

Based on the Theory of Planned Behavior: A Psychological Mediating Mechanism Research on College Students' Excessive Short-Video Addiction

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Abstract. Short videos are the dominant leisure medium for modern college students. Numerous undergraduates get addicted to continuous browsing, failing to control viewing time. This problem leads to academic delay, sleep disorders, poor focus and various physical, psychological and academic harms. Centered on the Theory of Planned Behavior (TPB), this research surveyed full-time undergraduates in Beijing universities. A total of 326 arts, science and art students from Kede College of Capital Normal University formed the main sample. SPSS 26.0 and PROCESS 4.1 plug-in were used for reliability and validity verification, correlation analysis and Bootstrap mediation test. Results indicate behavioral attitude, subjective norm and perceived behavioral control positively and significantly predict college students' excessive short-video use intention. Perceived behavioral control exerts the strongest prediction effect; poor media self-management in this factor is the key psychological cause of short-video addiction. Excessive use intention positively predicts addictive viewing behavior and directly drives overuse. Besides, this intention fully mediates the links between the three cognitive factors and excessive watching. Personal cognition and external environment perception influence addictive behavior only indirectly via usage intention. TPB effectively explains college students' short-video overaddiction, and most participants have inadequate media self-control. This study establishes a three-level intervention system covering university media literacy education, student self-regulation and platform anti-addiction algorithm upgrade. It offers empirical evidence and actionable strategies to reduce students' short-video dependence and improve campus mental health and study atmosphere.

Keywords: theory of planned behavior, college students, short video, overuse, mediating effect

1. Introduction

According to the 54th Statistical Report on China's Internet Development released by CNNIC [1], China's short-video user base has exceeded 1.076 billion with a penetration rate of 94.8%. Youth groups aged 18 to 24 are the most frequent viewers, and uncontrolled short-video consumption is especially common among college students. Short videos feature personalized algorithm push,

fragmented lightweight content and instant pleasure feedback, which easily draw users into unconscious immersive browsing. Long-term overuse leads to fragmented attention, lower academic engagement and reduced offline social participation, turning it a prominent practical challenge for university student management, mental health education and media literacy training.

Existing research mostly adopts Uses and Gratifications Theory or I-PACE addiction model to explore short-video addiction, while few studies adopt a complete TPB framework to distinguish casual viewing from excessive addiction and systematically verify the psychological mediating path of short-video overuse in domestic university contexts. Such research fails to fully interpret the contradictory state of college students who recognize the harm of over-watching yet cannot restrain themselves. Proposed by Ajzen in 1991, the Theory of Planned Behavior holds that individual cognitive perception is transformed into actual behavior via the mediating effect of behavioral intention, which fits the research scenario and topic of problematic media use well [2].

Foreign scholars have applied TPB to the research of inappropriate social media use earlier, and existing studies confirm perceived behavioral control is the core predictor of media loss of control [3, 4]. However, relevant conclusions are derived from overseas social media scenarios, lacking localized empirical tests adapted to China's short-video algorithm mechanism and campus environment. Domestic research over the past five years mostly explores students' short-video addiction from single perspectives such as emotional experience or peer atmosphere [5, 6], featuring fragmented research angles, failure to focus on uncontrolled overuse and intervention strategies without empirical data support [7]. Taking liberal arts, science and art undergraduates from Beijing undergraduate universities as research objects, this study constructs a complete TPB mediating model to fill the gaps of previous studies.

Short videos have turned into the primary pastime for college students. Unregulated scrolling during and after classes is widespread and imposes severe adverse impacts on academic performance, daily rest and concentration. Based on TPB, this study carries out quantitative empirical analysis to systematically examine the internal mediating mechanism of college students' excessive short-video addiction. Specific research objectives are as follows: First, construct a TPB-based mediating model and verify the positive predictive effects of attitude toward behavior, subjective norm and perceived behavioral control on excessive short-video intention. Second, test the direct influence of excessive use intention on excessive short-video behavior. Third, verify the full mediating role of excessive use intention between three cognitive antecedents and addictive behavior. Fourth, put targeted, operable intervention strategies from the perspectives of universities, individuals and online platforms according to empirical results.

This research carries theoretical and practical value. Theoretically, it expands the application scope of TPB in the field of short-video addiction [8, 9], verifies the model's explanatory power for problematic media use of undergraduates, sorts out the complete transmission chain of "cognitive perception-intention-addictive behavior" and clarifies the weight of each variable, enriching quantitative empirical literature on domestic short-video overuse [10]. Practically, it offers data support for universities to abandon crude, one-size-fits-all mobile phone management [7], provides targeted directions for professional media literacy courses and psychological counseling [5], and supplies practical references for students to form healthy media habits and short-video platforms to improve youth anti-addiction systems [11].

