Research on Problematic Short-Video Use and Learning Burnout from the Perspective of Time Management Intervention

Jia Ru
Faculty of Social Sciences, Hong Kong Shue Yan University, Hong Kong, China

Abstract: This study focuses on college students and explores the mechanisms of action and intervention effects on time management ability, problematic short-video use duration, and learning burnout. A mixed design of "cross-sectional survey-single-group longitudinal intervention experiment" is adopted. Data are collected using tools such as Wenjuanxing and the mobile phone system's screen time function, and methods like Pearson correlation analysis and mediating effect analysis are employed for verification. The results show that there is a significant negative correlation between problematic short-video use duration and learning burnout, and a significant positive correlation between time management ability and learning burnout. Time management ability has a "double-edged sword" mechanism for learning burnout, that is, "positive direct effect + negative indirect effect". The study indicates that short videos may provide "emotional compensation" for college students, while excessive time management may lead to stress accumulation. Although the intervention strengthens the constraint of time management on short-video use, it also amplifies the risk of directly causing burnout. This study provides a new perspective for optimizing the intervention of college students' learning burnout.

Keywords: Time Management Ability; Problematic Short-Video Use; Learning Burnout; Mediating Effect; Intervention Study

1. Introduction

Short videos are widely popular among college students, and their excessive use has aroused concerns about learning status and mental health. As an important problem hindering academic and mental health, learning burnout has been found to be significantly related to problematic mobile phone use, short-video addiction, and excessive use [1-4]. However, how to effectively regulate the relationship between short-video use and learning burnout still needs to be explored. Given that time management is regarded as a key theory to improve efficiency and alleviate burnout in educational psychology, this study focuses on the mechanism of time management ability in the relationship between "problematic short-video use duration-learning burnout", aiming to provide a scientific basis for improving college students' learning status.

2. Literature Review

2.1 Influencing Factors of Learning Burnout

Learning burnout refers to a comprehensive state of emotional exhaustion, academic alienation, and a low sense of accomplishment under academic pressure[5]. Its influencing factors include:

(1) Individual factors: Such as low self-control, insufficient time management ability, and high sensation-seeking tendency[4,6,7].

(2) Environmental factors: Such as high academic pressure and low interactivity in online learning [4,8].

(3) Behavioral factors: Such as smartphone addiction and nighttime social media use[9,10]

2.2 Correlation Between Short-Video Use and Learning Burnout

Studies have confirmed a significant positive correlation between excessive short-video use and learning burnout [11,12]. Chanisms involve occupying cognitive resources, interfering with attention, and reducing learning motivation, and are associated with the characteristic of "uncontrolled use" [12,13]. The pathway of perceived stress and self-control depletion suggests that time management interventions need to focus on the stress-resource dynamics [6].

2.3 Correlation Between Time Management Ability and Learning Burnout

Time management ability is the behavior aimed at achieving effective time utilization when performing certain goal-oriented activities[14] is reflected in an individual's time management tendency, including three dimensions: time value, time monitoring, and time efficacy[15]. Time management ability is significantly negatively correlated with learning burnout [7]. Its mitigation mechanisms include enhancing self-efficacy and academic control and may be achieved by improving sleep and reducing procrastination, which is consistent with the Conservation of Resources theory [7,16-18].

2.4 Correlation Between Time Management Ability and Short-Video Use Duration

Poor time management ability is significantly associated with increased short-video use duration [9,19]. The mechanism may involve self-regulation deficits, leading individuals to watch without restraint and reducing learning motivation [6,7]. Direct research in this field remains limited.

2.5 Common Strategies for Time Management

Effective intervention strategies include:

(1) Enhancing autonomous control through goal setting and feedback[20].

(2) Combining the Pomodoro Technique with usage restrictions based on CBT [21].

(3) Structured time planning training[22].

(4) Mindfulness training to enhance metacognitive monitoring [23,24].

2.6 Research Review

Existing studies have confirmed a significant positive correlation between excessive short-video use and learning burnout, and that time management ability moderates this relationship. However, there is a lack of systematic verification of the chain mediating mechanism of "time management ability → short-video use duration → learning burnout", and intervention programs have limitations such as insufficient scenario adaptation and failure to consider differences in usage motivations, to compensate for the gaps in mechanism exploration and intervention practice by constructing a mediating model, designing a digital intervention program, and combining longitudinal empirical methods, providing a scientific basis for improving college students' learning status[25-27].

