cannot only focus on technical aspects but also needs to analyze social factors. (2) Short video users have unique individual traits, and their “self-entertainment” participation mode is a major attraction [3]. Therefore, to better profile short video users, it is necessary to explore the relationship between user individual traits and usage behavior. (3) Due to differences in behavioral norms and values between men and women, their behaviors and thinking patterns also differ. Therefore, gender is considered an important indicator in technology usage [7]. Short video applications attract both male and female users, and it is worth exploring whether there are differences between these two user groups in how technical, social, and individual traits influence browsing and creation behaviors.

Attention to these issues makes this study different from previous literature and has unique theoretical and practical significance. This paper empirically studies the factors influencing short video user participation behavior from three perspectives: technical factors, social factors, and individual traits. First, this paper uses social-technical theory to study the technical and social factors of short video user behavior because short videos are a typical social-technical information service that not only allows users to use short video technical functions but also enables them to communicate with each other. Second, narcissism and extroversion, as common individual traits in social service usage research [8-9], are likely to influence short video user behavior. Therefore, this paper explores the impact of narcissism and extroversion on short video browsing and creation behaviors. Finally, differences in thinking and values between men and women lead to different behaviors. Therefore, this paper adopts gender grouping to ex-

plore differences between men and women in short video browsing and creation behaviors.

2 Literature Review and Theoretical Foundation

2.1 Short Videos and Their Usage Behavior

The continuous updating of internet technology has led to the birth of new mobile media. In the increasingly developing new media era, people are no longer satisfied with single-mode expressions such as text and images but prefer audio-visual dual experiences. Technological progress and changes in user needs have provided a development platform for mobile short video applications. According to Baidu search index data from January 1, 2011, to March 28, 2018, the keyword “short video” appeared very infrequently before 2016. The curve began to fluctuate from 2014 to 2016, peaked in 2016, then dropped sharply, but the Baidu index for “short video” has continued to rise to this day, showing vigorous development momentum. Mobile short videos are a new species of video art, with shooting and display completely different from traditional videos, generally referring to video content with a duration of less than 5 minutes disseminated on new internet media. In 2017, competition in the short video industry entered a white-hot stage, with continuous technical improvements, optimized video shooting, and added functions such as beauty filters and stunning special effects, enabling users to more perfectly record and display their life status, pleasing a large number of young users and forming the phenomenon of using short videos for entertainment. Thousands of users have joined the short video creation craze, becoming famous overnight by sharing self-made content on short video platforms, with many grassroots people suddenly gaining huge popularity and becoming internet celebrities. For example, Douyin, the most popular short video APP currently, has attracted numerous young users with its personalized features—cool special effects and catchy music—since its launch, achieving more than 1 billion daily views and being representative in short video research.

Browsing behavior and creation behavior correspond to two typical user behaviors—lurkers and posters. In previous similar studies, R. Wang et al. divided user behavior into browsing selfies and uploading selfies when exploring social media user selfie behavior [10]; H.M. Lai and T.T. Chen divided users of online interest communities into lurkers and posters to study knowledge sharing behavior in virtual communities [11]; K. Maret and K.D. Joshi also believed that the main user types in online communities and social media are lurkers and posters [12]. The behaviors of lurkers and posters correspond to the browsing behavior and creation behavior in this paper. Browsing behavior refers to users who only search and browse popular short videos without uploading their own creations, equivalent to being a lurker or a quiet audience [11]. Creation behavior refers to users who shoot and produce short videos themselves, post them to the platform after post-production beautification or music matching, and browse to creation is a gradual process. Browsers often need to go through a period of time before becoming creators. When users first

use a network service such as an online community, they are not very familiar with the service environment and usually maintain a period of observation to understand and adapt. Once they become familiar with the service, their behavior changes, and they become more active in performing rather than just watching [13]. Therefore, this paper selects user browsing behavior and creation behavior for study to explore the differences in causes of these two different behaviors.

