



The Influencing Mechanism of College Students' Online Learning Enthusiasm

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Abstract. Amidst the landscape of educational digitization, the increasing prevalence of universities employing the Internet as a pedagogical tool prompts a nuanced exploration of college students' enthusiasm for online learning. This study initiates its inquiry by theoretically formulating influencing factors and hypotheses pertaining to online learning enthusiasm. Subsequently, the model's validity is empirically assessed through actual questionnaire data, elucidating the clear interaction paths between each variable. Enhancing college students' learning awareness emerges as a potent strategy for ameliorating their enthusiasm for online learning. Notably, the impact of college students' online learning immediacy on their online learning telepresence is minimal, whereas the former exhibits a substantial influence on the latter. The consequential effect of online learning telepresence on learning awareness is discernible. To optimize outcomes, educators are advised to refine the curriculum and fortify online learning immediacy, thereby augmenting online learning telepresence. This iterative process culminates in an enhancement of college students' online learning awareness and a simultaneous stimulation of their online learning telepresence. This study, by delving into the nuanced connotation and composition of college students' online learning enthusiasm, elucidates the influencing mechanisms therein. It contributes to a more effective implementation of online learning strategies by deepening our understanding of these dynamics.

Keywords: Online learning enthusiasm, college students, learning awareness, influence mechanism, structural equation model

1 Introduction

In the era marked by the extensive integration of digital technology into education and pedagogy, collegiate educators employ diverse online teaching platforms tailored to the distinctive features of the curriculum [13]. Under the background of education digitization, this study attempts to clarify the dimensions of college students' enthusiasm for online learning and reveal its complex influencing factors and potential mechanisms. The results of the study are expected to stimulate the initiative and en-

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thusiasm of online learning in universities, thereby improving the overall learning efficiency.

2 Literature Review

2.1 Online Learning Enthusiasm

The objective aspect of college students' enthusiasm for online learning is the completion of their learning and related tasks [10]. The subjective aspect of online learning enthusiasm is the students' subjective initiative to participate in online learning. Generally speaking, online learning system refers to an integrated whole of institutions and relevant elements that carry out education and teaching in online form [12]. Strategies like adjusting evaluation criteria and fostering motivation enhance enthusiasm [1, 7].

2.2 Learning Immediacy

Learning immediacy involves the fluency of live broadcast and classroom participation. Internet education changes the immediacy of education and students' right to control their free time [6]. Students become co-creators of courses [2]. Many researches on immediacy focus on teachers' use of direct speech acts, and few on students' online learning immediacy.

2.3 Learning Telepresence

Online learning telepresence can reduce learners' anxiety and loneliness in the process of online learning [4], while promoting learners' deep learning [8]. Influencing factors include sociality, social space, and learners' attributes [3]. Teacher and student presence mutually support online course implementation, emphasizing presence in teaching and learning.

2.4 Learning Awareness

The cultivation of college students' awareness of autonomous learning is an important prerequisite for improving their ability to acquire knowledge independently [9]. For the awareness of online learning, it is more necessary to cultivate the awareness of autonomous learning and avoid the crisis of autonomous learning [5]. Online learning is the trend of the times. Learners should improve their awareness of autonomous learning and guide their learning behavior [11].

3 Research Hypothesis and Model Construction

3.1 Research Assumptions

The change of learning immediacy may affect the number of online learning tasks of college students, thus causing the change of learning telepresence. College students with a strong sense of learning will generally spontaneously accept more learning tasks, and their sense of learning presence will also be enhanced.

H1: college students' online learning immediacy has a significant direct positive impact on college students' online learning telepresence.

H2: college students' learning awareness has a significant direct positive impact on college students' online learning telepresence.

H3: college students' online learning immediacy has a significant direct positive impact on college students' learning awareness.

Enhanced online learning telepresence boosts students' enthusiasm, affected by individual and environmental factors. Positive attitudes and consciousness bolster enthusiasm. Immediate online learning improves performance, correlating with enthusiasm. Students' learning consciousness reinforces enthusiasm, forming research assumptions. H4: college students' online learning telepresence has a significant direct positive impact on college students' online learning enthusiasm.

H5: college students' online learning immediacy has a significant direct positive impact on their online learning enthusiasm.

H6: college students' learning awareness has a significant direct positive impact on their online learning enthusiasm.