3. Research Hypotheses

H1: Problematic short-video use duration positively predicts learning burnout.

According to the Cognitive Resource Theory, sustained short-video use consumes limited cognitive resources, leading to attention distraction and reduced learning efficiency[28].irical studies have shown that when college students use short videos for more than 90 minutes daily, the scores on the emotional exhaustion scale significantly increase; short-video use exacerbates academic burnout through the mechanism of cognitive resource depletion [9,13].

H2: Time management ability negatively predicts problematic short-video use duration.

Based on the Self-Regulation Theory (Zhou et al., 2014), individuals can inhibit impulsive usage behaviors through time management strategies such as "plan execution"[7]. Qin et al. found that students with higher time management ability can better plan study and entertainment time, reducing meaningless short-video browsing[6].levant meta-analyses also indicate that groups with good time management skills have significantly shorter durations of online entertainment behaviors [29].

H3: Time management ability negatively predicts learning burnout.

According to the Conservation of Resources theory, time management ability, as an important individual resource, can buffer the negative impact of academic pressure on mental health[18]. Fang et al. confirmed that time management can indirectly alleviate burnout by reducing academic pressure; longitudinal studies have shown that students who received time management training had a significant decrease in learning burnout levels within 6 months [17,22].

H4: Problematic short-video use duration mediates the relationship between time management ability and learning burnout.

Existing studies support the chain relationship among multiple variables: improving time management ability can reduce internet addiction behaviors, and internet addiction is significantly positively correlated with learning burnout [25,26]. Additionally, as an emerging online entertainment medium, the mediating effect of short-video use duration between time management and academic pressure has been verified in preliminary studies [27].

4. Research Content

The research content mainly includes two parts: first, collecting baseline data on time management ability, problematic short-video use, and learning burnout, controlling variables such as gender and major, and verifying that problematic short-video use duration positively predicts learning burnout and time management ability negatively moderates the above relationship through hierarchical regression analysis; second, designing a "behavior monitoring + task linkage" intervention program based on the theoretical model, using the "TimeGuard" mini-program for an 8-week intervention, and longitudinally comparing and testing the effectiveness of the intervention in reducing learning burnout.

5. Research Design

5.1 Overall Design

This study adopts a mixed design of "cross-sectional survey-single-group longitudinal intervention experiment", first clarifying the basic relationship between time management ability, problematic short-video use duration, and learning burnout through a cross-sectional survey, and then verifying the regulatory effect of time management intervention on the variable relationship through a single-group longitudinal intervention.

5.2 Cross-Sectional Survey: Variable Correlation Test

5.2.1 Research purpose

To verify the direct predictive effect of problematic short-video use duration on learning burnout (H1) and the mediating effect of time management ability in the relationship between them (H4).

5.2.2 Research subjects

Convenience sampling was used to select undergraduates aged 18-22 from universities in China. After screening (excluding samples with too short answering time or abnormal answer patterns), 507 valid samples were included, with a valid recovery rate of 96.94%. The samples cover all grades from freshman to senior to ensure group representativeness.

5.2.3 Research tools

(1) Collection tools:

Wenjuanxing (Questionnaire Star): Collect data on learning burnout and time management ability scales.

Mobile phone system screen time function: Automatically records the average daily duration of problematic short-video use by participants in the past 7 days.

TimeGuard mini-program: Used for behavior monitoring and data collection in intervention experiments.

(2) Measurement tools:

Problematic short-video use duration: Obtained through the mobile phone system screen time function, in "minutes/day", taking the 7-day average.

Learning burnout: Adopting the Adolescent Learning Burnout Scale, which includes 3 dimensions (physical and mental exhaustion, academic alienation, low sense of accomplishment) with a total of 16 items, using a Likert 5-point scale. In this study, Cronbach's α=0.82[31].

Time management ability: Adopting the Chinese version of Macan's (1990) Time Management Behavior Scale (TMB), with a total of 34 items, evaluating behaviors such as plan formulation and task prioritization, with Cronbach's α=0.85[30].

5.2.4 Data processing and analysis

Data Preprocessing: Multiple imputation was used to handle a small amount of missing data, and samples with a missing rate >20% were excluded; continuous variables were standardized to eliminate the influence of dimensions.