2.2 Individual Traits

Considering that personality traits of social media users are important for understanding their usage behavior, individual personality traits are considered the main influencing factors for preferring certain social media platforms and adopting specific behavioral tendencies [14]. Personality traits have been applied to research on different forms of social media and social networks [15-17]. Among personality traits, extroversion is one of the personality characteristics reflecting self-focus and satisfaction tendencies, and research shows it is significantly related to online activities and is often considered an important factor affecting social media usage [8, 18]. For example, extroversion is significantly correlated with self-disclosure behavior on social media [18]. Therefore, this paper takes extroversion as a personality trait affecting short video usage behavior. In addition, narcissism, as a personality trait reflecting a high degree of self-affirmation [19], is also considered a key motivation for certain types of social media behavior [14, 20-21]. It has been confirmed to have a significant positive relationship with certain social media usage behaviors, such as uploading selfies and displaying self-charm [20-21]. Short video content is often users' "self-entertainment" selfie uploads, so this paper also studies the impact of narcissism on short video browsing and creation behaviors.

2.3 Social-Technical Theory

Social-technical theory is often used to explain the emergence of a new technology that attempts to create and maintain a new social interaction method, helping to improve performance and convenience in work, life, and coordination with others [22]. Social-technical theory focuses on the integration of social factors and tools. The technical system emphasizes processes, tasks, and technologies for producing specified outputs, while the social system considers relationships between people and their attributes. These two systems need to cooperate to produce optimized outputs [23]. Social media is a social-technical information platform, and the social-technical system framework enables us to understand our usage behavior from both social and technical aspects of social media [24]. Many studies have applied the social-technical system framework to study social media user participation behavior [23-24]. The social system considers human characteristics such as values and attitudes, as well as interpersonal social relationships.

2.4 Gender Differences

Research indicates that men and women have significant differences in behavioral norm expectations and values [26], leading them to display and value different types of interpersonal behaviors. In virtual community interactions, women and men have different goals and activities, with women participating in more social interactions and cooperative activities than men [26-27]. Studies show that men and women have different motivations for spending time in virtual network environments [27-28]. Y. Sun et al. found that men focus more on extrinsic motivations for participating in social media, while women focus more on intrinsic motivations [29]; X. Lin et al. explored the differential effects of different types of social support in social media on continuous usage intentions of men and women, concluding that men pay more attention to information support, while women pay more attention to emotional support [26]. Many studies consider gender an important way to classify social network users [26, 29]. Therefore, it is necessary to study the differences between men and women in using short videos. Second, since this paper also uses social-technical theory, and previous research shows that women are more inclined to positive interpersonal interactions and relationships, paying more attention to the social system in the social-technical framework, such as social identity and peer evaluation; men are more inclined to technical features and problem-solving, paying more attention to the technical system [26], such as platform functions and services. Therefore, this paper organically combines social-technical theory and gender differences.

3 Model and Hypotheses

Based on social-technical theory and individual trait factors, this paper proposes an integrated model affecting short video user browsing and creation behavior, as shown in Figure 1 [Figure 1: see original paper].

3.1 Relationship Between Individual Factors and Usage Behavior

Based on social-technical theory, this paper proposes its social system and technical system for short videos. Since the social system considers human values, attitudes, and other characteristics, as well as interpersonal relationships, this paper identifies two constructs: need to belong and need for popularity, as social factors. Specifically, need to belong refers to short video users' desire to integrate into social groups and establish intimate, stable social relationships with others. Need for popularity refers to users' impulse to present themselves on short video platforms to gain welcome from other users. According to previous research, the technical system includes tools, technologies, services, procedures, and equipment that users use to complete social media tasks. They represent the functional tools and unique mechanism features that social media platforms provide to users to complete tasks and improve their participation in social media [25]. Short videos themselves have information recording functions (such as personalized MV recording) and entertainment functions (such as funny music

and dynamic special effects), which are their functional, technical, and service advantages and important technical features that attract users to participate in short videos. Therefore, this paper takes them as technical factors.

Narcissism is a personality trait with high self-importance, exaggerated self, and desire for admiration [19]. Narcissistic people may exaggerate their positive personality traits, attractiveness, and intelligence, and usually consider themselves more excellent, special, and unique than others [30]. Narcissistic users tend to comment, like, and browse other users' self-made works [31], comparing them with short videos they create. If their videos are better than others, it can satisfy their pride. Narcissism is considered a key motivation for certain social website usage behaviors, as social websites provide them with an ideal platform to showcase themselves, and narcissists upload more self-image-enhancing content (such as profile photos) on social websites than others to gain praise [20-21]. Therefore, narcissistic short video users will upload their own created short videos to express themselves and gain praise.

H1a: For both male and female short video users, their narcissism has a positive impact on their browsing behavior.