The whole research follows a logical framework: theoretical sorting-model construction-hypothesis deduction-questionnaire distribution-data empirical analysis-result discussion-countermeasures and prospects. The introduction elaborates research background, value, domestic and foreign literature review and research gaps. Chapter Two builds the theoretical model and puts

forward research hypotheses. Chapter Three clarifies research samples, measurement scales, analytical tools and bias control methods. Chapter Four reports reliability, validity, correlation, regression and Bootstrap mediating test results. Chapter Five analyzes model effectiveness and variable differences combined with existing literature and explains the internal logic of mediating paths. The final chapter draws conclusions, proposes targeted intervention schemes, states research limitations and future research directions, and arranges standardized references finally.

2. Research methodology

2.1. Research objects and data collection

The research population refers to full-time undergraduates of general undergraduate universities in Beijing. Questionnaires are mainly distributed to literature, science and art students from Kede College of Capital Normal University. A mixed convenience sampling method combining online and offline distribution is adopted. Online questionnaires are released via class WeChat groups and campus student communities through Questionnaire Star; paper questionnaires are handed out in the college library, self-study rooms and dormitories. Respondents cover freshmen to seniors across literature, science and art majors. A total of 380 questionnaires are planned to be issued. Anonymous filling, randomized item order and reverse questions are set in advance to control common method bias. It should be noted that research conclusions are more applicable to similar undergraduate colleges in Beijing and cannot be directly generalized to universities of different regions and types nationwide.

2.2. Data screening standards

All collected questionnaires are strictly screened. Forms with filling time less than 60 seconds, identical regular answers and logically contradictory responses are eliminated, leaving 326 valid questionnaires with an effective recovery rate of 85.79%. Valid samples cover students of different genders, grades and daily short-video viewing durations, which can reflect the short-video usage characteristics of respondents properly.

2.3. Measurement tools and variable setting

A revised 5-point Likert scale is adopted in this study, with 1 standing for strongly disagree and 5 for strongly agree. The scale contains 20 observation items divided into 5 dimensions with 4 items per dimension. Scale items are revised referring to the mediating effect standard proposed by Wen Zhonglin & Ye Bojun and mature domestic short-video addiction scales [12]. Thirty undergraduates from Kede College of Capital Normal University are invited for pre-investigation before formal distribution. Items with factor loading lower than 0.6 and expressions with ambiguity are deleted or revised to guarantee scale reliability and validity. The questionnaire also includes demographic modules to collect gender, grade, major and daily short-video viewing time. Variables are divided as follows: independent variables (attitude toward behavior, subjective norm, perceived behavioral control), mediating variable (intention of excessive short-video use), dependent variable (excessive short-video addictive behavior).

2.4. Source credibility and dual-pathway model

SPSS 26.0 statistical software is used for descriptive statistics, Cronbach's α reliability test, Harman single-factor common method bias test and Pearson correlation analysis. The PROCESS 4.1 program developed by Hayes with Model 4 simple mediating model is used for Bootstrap repeated sampling inspection [12]. If the 95% confidence interval does not contain 0, the corresponding mediating effect is judged significant. The core theoretical path of this study is: attitude toward behavior, subjective norm and perceived behavioral control indirectly affect college students' excessive short-video behavior through the mediating role of excessive short-video use intention.

2.5. Research hypotheses

H1: Attitude toward behavior, subjective norm and perceived behavioral control are significantly positively correlated with college students' intention of excessive short-video use (H1a: attitude toward behavior positively predicts excessive use intention; H1b: subjective norm positively predicts excessive use intention; H1c: perceived behavioral control positively predicts excessive use intention). H2: College students' intention of excessive short-video use is significantly positively correlated with excessive short-video behavior. H3: Intention of excessive short-video use exerts a full mediating effect between three antecedent cognitive variables and excessive short-video behavior.

3. Research results

3.1. Reliability and common method bias test

Cronbach's α coefficient is taken as the criterion to judge scale reliability. Coefficient above 0.7 represents acceptable reliability, while above 0.8 stands for excellent reliability. The reliability coefficients of each dimension are: attitude toward behavior 0.734, subjective norm 0.721, perceived behavioral control 0.768, excessive use intention 0.745, excessive use behavior 0.752; the overall α of the whole scale reaches 0.860. The reliability of all dimensions and the complete scale meets the critical standard, proving good internal consistency and reliable measurement results.