Statistical Analysis:

Descriptive statistics calculate the mean, standard deviation, and value range of time management ability, problematic short-video use duration, and learning burnout, presenting the distribution characteristics and data basis of each variable to provide a premise for subsequent analysis.

Pearson correlation analysis tests the direction and strength of the linear association among the three core variables, clarifying the basic relationship pattern among variables and providing a basis for constructing the mediating effect model[32].

Mediating effect analysis (using structural equation modeling and Bootstrap method) decomposes direct and indirect effects to verify the mediating role of problematic short-video use duration between time management ability and learning burnout, revealing the chain mechanism among variables[33].

5.3 Experimental Intervention: Longitudinal Effect Verification of Time Management Intervention

5.3.1 Research design

This study uses a one-group pretest-posttest design. All participants receive an 8-week time management intervention, and a posttest is conducted at the end of the 8th week. The design of "baseline measurement (T1) — intervention implementation — posttest evaluation (8th week T2)" is adopted without a control group, and all participants are in the experimental group.

5.3.2 Research subjects

Fifty students who were in the top 25% of burnout and willing to participate were selected from the cross-sectional samples, all of whom served as the experimental group to receive the intervention.

5.3.3 Three-stage implementation process

(1) Baseline period (T1)

Measurement Tools: Learning burnout scale, time management ability scale, mobile phone screen usage time (short-video duration).

Data Analysis: Descriptive statistics, correlation analysis, regression analysis (verifying H1–H3).

(2) Intervention period (Weeks 1–8)

Intervention content:

Cognitive training: 1 online workshop (8 times in total) per week for 60 minutes, covering goal setting, task priority ranking, time block planning, etc.

Behavior monitoring: Set dynamic thresholds through the "TimeGuard" mini-program (initial 240 minutes/day, decreasing by 20 minutes weekly), with timeout locking and report pushing.

Data Collection: The mini-program automatically records short-video use duration, type, and number of timeouts daily.

(3) Posttest period (T2, End of Week 8)

Measurement Tools: Repeat all measurements in the baseline period.

6. Data Results

This study focuses on the relationship between time management ability, problematic short-video use duration (referred to as "use duration"), and learning burnout (referred to as "burnout total score"). Using two groups of data from a cross-sectional survey (sample size N = 507) and a post-time management intervention survey (sample size N = 50), comparative analyses were conducted at three levels—descriptive statistics, correlation, and mediating effects—to explore the mechanism among variables[34].

6.1 Descriptive Statistics

6.1.1 Cross-sectional data (N = 507) (Table 1)

(1) Use duration: The mean was 2.33, standard deviation (SD) 1.30, ranging from 1.00 to 5.00, indicating individual differences in problematic short-video use duration among college students.

(2) Burnout total score: The mean was 49.23, SD 4.12, ranging from 30.00 to 60.00, showing a moderately high overall level of learning burnout.

(3) Time management ability: The mean was 114.32, SD 21.33, ranging from 58.00 to 137.00, with high dispersion and obvious individual differences[35].

Table 1. Cross-Sectional Descriptive Statistics

Indicator	N	Minimum	Maximum	Mean	Standard Deviation
Usage Duration	507	1.00	5.00	2.3333	1.30268
Total Burnout Score	507	30.00	60.00	49.2347	4.11617
Time Management Ability	507	58.00	137.00	114.3215	21.33326
Valid Cases (Listwise)	507				

6.1.2 Post-intervention data (N = 50)(Table 2)

(1) Use duration: The mean was 3.26, SD 1.59, ranging from 1.00 to 5.00. Compared with cross-sectional data, the mean increased and the dispersion slightly expanded, indicating changes in the distribution of short-video use duration after intervention.

(2) Burnout total score: The mean was 46.78, SD 4.40, ranging from 39.00 to 57.00. The mean was lower than the cross-sectional data, suggesting the intervention may have a certain effect on burnout, but individual differences persisted.

(3) Time management ability: The mean was 86.54, SD 26.80, ranging from 60.00 to 130.00. The mean was lower than the cross-sectional data, with higher dispersion, reflecting changes in the group characteristics of time management ability after intervention.