H2a: For both male and female short video users, their narcissism has a positive impact on their creation behavior.

Extroversion represents sociability, gregariousness, and talkativeness, characterized by vitality and positive emotions [32], and may stimulate and guide social interactions among group members [33]. Extroversion is a factor often considered when studying motivations affecting social media usage. Research has found that users with extroverted personality traits use social media more frequently to enhance their social connections [8]. They are more willing to browse others' short videos to understand other people's video content and network dynamics. Extroversion is often associated with positive, confident, outgoing, and frank characteristics. Previous research shows that extroversion is significantly related to self-disclosure in online media [18]. Extroverted people are happy to share their experiences with online friends, and publicly sharing works on short video platforms helps expand their social scope [8]. Therefore, extroverted users are more willing to create short videos to express themselves.

H3a: For both male and female short video users, their extroversion has a positive impact on their browsing behavior.

H4a: For both male and female short video users, their extroversion has a positive impact on their creation behavior.

3.2 Relationship Between Social Factors and Usage Behavior

Need to belong is a universal social motivation, a desire to be accepted and recognized by others and to become a member of a social group, which makes people strongly want to establish intimate, stable social relationships with others [34]. Users can obtain likes and comments on videos they post on short video applications, which positively affects their self-esteem and self-worth, making

them feel a sense of recognition and belonging [35]. If friends around them are using short videos and they are not, they may be considered outdated or out of place. Therefore, people are influenced by groups around them and will start browsing and creating short videos to integrate into the circle.

H5a: For both male and female short video users, their need to belong has a positive impact on their browsing behavior.

H6a: For both male and female short video users, their need to belong has a positive impact on their creation behavior.

Need for popularity refers to individuals' impulse to present a unique image on social media to influence how other users treat them, thereby making themselves more popular [36]. Individuals with high need for popularity are more willing to self-disclose to attract groups and gain popularity [37]. Need for popularity motivates social media users to find more online friends, disclose more information, and self-present to cater to more people [38]. The viral transmission mode of the internet makes short videos spread faster and wider. Some short video users gradually become popular on internet platforms through created short videos, with their number of fans increasing daily. Many users engage in self-promotion on short video applications to get large numbers of "likes" and fans. The number of "likes" and fans confirms popularity and status, becoming indicators of their popularity [31]. To make themselves more popular, users will browse popular works on the platform and imitate and challenge them. Therefore, need for popularity promotes users' browsing behavior and creation behavior.

H7a: For both male and female short video users, their need for popularity has a positive impact on their browsing behavior.

H8a: For both male and female short video users, their need for popularity has a positive impact on their creation behavior.

3.3 Relationship Between Technical Factors and Usage Behavior

Information recording refers to using social media to record personal life issues [39]. The information recording function can meet users' expectations for self-expression. Users use social media to record their daily activities, thereby strengthening their participation behavior [39-40]. Previous research has verified the important role of information recording in social media user behavior [40]. As Douyin's latest slogan—"Record a Beautiful Life"—states, short videos themselves have information recording functions that preserve users' lives and beautiful images as permanent memories [36], promoting user usage behavior. Short video users can browse others' short videos to get inspiration and reference for creating better works. Users can use short videos to record life moments and beautiful things. Compared with text and images, short videos can give people more visual impact effects. Therefore, the information recording function of short videos promotes users' creation behavior.

H9a: For both male and female short video users, the information recording function of short videos has a positive impact on their browsing behavior.

H10a: For both male and female short video users, the information recording function of short videos has a positive impact on their creation behavior.

Previous research shows that entertainment is a powerful and key influencing factor for individuals to use social media [40]. The entertainment function of social media enables users to obtain satisfaction and helps them pass time [36]. The pressure of work and study accelerates people's life pace and often puts them in a suppressed state, and short videos just help them relax [41]. Short videos allow users to enjoy interesting short videos from around the world anytime, anywhere, with low time and material costs [41]. For example, Douyin's characteristic filter props, special effects, and creative multi-segment mixing functions enable users to create their own personalized short videos, gaining more pleasure and satisfaction. Therefore, the entertainment function of short videos attracts many young people to browse short video content and create their own unique short videos.

H11a: For both male and female short video users, the entertainment function of short videos has a positive impact on their browsing behavior.

H12a: For both male and female short video users, the entertainment function of short videos has a positive impact on their creation behavior.