3.2 Model Construction

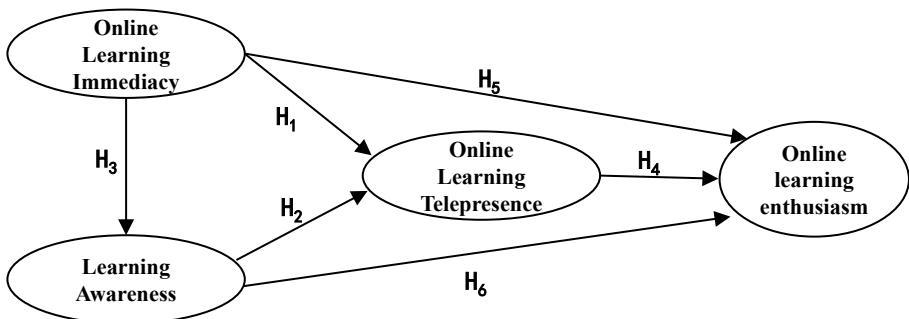


Fig. 1. Analysis Model

Based on the research assumptions made in the previous article, a structural equation model of college students' online learning enthusiasm is constructed (Fig 1). Use the questionnaire to obtain the corresponding data, and then use SPSS22.0 and AMOS22.0 software to carry out mathematical statistical analysis, so as to verify the goodness of fit of college students' online learning enthusiasm model.

4 Research Design

4.1 Questionnaire Design

The analysis on the influence mechanism of college students' online learning enthusiasm mainly uses four variables: college students' online learning enthusiasm, college students' online learning immediacy, college students' learning awareness and college students' online learning telepresence (Table 2).

4.2 Data collection and Samples Description

In October 2023, the questionnaire survey was carried out in the form of network in some majors of a university in Shandong Province in China, and 231 questionnaires were distributed based on students' gender, major, grade and other attributes (Table 1).

Table 1. Basic Information of Investigation Samples

Attribute	Category	Personnel	Proportion	Attribute	Category	Personnel	Proportion
Gender	male	106	45.89%	Major	Tourism Management	73	31.60%
	Female	125	54.11%		History	40	17.32%
Grade	2018	49	21.21%		Geography	48	20.78%
	2019	85	36.80%		Business Administration	43	18.61%
	2020	97	41.99%		Financial Engineering	27	11.69%

5 Data Analysis

5.1 Reliability and Validity of Data

The text presents results from a confirmatory factor analysis of 14 secondary indicators pertaining to online learning enthusiasm, telepresence, awareness, and immediacy. All indicators showed loadings >0.7 and <1 (p<0.05), indicating accurate representation. Table 2 displays reliability and validity test outcomes, affirming data robustness with favorable Cronbach's Alpha, composite reliability, and convergence validity values for each variable.

Table 2. Reliability and Validity Test Results of the Scale

Potential Variable	Observation Variable	Factor Load	Reliability Coefficient	Measurement Error	Combination Reliability	Cronbach's Alpha Coefficient	Coefficient Convergence Validity (AVE)
Online learning	Emphasis on learning	0.9044	0.8179	0.0331	0.9306	0.9121	0.7868

enthusiasm	Passion for online learning	0.8786	0.7720	0.0520			
	Self-control in learning	0.8562	0.7328	0.0713			
Online learning telepresence	Classroom performance level	0.9061	0.8210	0.0320			
	Classroom teaching	0.8843	0.7823	0.0475			
	Semantic expression	0.7931	0.6293	0.1376	0.9022	0.8706	0.7246
	Learning adaptability	0.8854	0.7842	0.0467			
	Technical environment	0.8319	0.6921	0.0949			
Learning awareness	Self-requirement	0.9094	0.8270	0.0299			
	Learning attitude	0.9230	0.8521	0.0219	0.9423	0.9028	0.8521
Online learning immediacy	Self-expectation	0.9359	0.8758	0.0154			
	Live streaming fluency	0.7874	0.6197	0.1444			
	Classroom response	0.9017	0.8130	0.0350	0.8955	0.8503	0.7603
	Classroom questioning	0.9116	0.8313	0.0286			

5.2 Fitting Degree and Hypothesis Test of College Students' Online Learning Enthusiasm Model

The results of the model paths analysis and hypothesis tests are summarized in Table 3. The normalized regression coefficients represent the strength and direction of the relationships between the variables. The standard errors (S.E.), critical ratios (C.R.), and p-values provide information about the significance of these relationships.

All tested hypotheses are accepted, and the relationships between the variables are found to be significant at various confidence levels.

Table 3. Model Paths Analysis and Hypothesis Test Results

Paths Analysis			Normalized Regression Coefficient	S.E.	C.R.	P	Hypothesis Test Result
Learning Awareness	<--	Learning Immediacy	0.8276	0.0392	2.4468	***	Accept
Learning Telepresence	<--	Learning Immediacy	0.5367	0.0296	1.6706	**	Accept
Learning Telepresence	<--	Learning Awareness	0.7874	0.0094	2.4595	***	Accept
Learning Enthusiasm	<--	Learning Telepresence	0.6164	0.0108	1.9842	***	Accept
Learning Enthusiasm	<--	Learning Awareness	0.6140	0.0098	1.9756	***	Accept

Table 4 delineates variable interactions. Online learning immediacy directly affects telepresence (path coefficient = 0.5367), while also indirectly influencing enthusiasm through three paths (cumulative path coefficient = 0.1140). Telepresence significantly impacts enthusiasm (path coefficient = 0.6164). Additionally, learning awareness directly influences both telepresence (path coefficient = 0.7874) and enthusiasm (path coefficient = 0.6140), highlighting its crucial role in shaping students' engagement and positive attitude toward online learning. Notably, while online learning immediacy demonstrates a limited direct impact on enthusiasm, the substantial influence of online learning telepresence and learning awareness emerges as critical factors in shaping and enhancing the overall enthusiasm displayed by college students in the digital learning landscape.