Table 2. Descriptive Statistics for Intervention Experiments

Indicator	N	Minimum	Maximum	Mean	Standard Deviation
Usage Duration	50	1.00	5.00	3.2600	1.58835

Total Burnout Score	50	39.00	57.00	46.7800	4.40450
Time Management Ability	50	60.00	130.00	86.5400	26.80101
Valid Cases (Listwise)	50				

After intervention, the mean of problematic short-video use duration increased, the mean of time management ability decreased, and the mean of learning burnout slightly declined. The distribution differences of variables laid a foundation for subsequent relationship analysis.

6.2 Correlation Analysis

6.2.1 Cross-sectional data (N = 507) (Table 3)

(1) Pearson correlation coefficient between use duration and burnout total score: $r = -0.307$ ($p < 0.001$), a significant negative correlation, indicating that the longer the problematic short-video use duration, the lower the learning burnout total score, contradicting the conventional cognition that "increased use duration exacerbates burnout".

(2) Correlation between use duration and time management ability: $r = -0.962$ ($p < 0.001$), an extremely strong negative correlation, suggesting that the higher the time management ability, the shorter the problematic short-video use duration, consistent with the logic that "time management can constrain short-video use".

(3) Correlation between burnout total score and time management ability: $r = 0.461$ ($p < 0.001$), a significant positive correlation, meaning that the higher the time management ability, the higher the learning burnout total score, conflicting with the conventional expectation that "time management reduces burnout".

Table 3. Cross-Sectional Survey Correlation Analysis

	Usage Duration	**Total Burnout Score**	**Time Management Ability**	
Usage Duration	Pearson Correlation	1	-.307**	-.962**
	Significance (2-tailed)		<.001	<.001
	Number of Cases	507	507	507
Total Burnout Score	Pearson Correlation	-.307**	1	.461**
	Significance (2-tailed)	<.001		<.001
	Number of Cases	507	507	507
Time Management Ability	Pearson Correlation	-.962**	.461**	1
	Significance (2-tailed)	<.001	<.001	
	Number of Cases	507	507	507

6.2.2 Post-intervention data (N = 50) (Table 4)

(1) Correlation between use duration and burnout total score: $r = -0.426$ ($p = 0.002$), a significant negative correlation, with an absolute value of the correlation coefficient larger than that in cross-sectional data, indicating that the abnormal relationship of "longer use duration, lower burnout" was strengthened after intervention.

(2) Correlation between use duration and time management ability: $r = -0.973$ ($p < 0.001$), an extremely strong negative correlation, with an absolute value of the correlation coefficient close to -1, showing that the core relationship of "time management ability constrains short-video use" was highly stable.

(3) Correlation between burnout total score and time management ability: $r = 0.561$ ($p < 0.001$), a significant positive correlation, with a correlation coefficient larger than that in cross-sectional data, indicating that the abnormal relationship of "higher time management ability, higher burnout" was further strengthened after intervention.

Table 4. Correlation Analyses after Intervention Experiments

	Usage Duration	**Total Burnout Score**	**Time Management Ability**	
Usage Duration	Pearson Correlation	1	-.426**	-.973**
	Significance (2-tailed)		.002	<.001
	Number of Cases	50	50	50
Total Burnout Score	Pearson Correlation	-.426**	1	.561**
	Significance (2-tailed)	.002		<.001
	Number of Cases	50	50	50
Time Management Ability	Pearson Correlation	-.973**	.561**	1
	Significance (2-tailed)	<.001	<.001	
	Number of Cases	50	50	50

In both groups of data, the correlation directions of variables were completely consistent, with only differences in effect size (absolute value of the correlation coefficient). The abnormal associations (negative correlation between use duration and burnout, positive correlation between time management ability and burnout) did not change but were strengthened after intervention, suggesting that these relationships are real and stable special mechanisms rather than sampling errors.

6.3 Mediating Effect Analysis: Comparison of Action Paths

A mediating model was set up: time management ability (X) → use duration (M) → burnout total score (Y), decomposing the direct effect (X→Y) and indirect effect (X→M→Y) to compare the path characteristics of the two groups of data.

6.3.1 Cross-sectional data (N = 507) (Table 5)

(1) Direct effect (time management ability→burnout): Path coefficient 0.4330 ($t = 18.71$, $p < 0.001$), significantly positive, meaning that time management ability directly increases learning burnout, contradicting conventional expectations.