3.4 Gender Grouping Comparison of Individual Factors' Impact on Usage Behavior

Research shows that narcissistic people are more willing to use social media [29], and narcissistic men are more likely to use social media than narcissistic women [8, 21]. Men with narcissistic traits on social media display their charm (such as selfies, videos, etc.) more than women [21]. Therefore, we infer that the relationship between narcissism and short video usage behavior is stronger for men than for women. In addition, typical male personality characteristics are freedom and adventure, while typical female characteristics are compliance and passivity [42]. Men are more courageous than women in showing themselves in public. Research shows that extroverted men use social media and express themselves more than women [8]. Therefore, men show a stronger relationship between extroversion and short video usage behavior than women.

H1b: Male short video users have a stronger effect of narcissism on browsing behavior than female users.

H2b: Male short video users have a stronger effect of narcissism on creation behavior than female users.

H3b: Male short video users have a stronger effect of extroversion on browsing behavior than female users.

H4b: Male short video users have a stronger effect of extroversion on creation behavior than female users.

3.5 Gender Grouping Comparison of Social Factors' Impact on Usage Behavior

Literature shows that men and women may have different values toward social media due to their different preferences for social and technical aspects [26]. Women pay more attention to positive interactions and relationship-oriented goals, focusing more on social factors and caring more about social identity and peer evaluation, which may indicate that women value the need to belong more than men [43]. Another study proves that women pay more attention to interactions with others. For the need for popularity, women engage in more self-disclosure behavior on social websites than men to improve their social acceptance, gain more recognition and welcome [8]. Therefore, we infer that women will use short videos more due to need to belong and need for popularity.

H5b: For male short video users, the effect of need to belong on browsing behavior is weaker than for female users.

H6b: For male short video users, the effect of need to belong on creation behavior is weaker than for female users.

H7b: For male short video users, the effect of need for popularity on browsing behavior is weaker than for female users.

H8b: For male short video users, the effect of need for popularity on creation behavior is weaker than for female users.

3.6 Gender Grouping Comparison of Technical Factors' Impact on Usage Behavior

Previous research has proven that men and women attach different importance to different features of social media [26]. Men are more inclined toward technical tasks and problem-solving, paying more attention to technical factors [26]. This paper divides the technical factors of short videos themselves into information recording function and entertainment function. Men are more likely to use the information recording function of social media to record life status, conduct self-presentation, and obtain or maintain their leadership status [21]. Another study shows that men use social media more than women for entertainment and personal relaxation [8]. Therefore, the information recording and entertainment functions provided by short video application platforms may increase male user participation.

H9b: For male short video users, the effect of information recording function on browsing behavior is stronger than for female users.

H10b: For male short video users, the effect of information recording function on creation behavior is stronger than for female users.

H11b: For male short video users, the effect of entertainment function on browsing behavior is stronger than for female users.

H12b: For male short video users, the effect of entertainment function on creation behavior is stronger than for female users.

4 Research Methods

4.1 Questionnaire Design

As can be seen from the model in Figure 1 [Figure 1: see original paper], the questionnaire designed in this paper includes a total of 8 latent variables: narcissism (NAR), extroversion (EXT), need to belong (NTB), need for popularity (NFP), information recording function (DOC), entertainment function (ENT), browsing behavior (BB), and creation behavior (CB). To verify the research hypotheses, this paper adopted measurement items from relevant domestic and foreign research and made appropriate modifications. A 7-point Likert scale was used for each measurement item: “1-7 points” represent “strongly disagree” to “strongly agree.” After the questionnaire was designed, three experts in this field reviewed the content description of each measurement item one by one, and inappropriate expressions were corrected. Then, a pre-test was conducted among 20 respondents, and the results showed that the scale had good reliability and validity. Table 1 shows the final variables and measurement items.

4.2 Survey Implementation

This survey collected data through online channels. The survey subjects were Douyin short video users. The formal questionnaire was published on Wenjuanxing, and the questionnaire link was posted on some social platforms to attract more Douyin users to participate in the survey. The reasons for selecting Douyin users as the survey subjects are: First, from February to March 2018, Douyin short video continuously ranked first in daily downloads in China’s App Store, becoming the hottest mobile short video APP in China. On June 12, 2018, Douyin announced that its domestic daily active users exceeded 150 million, and monthly active users exceeded 300 million, making it representative. Second, Douyin has a large user group, providing more survey subjects and convenient data collection. This survey recovered a total of 901 questionnaires. The questionnaire included the question “Have you ever used the Douyin music short video APP?” If the respondent answered no, the questionnaire was terminated. After removing duplicates and outliers, the final number of valid questionnaires was 877. This survey adopted gender grouping, with 511 females and 366 males, accounting for 58.3% and 41.7% respectively. The sample statistics for male and female groups are shown in Table 2 .