Table 4. Path Effect Analysis of the Model

Path Analysis	Direct Effect	Indirect Effect	Total Effect
Learning Immediacy→Learning Telepresence	0.5367		0.5367
Learning Immediacy→Learning Enthusiasm		0.1140	0.1140
Learning Telepresence→Learning Enthusiasm	0.6164		0.6164
Learning Awareness→Learning Telepresence	0.7874		0.7874
Learning Awareness→Learning Enthusiasm	0.6140		0.6140

6 Conclusion

This study explores college students' online learning enthusiasm, aiming to elucidate its primary components.

Firstly, the study reveals that learning awareness emerges as a potent factor significantly influencing online learning telepresence. Consequently, fostering college students' self-directed learning awareness and nurturing their creative thinking proves beneficial in enhancing their overall online learning enthusiasm.

Secondly, the study underscores the direct and impactful relationship between college students' learning awareness and their online learning enthusiasm. Strengthening learning awareness not only positively influences online learning enthusiasm but also alleviates psychological burdens. Creating an environment conducive to nurturing students' autonomous learning abilities is crucial for unlocking their latent learning potential and fostering a proactive attitude toward learning.

In essence, the study advocates for a holistic approach to enhance college students' online learning enthusiasm by recognizing the nuanced interrelationships between online learning immediacy, telepresence, learning awareness, and the overall learning experience.

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References

1. Apriana, D., Kristiawan, M., & Wardiah, D. (2019). Headmaster's competency in preparing vocational school students for entrepreneurship. *International Journal of Scientific & Technology Research*, 8(8), 1316-1330.
2. Baker, V. L., Christopher, A. N., & Noah, S. (2024). Expanding faculty development through capacity-building: An institutional case study. *Journal of University Teaching & Learning Practice*, 21(2), 11.
3. Ben Rebah, H., Barthes, D., & Carnus, M. F. (2023). Personal learning environment: instrument system for learning beyond the boundaries of the university. *Learning Environments Research*, 1-29.
4. Demetriouli, L., Keramioti, L., & Hadjicharalambous, D. (2021). Examining the relationship between distance learning processes and university students' anxiety in times of COVID-19. *European Journal of Social Sciences*, 6(2), 124.
5. Foen, N. S., Confessore, G. J., & Azlan, M. A. K. (2021). Chapter Two Fostering learner autonomy: Key to advancing learning in post COVID-19. In *Innovations in Teaching and Learning in the COVID-19 Crisis*, 15.
6. Ge, Z. G., Zhang, A. Y., Li, Y. F., et al. (2019). Exploring the impact of teachers' verbal immediacy as an emotion mediating factor on adult e-learners' language learning. *Journal of Educational Technology & Society*, 22(4), 77-89.
7. Hua, S., & Ren, Z. (2020). "Online+ Offline" course teaching based on case teaching method: a case study of entrepreneurship education course. *International Journal of Emerging Technologies in Learning (iJET)*, 15(10), 69-85.
8. Jiang, R. (2022). Understanding, Investigating, and promoting deep learning in language education: A survey on Chinese college students' deep learning in the online EFL teaching context. *Frontiers in Psychology*, 13.
9. Lou, L. (2021). Cultivation of Students' Autonomous Learning Ability in Application-oriented Universities. *Theory and Practice in Language Studies*, 11(4), 422-429.
10. Martha, A. S. D., Junus, K., Santoso, H. B., et al. (2021). Assessing undergraduate students' e-learning competencies: A case study of higher education context in Indonesia. *Education Sciences*, 11(4), 189.
11. Maru, M. G., Pikirang, C. C., Setiawan, S., et al. (2021). The internet use for autonomous learning during COVID-19 pandemic and its hindrances. *International Journal of Interactive Mobile Technologies (IJIM)*, 15(18), 65.

12. Simanjuntak, M. B., Suseno, M., Setiadi, S., et al. (2022). Integration of Curricula (Curriculum 2013 and Cambridge Curriculum for Junior High School Level in Three Subjects) in Pandemic Situation. *Ideas: Jurnal Pendidikan, Sosial, dan Budaya*, 8(1), 77-86.
13. Williams, R., Ali, S., Devasia, N., DiPaola, D., Hong, J., Kaputsos, S. P. & Breazeal, C. (2023). AI+ ethics curricula for middle school youth: Lessons learned from three project-based curricula. *International Journal of Artificial Intelligence in Education*, 33(2), 325-383.

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