(2) Indirect effect (time management ability→use duration→burnout): Effect value -0.3441 (BootSE = 0.0203, 95% confidence interval [CI] [-0.3825, -0.3045]), significantly negative, indicating that time management ability indirectly reduces learning burnout by decreasing use duration, consistent with the logic that "time management inhibits short-video use and relieves burnout".

Table 5. Analysis of Mediating Effects of Transect Surveys

Category	Item	Indicator	Value
Model Basic Information	Model		4
	Y		Burnout
	X		Time Management
	M		Usage
	Sample Size		507
OUTCOME VARIABLE: Usage	Model Summary	R	0.9624
		R-sq	0.9262
		MSE	0.1254
		F	6340.8431
		df1	1.0000
		df2	505.0000
		p	0.0000
	Model	Constant (coeff)	9.0518
		Constant (se)	0.0858
		Constant (t)	105.4679
		Constant (p)	0.0000
		Constant (LLCI)	8.8831
		Constant (ULCI)	9.2204
		Time Management(coeff)	-0.0588
		Time Management (se)	0.0007
		Time Management (t)	-79.6294
		Time Management(p)	0.0000
		Time Management (LLCI)	-0.0602
		Time Management (ULCI)	-0.0573
OUTCOME VARIABLE: Burnout	Model Summary	R	0.6822
		R-sq	0.4654
		MSE	9.0935
		F	219.3835
		df1	2.0000
		df2	504.0000
		p	0.0000
	Model	Constant (coeff)	-13.9246

		Constant (se)	3.5067
		Constant (t)	-3.9709
		Constant (p)	0.0001
		Constant (LLCI)	-20.8141
		Constant (ULCI)	-7.0351
		Time Management (coeff)	0.4330
		Time Management (se)	0.0231
		Time Management (t)	18.7132
		Time Management (p)	0.0000
		Time Management (LLCI)	0.3875
		Time Management (ULCI)	0.4784
		Usage (coeff)	5.8553
		Usage (se)	0.3789
		Usage (t)	15.4536
		Usage (p)	0.0000
		Usage (LLCI)	5.1109
		Usage (ULCI)	6.5997
DIRECT AND INDIRECT EFFECTS OF X ON Y	Direct Effect of X on Y	Effect	0.4330
		se	0.0231
		t	18.7132
		p	0.0000
		LLCI	0.3875
		ULCI	0.4784
	Indirect Effect(s) of X on Y-Usage	Effect	-0.3441
		BootSE	0.0203
		BootLLCI	-0.3825
		BootULCI	-0.3045
ANALYSIS NOTES AND ERRORS	Level of Confidence for All Confidence Intervals in Output		95.0000
	Number of Bootstrap Samples for Percentile Bootstrap Confidence Intervals		5000

6.3.2 Post-intervention data (N = 50) (Table 6)

(1) Direct effect (time management ability→burnout): Path coefficient 0.4553 (t = 6.80, p < 0.001), significantly positive, with an effect size slightly higher than cross-sectional data, suggesting that the effect of "time management ability directly exacerbating burnout" was strengthened after intervention.

(2) Indirect effect (time management ability→use duration→burnout): Effect value -0.3631 (BootSE = 0.0499, 95% CI [-0.4507, -0.2555]), significantly negative, with an absolute effect size larger than cross-sectional data, meaning that the indirect effect of "time management ability reducing burnout by inhibiting short-video use" was enhanced after intervention.

Table 6. Analysis of Mediating Effects after the Intervention Experiment

Category	Item	Specific Content	Value	
Model Basic Information	Model		4	
	Y		Burnout	
	X		Time Management	
	M		Usage	
	Sample Size		50	
OUTCOME VARIABLE: Usage-Model Summary	R		0.9732	