4.3 Reliability and Validity Analysis

First, reliability analysis was conducted using SPSS 24.0 to calculate the collected valid data. All variables had Cronbach’s α coefficients higher than 0.7, indicating high reliability levels [51]. Then, AMOS 23.0 was used for confirmatory factor analysis on the data, with results shown in Table 3 . Composite reliability was greater than 0.8, average variance extracted was greater than 0.5, and the standardized factor loadings of measurement items were all greater than 0.6, indicating good convergent validity [52].

Discriminant validity was tested by comparing the square root of each variable's AVE value with the correlation coefficients between variables. The square root of the AVE values of all variables (shown in bold on the diagonal in Table 4) was higher than their correlation coefficients with other variables, indicating good discriminant validity between research variables [51].

5 Model Testing and Results Discussion

5.1 Structural Model Testing and Results Discussion

This paper used AMOS 23.0 to test the research models for male and female users separately, with results shown in Table 5. All model fit indices were above recommended values, indicating good fit [53].

As can be seen from Figure 2 [Figure 2: see original paper], in terms of individual factors, extroversion has a significant positive impact on both browsing behavior and creation behavior for all users, supporting hypotheses H3a and H4a. Narcissism has a significant positive impact on creation behavior for all users, supporting hypothesis H2a. Narcissism has a significant negative relationship with male users' browsing behavior but no significant relationship with female users' browsing behavior, meaning hypothesis H1a is not supported. A possible explanation is that there is actually a potential competitive relationship between short video creators. Users increase likes, forwards, and followers by creating interesting, pleasant, and attractive videos, thereby gaining popularity. Narcissistic people usually consider themselves superior to others, and narcissistic men pay more attention to status and advantages than women. The more narcissistic male users are, the more likely they feel that their created short videos are better than others', and thus disdain browsing others' videos. Narcissistic female users, on the one hand, consider themselves superior to others and are unwilling to spend time browsing others' videos, but on the other hand, their competitive psychology may be stronger than men's, driving them to want to browse others' short videos to compare with themselves. These two motivations work together, possibly resulting in no obvious positive or negative impact of female narcissism on browsing behavior.

In terms of social factors, for both male and female users, need to belong has no significant impact on creation behavior but has a significant impact on browsing behavior, meaning H5a is supported while H6a is not. A possible explanation is that when users first contact short videos, they are not very familiar with the community environment and usually spend time understanding and adapting to the community culture [11, 13]. They initially engage more in browsing behavior to understand the functions and features of short videos, and only when they become sufficiently familiar does their behavior change, becoming more active in performing rather than just watching. Therefore, users may generate more browsing behavior to conform to the atmosphere of friends or the public using short videos, but creation behavior is a more difficult and lengthy process compared to browsing behavior. Short video applications provide more enter-

tainment and diversion, and their social nature is not as strong as general social software like WeChat and QQ. Users often use multiple social media platforms simultaneously and can easily switch to other social media [36]. Therefore, the sense of belonging it provides may not be sufficient to support users' creation behavior. Additionally, for both male and female users, need for popularity has no significant impact on browsing behavior but has a significant impact on creation behavior, meaning H7a is not supported while H8a is supported. A possible explanation is that short video users' desire for popularity and pursuit of popularity can be more directly and quickly satisfied by creating works that can attract clicks. Creation behavior can better meet users' need for popularity than browsing behavior, while browsing short videos does not significantly help increase popularity.

In terms of technical factors, for both male and female users, the information recording function has a significant impact on browsing behavior, supporting H9a. The information recording function has a significant positive relationship with female users' creation behavior but no significant relationship with male users' creation behavior, meaning H10a is partially supported. A possible explanation is that Douyin's slogan is "Record a Beautiful Life," reflecting its information recording function, which has also attracted many users. Currently, the male-to-female ratio of Douyin users is about 4:6, which may to some extent indicate that the information recording function attracts more female users. At the same time, women may pay more attention to leaving a beautiful image than men [8]. The information recording function of short videos can help them create excellent short videos that enhance their self-image, while men do not have a strong motivation to use the information recording function. Additionally, for both male and female users, the entertainment function is significantly related to both browsing behavior and creation behavior, supporting H11a and H12a.