3.2. Harman single-factor bias test

To eliminate the interference of common method bias, unrotated exploratory factor analysis is conducted on all 20 items. Five common factors with eigenvalues greater than 1 are extracted, and the variance interpretation rate of the first factor is 28.63%, far below the critical value of 40%. It can be concluded that there is no severe common method bias in the collected data for subsequent analysis.

3.3. Descriptive statistics of variables

Descriptive statistics show that perceived behavioral control has the highest mean value ($M = 3.45$, $SD = 0.62$), which indicates surveyed college students generally have weak perception of media self-regulation. The mean value of excessive short-video behavior is 3.37 ($SD = 0.68$), revealing prominent addictive and out-of-control viewing among respondents. The mean of attitude toward behavior is 3.12 ($SD = 0.71$) and subjective norm is 3.20 ($SD = 0.65$). Most students recognize the

stress-relief value of short videos, and a herd mentality of short-video viewing is prevalent on campus, consistent with the actual usage situation of undergraduates in Beijing universities.

3.4. Pearson correlation analysis

Pearson correlation analysis demonstrates all variables show significant positive pairwise correlations ($p < 0.001$). Three independent variables are positively correlated with excessive use intention, and excessive use intention is positively correlated with addictive behavior. Independent variables also have significant direct correlation with dependent variables, providing preliminary data support for all research hypotheses.

3.5. Regression and bootstrap mediating effect test

Hierarchical regression results have three key findings. First, the regression of three antecedent variables on excessive use intention is significant. The regression coefficient of attitude toward behavior $\beta = 0.23$, subjective norm $\beta = 0.18$, perceived behavioral control $\beta = 0.31$ (all $p < 0.001$). The predictive power ranks as perceived behavioral control > attitude toward behavior > subjective norm, verifying H1. Second, excessive use intention significantly positively predicts excessive short-video behavior ($\beta = 0.47$, $p < 0.001$), which fully supports H2. Third, Bootstrap mediating test results: indirect effect of attitude toward behavior = 0.1081, 95%CI [0.0612,0.1625]; indirect effect of subjective norm = 0.0846, 95%CI [0.0407,0.1338]; indirect effect of perceived behavioral control = 0.1457, 95%CI [0.0893,0.2071]. None of the three confidence intervals contain 0. After introducing the mediating variable, the direct effects of three independent variables on addictive behavior become insignificant, which proves the full mediating role of excessive use intention and verifies H3 [12].

3.6. Summary of hypothesis verification

All three core hypotheses proposed in this study are supported by empirical data. Perceived behavioral control has the strongest predictive effect among all antecedent dimensions, and weak self-regulation reflected by this indicator constitutes the core psychological cause of short-video addiction [4, 13]. Cognitive factors cannot directly generate addictive conduct; they must act through excessive viewing intention, and the intention-behavior path of H2 forms the key bridge of the whole model. The TPB mediating model constructed in this study is applicable to research on excessive short-video addiction of undergraduates represented by Kede College of Capital Normal University in Beijing [9, 13].

4. Discussion

4.1. Overall validity of the model

All research hypotheses are supported, which proves TPB can fully interpret the psychological transmission path of "cognitive perception-psychological intention-out-of-control behavior" for college students in Beijing universities. Different from previous studies that only test single variables, this paper completely verifies the core logic of TPB: individual cognition and environmental perception cannot directly trigger short-video addiction unless mediated by viewing intention. This conclusion is highly consistent with Ajzen's original TPB theory [2], and also consistent with the empirical results of Sainger and Yu & Zhang on youth media addiction [13].

Compared with overseas single-media research [3, 4], this study adapts to the group living environment and immersive algorithm push characteristics of short-video platforms in Beijing universities, distinguishes samples of literature, science and art majors, and verifies the unique applicability of this model for local undergraduate colleges in China [9].

4.2. In-depth analysis of variable differences

Perceived behavioral control has the highest regression coefficient and mean value, consistent with foreign media addiction research conclusions: Sainger and Yu & Zhang both propose that perceived loss of self-regulation is the primary psychological inducement of excessive media use [13]. Short videos supply instant entertainment pleasure, which forms a sharp contrast with the delayed satisfaction brought by academic study. Long-term video scrolling continuously weakens students' self-control efficiency and reduces the level of perceived behavioral control, thus lifting excessive viewing intention. Once students form the cognition that they cannot control their own viewing time, they are more likely to scroll videos in class and stay up late, resulting in addictive behavior, consistent with domestic and foreign studies on self-control and media addiction [5, 10].