		R-sq		0.9471
		MSE		0.1361
		F		860.0300
		df1		1.0000
		df2		48.0000
		p		0.0000
OUTCOME VARIABLE: Usage-Model	Constant (coeff)		8.2514	
		Constant (se)		0.1780
		Constant (t)		46.3507
		Constant (p)		0.0000
		Constant (LLCI)		7.8934
		Constant (ULCI)		8.6093
		Time Management (coeff)		-0.0577
		Time Management (se)		0.0020
		Time Management (t)		-29.3263
		Time Management (p)		0.0000
		Time Management (LLCI)		-0.0616
		Time Management (ULCI)		-0.0537
OUTCOME VARIABLE: Burnout-Model Summary	R		0.7665	
		R-sq		0.5875
		MSE		8.3431
		F		33.4678
		df1		2.0000
		df2		47.0000
		p		0.0000
OUTCOME VARIABLE: Burnout-Model	constant(coeff)		-13.1421	
		constant(se)		9.4270
		constant(t)		-1.3941
		constant(p)		0.1698
		constant(LLCI)		-32.1069
		constant(ULCI)		5.8228
		Time Management(coeff)		0.4553
		Time Management (se)		0.0670
		Time Management (t)		6.7992
		Time Management (p)		0.0000
		Time Management (LLCI)		0.3206
		Time Management (ULCI)		0.5900
		Usage (coeff)		6.2946
		Usage (se)		1.1299
		Usage (t)		5.5708
		Usage (p)		0.0000
		Usage (LLCI)		4.0214
		Usage (ULCI)		8.5677
DIRECT AND INDIRECT EFFECTS OF X ON Y-Direct effect of X on Y	Effect		0.4553	
		se		0.0670
		t		6.7992
		p		0.0000
		LLCI		0.3206

		ULCI		0.5900
DIRECT AND INDIRECT EFFECTS OF X ON Y-Indirect effect(s) of X on Y-Usage	Effect		-0.3631	
		BootSE		0.0499
		BootLLCI		-0.4507
		BootULCI		-0.2555
ANALYSIS NOTES AND ERRORS	Level of confidence for all confidence intervals in output		95.0000	
	Number of bootstrap samples for percentile bootstrap confidence intervals		5000	

In both groups of data, the directions of mediating paths were completely consistent: time management ability had a dual effect on learning burnout, with a "positive direct effect (exacerbating burnout)" and a "negative indirect effect (alleviating burnout)". After intervention, the intensities of both effects increased, indicating that the intervention may have amplified the "double-edged sword effect" of time management ability—both strengthening the inhibition of short-video use and increasing the risk of directly causing burnout.

7. Research Results

Through a cross-sectional survey (N = 507) and a post-time management intervention survey (N = 50), this study systematically explored the relationship among time management ability, problematic short-video use duration, and learning burnout. The results showed significant differences from the initial hypotheses, and the variable mechanism demonstrated special stability.

Both cross-sectional and post-intervention data consistently indicated a significant negative correlation between problematic short-video use duration and learning burnout (cross-sectional r = -0.307, post-intervention r = -0.426), contradicting the hypothesis (H1) that "use duration positively predicts burnout". A significant positive correlation was found between time management ability and learning burnout (cross-sectional r = 0.461, post-intervention r = 0.561), opposite to the hypothesis (H3) that "time management ability negatively predicts burnout". Only the "extremely strong negative correlation between time management ability and problematic short-video use duration" (cross-sectional r = -0.962, post-intervention r = -0.973) was consistent with the hypothesis (H2) that "time management ability negatively predicts use duration".

Mediating effect analysis further revealed a "double-edged sword" mechanism of time management ability on learning burnout. In both cross-sectional and post-intervention data, time management ability had a significant positive direct effect on learning burnout (cross-sectional 0.4330, post-intervention 0.4553), while producing a significant negative indirect effect through reducing problematic short-video use duration (cross-sectional -0.3441, post-intervention -0.3631), partially supporting the hypothesis (H4) that "use duration mediates the relationship between time management ability and burnout". The absolute values of both effects increased after intervention, accompanied by a decrease in the mean of time management ability (114.32→86.54) and an increase in the mean of use duration (2.33→3.26). Although the intervention strengthened the constraint of time management on short-video use, it also amplified the risk of directly causing burnout. In summary, problematic short-video use among college students may serve an "emotional compensation" function, while time management ability exhibits dual effects due to "excessive planning leading to stress", and this special mechanism was stably reproduced in the two experiments, providing key data support for revising traditional cognition and optimizing interventions for college students' learning burnout.

8. Discussion

This study explored the relationship among time management ability, problematic short-video use duration, and learning burnout through a cross-sectional survey (N = 507) and an intervention survey (N = 50), with results showing significant deviations from the initial

hypotheses.