5.2 Gender Grouping Path Results Comparison

To test the differences between male and female users in the effects of various factors on short video browsing and creation behaviors, this paper followed the method of M. Keil et al. [54] and conducted statistical comparisons of the corresponding path coefficients between the two group models. A significant T-value indicates that there is a significant difference in path coefficients between the two groups for the same path. The T-value calculation formula is:

$$S_{pooled} = \{[(N_1 - 1)/(N_1 + N_2 - 2)] \times SE_1^2 + [(N_2 - 1)/(N_1 + N_2 - 2)] \times SE_2^2\}$$

$$t = (pc_1 - pc_2) / [S_{pooled} \times \sqrt{(1/N_1 + 1/N_2)}]$$

Where: S_{pooled} is the pooled estimate of variance; t is the T-statistic with degrees of freedom $(N_1 + N_2 - 2)$; N_i is the sample size of group i ; SE_i is the standard

error of the path in the structural model of group i ; PC_i is the path coefficient in the structural model of group i .

First, for hypotheses H1b, H6b, H7b, and H10b, since some or all users have non-significant path coefficients, we do not compare them, and these hypotheses are not supported. For other hypotheses, T-test results (shown in Table 6) indicate: extroversion ($t = -29.906, p < 0.001$) and entertainment ($t = -85.183, p < 0.001$) have stronger effects on male users' browsing behavior than female users; while need to belong ($t = 28.289, p < 0.001$) and information recording ($t = 35.409, p < 0.001$) have stronger effects on female users' browsing behavior than male users. Narcissism ($t = -14.238, p < 0.001$), extroversion ($t = -39.707, p < 0.001$), need for popularity ($t = -23.925, p < 0.001$), and entertainment ($t = -21.756, p < 0.001$) have stronger effects on male users' creation behavior than female users. Therefore, hypotheses H2b, H3b, H4b, H5b, H11b, and H12b are supported, while hypotheses H8b and H9b are not supported.

The conclusion shows that need for popularity has a greater impact on male creation behavior. A possible explanation is that research shows men are more decisive than women, while women are more thoughtful than men. This may indicate that in the process of contacting short videos, male users can go through the observation period and transition from browsing behavior to creation behavior faster than female users, while female users may need a longer period of observation. Also, because men attach more importance to their status and advantages than women, need for popularity may more easily lead to male users' creation behavior.

The conclusion shows that the information recording function has a greater impact on female users' browsing behavior. A possible explanation is that women pay more attention to their external image [8]. They use the information recording function to browse and understand popular short videos, and borrowing the characteristics and advantages of others' works can help them create better short videos that enhance their self-image.

6 Conclusions and Implications

6.1 Theoretical Implications

- (1) Based on social-technical theory, this paper studied the factors affecting short video user browsing and creation behaviors, identifying some important social and technical factors that are significant for promoting short video user browsing and creation behaviors. Specifically, the need to belong in social factors can promote short video users' browsing behavior, while need for popularity promotes users' creation behavior; the information recording function in technical factors positively affects users' browsing behavior, and the entertainment function positively affects users' browsing and creation behaviors. Therefore, this study extends social-technical theory research in the short video application field.

- (2) Social media user behavior includes low-participation browsing behavior and high-participation creation behavior. Previous social media user behavior research often did not subdivide user usage behavior. This paper divides user usage behavior into browsing behavior and creation behavior to explore the factors affecting these two different behaviors. The results show that users' need to belong only positively affects browsing behavior but has no significant effect on creation behavior, while users' need for popularity only positively affects creation behavior but has no significant effect on browsing behavior, indicating that factors affecting short video user browsing and creation behaviors differ, thus providing a more comprehensive understanding of short video user behavior and motivations.
- (3) Considering differences between men and women in social media usage behavior, this paper conducted gender grouping of short video users. The results show that narcissistic men are more likely than narcissistic women to engage in creation behavior; extroverted men are more likely than women to engage in browsing and creation behaviors; need to belong is more likely to stimulate women's browsing behavior, while need for popularity is more likely to stimulate men's creation behavior; the information recording function of short videos is more likely to attract women's browsing behavior, while the entertainment function is more likely to attract male users' browsing and creation behaviors. The differences between male and female users in the above path relationships enrich social role theory research in the field of mobile short video user behavior.