From the perspective of attitude toward behavior, college students hold biased cognition of short videos. They only notice the entertainment and stress-releasing functions while ignoring impaired concentration, worse academic performance and time waste caused by long-term overuse, forming one-sided positive media evaluation and lowering self-restraint standards, further boosting excessive viewing intention [6].

In terms of subjective norm, short-video viewing shows obvious group contagion. Mass viewing in dormitories and classes creates a herd atmosphere, making students hold the view that excessive scrolling is harmless and weakening personal self-discipline. Therefore, only individual intervention cannot solve the group addiction problem effectively [7].

4.3. Interpretation of mediating mechanism and practical contradiction

Intention of excessive short-video use is the dividing line between casual leisure viewing and out-of-control addiction, and the significant result of H2 proves intention is the direct antecedent of addictive behavior [13]. Traditional universities often adopt rigid management such as mobile phone confiscation and campus network restriction, which only restrain surface behavior but cannot change internal viewing intention, leading to recurring addiction after loosening management [7]. The full mediating model explains the paradox that students know over-watching is harmful yet cannot stop scrolling: positive media attitude, group viewing atmosphere and insufficient perceived behavioral control jointly generate strong excessive viewing intention. Internal psychological motivation overrides rational judgment and finally leads to addictive short-video behavior. Intervention measures should focus on correcting cognitive bias, weakening unhealthy group atmosphere and improving self-regulation rather than simple mandatory restriction and verbal preaching [11].

4.4. Tripartite collaborative intervention countermeasures based on empirical results

Targeted at reducing excessive viewing intention and improving perceived behavioral control, this study builds a three-party collaborative intervention system covering universities, individuals and video platforms [7, 11].

For universities: Establish systematic media literacy training via special courses, lectures and psychological group counseling to correct students' one-sided view of short videos; build

distraction-free learning spaces and enrich offline sports, science and social activities to weaken group scrolling atmosphere; launch special psychological guidance on digital self-control to lift students' perceived behavioral control and media management capacity [7].

For individual students: Form rational media cognition and recognize academic and physical harms of excessive scrolling; use mobile time-limiting functions to restrict viewing hours, and replace fragmented scrolling with extensive reading, sports and professional study to cultivate healthy media usage habits [9].

For short-video platforms: Optimize recommendation algorithms for college student users, reduce the weight of low-quality entertainment content and raise the proportion of popular science content and learning materials; strengthen mandatory rest reminders and time quota mechanisms after long-time browsing, weaken addictive algorithm stimulation and build exclusive anti-addiction systems for youth users [11].

5. Conclusion

This study takes 326 full-time undergraduates from Beijing undergraduate universities as research samples and constructs a mediating model based on TPB to explore the psychological mechanism of college students' excessive short-video addiction. Empirical conclusions are as follows: Attitude toward behavior, subjective norm and perceived behavioral control can significantly and positively predict excessive short-video intention; perceived behavioral control has the strongest predictive power and insufficient media self-regulation is the core psychological inducement of addiction. Intention of excessive short-video use can positively predict addictive behavior and fully mediates the relationship between three cognitive antecedents and excessive viewing conduct. Individual cognition and environmental perception can only affect addictive behavior indirectly through psychological intention. Most surveyed students lack media self-regulation, and uncontrolled short-video viewing has become a key concern of university mental health and student management work.

This paper sorts out the complete psychological transmission chain of college students' short-video addiction, makes up for the defects of incomplete models and insufficient empirical support in existing literature, and has theoretical supplementary value. Empirical results pinpoint perceived behavioral control as the core intervention target, break the limits of extensive campus mobile management, supply data support for targeted media literacy education and psychological counseling, and provide operable plans for students' healthy media habits and platform anti-addiction optimization.

For future research: Longitudinal tracking studies can be carried out to verify the causal relationship and dynamic changes of variables; demographic factors, personality and academic pressure can be included for multi-group comparison to explore addiction differences among different grades and majors; behavioral experiments and concentration tests can be combined to make up for the subjectivity of questionnaire self-report data; quasi-experimental research can be implemented to test the actual effect of the intervention strategies proposed in this paper in Beijing university scenarios, so as to deepen research depth continuously.

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