8.1 Deviations from Hypotheses and Mechanisms

The initial hypotheses (H1: use duration positively predicts burnout; H3: time management ability negatively predicts burnout) were not supported. Both cross-sectional and post-intervention data consistently showed a significant negative correlation between use duration and burnout (r = -0.307/-0.426) and a significant positive correlation between time management ability and burnout (r = 0.461/0.561). Only the path of "time management ability→reduced use duration" in H4 and H5 was valid (r = -0.962/-0.973), but time management ability had a "double-edged sword" mechanism on burnout, with a "positive direct effect (0.4330/0.4553) + negative indirect effect (-0.3441/-0.3631)". This special mechanism stems from the characteristics of college students: short videos may serve an "emotional compensation" function, and brief use under academic pressure can alleviate burnout. Conversely, improved time management ability may be accompanied by "excessive planning", compressing rest and autonomous space, and causing stress accumulation, which aligns with the logic in the Conservation of Resources theory that "excessive consumption of regulatory resources exacerbates exhaustion", and the intervention strengthened this effect.

8.2 Potential Causes of Result Deviations

(1) The learning burnout scale did not distinguish between "academic stress burnout" and "time planning stress burnout", possibly overestimating the negative effect of time management ability. Use duration only records "duration" without distinguishing "entertainment/knowledge-based" motivations, and knowledge-based use may weaken the negative impact of burnout.

(2) Undergraduate students at a single university face high academic competition. After improving time management ability, the "gap between high expectations and reality" easily triggers frustration. Moreover, college students' autonomous needs are unmet, and excessive planning violates Self-Determination Theory, highlighting the negative effects of time management[20].

(3) The intervention focused solely on "cognitive training + behavior monitoring". The strict duration reduction rule (120 minutes/day→decreasing by 20 minutes weekly) caused anxiety, and there was no stress regulation module. It did not adapt to individual differences, and those with weak foundations were prone to resistance, leading to a decrease in the mean of time management ability (114.32→86.54) and an increase in use duration (2.33→3.26) after intervention.

8.3 Research Limitations

The cross-sectional sample used convenience sampling and only covered a single university, resulting in insufficient representativeness. The intervention sample was small (N = 50) and had no control group, making it impossible to rule out the Hawthorne effect and insufficient rigor in causal inference. The lack of longitudinal tracking prevented verification of long-term mechanisms. Regulatory variables such as perfectionism and academic pressure were not included, making it difficult to clarify the boundaries of the "double-edged sword effect". The time management scale was not adapted to the short-video era, leading to operational deviations[30]. The mediating variables (such as perceived stress) of the direct effect of "time management ability→burnout" were not disassembled, and the "negative correlation between use duration and burnout" lacked qualitative interview support, resulting in insufficient persuasiveness in mechanism explanation[36].

The experiment also has an impact of the lack of a control group, such as the inability to distinguish intervention effects from confounding factors (e.g., natural changes, Hawthorne effect), leading to insufficient rigor in causal inference; Difficulty in verifying the specificity of intervention measures, as results may be interfered with by fluctuations in academic stress, sample selection bias, etc.

In the future, research can adopt a randomized controlled trial (RCT) design, randomly assigning participants to an intervention group, a blank control group, and an emotional support control group. Horizontal comparisons at the same time point will isolate the specific effects of the intervention. Mid-term evaluations and qualitative interviews should be integrated to enhance the rigor of causal inference.

8.4 Future Directions and Practical Implications

Adopt a multi-center sampling and "control group + longitudinal tracking" design to improve universality and causality. Supplement motivation and stress scales and deepen mechanism exploration by combining mixed methods (quantitative + qualitative). Integrate "stress regulation + elastic threshold" modules and implement hierarchical interventions based on individual differences to avoid excessive constraints. Universities need to balance time management training and emotional support and abandon "standardized planning". Guide "knowledge-based" use of short videos to transform them into academic support tools rather than simply restricting them.

9. Conclusion

Focusing on college students, this study systematically investigated the relationship among time management ability, problematic short-video use duration, and learning burnout. The results showed an abnormal negative correlation between problematic short-video use duration and learning burnout, a significant positive correlation between time management ability and learning burnout, and a dual influence mechanism of time management ability on learning burnout with a "positive direct effect + negative indirect effect". The study revealed the "emotional compensation" function of short-video use and the "double-edged sword effect" of time management ability, providing new theoretical bases and practical directions for optimizing interventions for college students' learning burnout.

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