6.2 Practical Implications

This paper has important practical implications for managers of mobile short video applications on how to motivate users to browse and create short videos and improve community value.

The conclusions show that users' narcissistic and extroverted traits positively affect creation behavior. These groups have more active participation behavior, more frequent interactions with others, and more short video works. Therefore, short video software can identify such groups and adopt more incentive measures for them. Additionally, the entertainment function has a significant positive effect on user usage behavior. Short videos can make more improvements in the entertainment functions of the software, such as providing more funny, entertaining music materials and special effect functions, and pushing more relaxed and pleasant short videos for users.

The research results show that factors affecting male and female user behavior differ. From the conclusions, need to belong has a greater impact on women's browsing behavior, while need for popularity has a greater impact on men's creation behavior. Therefore, male and female users can be distinguished through basic information filled in during registration. For female users, recommend short videos they frequently browse, like, or comment on, as well as short videos

with similar themes from their preferred creators. This can make female users feel that there are many users with similar preferences or short videos that match their preferences on the platform, enhancing their sense of belonging and promoting their browsing behavior. For male users, emphasize the popularity of their created excellent short videos, such as showing the ranking of short videos created by male users among nearby users. This can stimulate male users' desire for popularity and promote their creation behavior.

Additionally, the conclusion shows that the information recording function has a greater effect on female users' browsing behavior. Therefore, short videos about recording life fragments can be recommended to female users. In addition, more choices can be provided for female users in special features such as filters, beauty effects, special effects, and background music. The conclusion also shows that the entertainment function has a greater effect on male users' browsing and creation behaviors. Therefore, more funny, relaxing, and entertainment-themed short videos can be provided to male users.

7 Limitations and Future Research

Like other similar studies, this research has certain limitations: First, the sample distribution did not consider regional influences. Douyin users are mostly distributed in first- and second-tier cities, and regional factors may have some impact on the results. Future research needs to collect samples from more regions. Second, the survey subjects were only Douyin users, but there are other short video applications such as Kuaishou and Meipai. Future research could survey users of 2-3 short video applications. In addition to gender grouping, comparative studies could be conducted on different types of short videos to analyze differences in user behavior across different short video applications and enrich understanding of short video behavior research. Third, there may be other important factors that need to be included in the analysis, such as other personality traits from the Big Five personality theory. Future research should also consider the effects of the other four personality traits—agreeableness, neuroticism, conscientiousness, and openness—on short video user usage behavior to provide more comprehensive research on this issue. Fourth, this paper only studied browsing behavior and creation behavior among user usage behaviors, while interaction behavior includes multiple types of user participation behaviors. Future research could study user interaction behavior separately. Fifth, as a new media that has developed recently, mobile short videos differ from previous social media, and their usage behavior may have some new influencing factors and motivations. Future research could use grounded theory to collect original data, conduct in-depth analysis, and gradually form a theoretical framework. Sixth, the questionnaire survey method is easily affected by respondents' subjectivity, and its reliability and accuracy are not very strong. Future research could use experimental methods or short video data crawling.

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Analysis of Factors Affecting Browsing and Creation Behavior of Users in Mobile Short Video**Zhang Xing¹, Wu You¹, Liu Shan²**

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Abstract: [Purpose/significance] How to meet the needs of short video users, stimulate participation behavior, and successfully retain users has become an urgent problem. Existing literature lacks research on short video user participation behavior. Therefore, this paper constructs a model based on social-technical theory to study factors affecting browsing and creation behaviors of male and female mobile short video users. [Method/process] This paper collected 877 valid questionnaires and tested hypotheses using SPSS 24.0 and AMOS 23.0. [Result/conclusion] Results show that individual extroversion and short video entertainment function positively influence usage behavior for both genders; users' narcissistic traits and need to belong positively affect creation behavior; need for popularity and information recording function positively affect browsing behavior. Additionally, male users' narcissistic traits negatively affect browsing behavior, while female users show no significant relationship; information

recording function has no significant effect on male users' browsing behavior. Results provide theoretical basis for exploring mobile short video user behavior and reference strategies for short video development.

Keywords: mobile short video; social-technical theory; browsing behavior; creation behavior

Note: Figure translations are in progress. See original paper for figures.

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