Proceedings of ICILLP 2025 Symposium: Psychological Perspectives on Teacher-Student Relationships in Educational Contexts
DOI: 10.54254/2753-7048/2025.NS26706

The Impact of Short Videos on College Students' Cognitive Abilities and Learning Effect: Roles and Mechanisms

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Abstract. With the development of the times and the progress of society, the problem of addiction caused by using short video platforms for learning has received widespread attention. However, there are still shortcomings in the research on other issues arising from short videos and their standardized use. Exploring this topic in depth not only helps optimize digital education practices but also provides a theoretical basis for formulating scientific media usage norms. This article analyzes the impact of short videos on the learning ability of college students. This article analyzes that short videos have a dual impact on the learning ability of college students. Short video addiction, "information cocoons", fragmented information, and other issues have a significant negative impact on college students' learning. However, effectively utilizing online resources at different levels can help improve the learning outcomes of college students. Based on this analysis, the study proposes practical recommendations for leveraging short video content to enhance college students' cognitive abilities and learning outcomes. These suggestions target individuals, families, and schools as key stakeholders in the educational process.

Keywords: Short Video, Learning Ability, Short Video Issues

1. Introduction

In recent years, the widespread adoption of mobile devices and advancements in network technology have established short videos as a prominent medium for information dissemination, entertainment, education, and lifestyle-related content among internet users. According to the latest "Research Report on the Development of China's Online Audiovisual Industry" released, the user base of short videos is 1.04 billion, with a usage rate of 93.8%. The popularity of short videos is particularly prominent among college students. In this context, how to efficiently utilize short video resources in the learning process has become an important issue faced by contemporary college students.

Up to now, multiple studies have shown that short videos are playing an important role in college students' learning, providing them with new and convenient ways of learning. As Manasarah et al. have shown, short videos can effectively motivate students to engage in learning tasks by enhancing task focus [1]. Short videos can better stimulate learning interest and facilitate the sharing of cultural knowledge across regions, time limits, and industries. Jiang Zhongyan's research found that short videos, with their diverse content forms and vertical domain refinement, not only meet differentiated needs but also promote cognitive development [2]. Short video platforms have become accelerators

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in the learning process, playing a driving role in the learning of college students. However, research on the negative impacts of short videos and their standardized use is still insufficient. Given this, this paper is committed to an in-depth analysis of the impact mechanism of short videos on College Students' group learning ability.

2. The role of short videos in improving the learning ability of college students

2.1. Research on information provision in a mature technology environment

Short video platforms have gradually entered a period of technological maturity, and their information provision methods have demonstrated characteristics of intelligence, personalization, and contextualization. Supported by a mature technological environment, the information dissemination of short videos has broken through the traditional linear model and formed a personalized recommendation algorithm push mechanism. Through this algorithm, accurate content recommendation is achieved mainly by analyzing the characteristics of users and content. This directness not only improves the speed of information transmission but also significantly reduces the possibility of audience loss due to tedious content, and can improve the user experience and platform stickiness. At the same time, the innovation of the interaction mode has become the key to optimizing the efficiency of information provision. The traditional short video is mainly one-way transmission, and the current technology has supported richer interaction modes, such as real-time bullet review, AI-driven personalized question and answer, which significantly improved the user's participation and accuracy of information acquisition.

2.2. Short video application strategy based on students' learning needs

With the characteristics of simplicity and diversity, short videos are more in line with the learning thinking of artificial intelligence and digitization. In terms of education communication, short videos will fragment and entertain complex knowledge, which can improve learning efficiency. For example, short videos, with their refined duration and dense information features, accurately adapt to students' fragmented learning needs. This new form of knowledge dissemination not only conforms to the contemporary learners' pursuit of efficient and convenient learning but also effectively meets the learning needs of students at different levels through its unique content presentation, which has a positive impact on the improvement of learning ability. Research by the Chinese Academy of Educational Sciences shows that short video learning resources can help students focus on core knowledge points in a limited time and achieve efficient acquisition and internalization of knowledge. This learning mode is suitable for learners' cognitive habits and time management characteristics in the mobile Internet era, which proves its content adaptability. At the same time, the diversified content forms and vertically segmented content ecology of short videos can accurately cover the differentiated needs of different user groups, and also improve the cognitive level through different forms of short videos [2]. This highly segmented content supply mode not only meets the explicit needs of knowledge acquisition and skill improvement but also effectively improves students' cognitive level and meets their learning needs through diversified presentation forms such as animation demonstration, scenario simulation, and expert explanation.

Research has confirmed that videos with a duration of less than five minutes can better disseminate knowledge, attract more viewers, and help students enhance their abilities and skills in the learning environment [1]. Shorter videos can encourage students to participate in task-related activities and avoid activities unrelated to tasks, so as to promote better learning. However, the

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network environment strengthens users' cognition of some content through high-frequency repetition. Although it helps to consolidate knowledge, it may also lead to problems such as stereotyped thinking or limited information. For example, over-reliance on the network short video environment may lead to the degradation of cognitive ability. When users passively receive the same kind of information filtered by the algorithm for a long time, their ability to actively retrieve and distinguish information will gradually weaken, and it is difficult to exercise critical thinking, making it difficult for people to think deeply.

3. Problems and impacts caused by short videos

3.1. Effect of short video addiction on college students' learning self-efficacy

Short video addiction refers to a phenomenon of Internet use disorder in which individuals have a strong impulse to watch because of their weak self-control ability in the process of using smartphones and short video platforms, and it is difficult to inhibit their use behavior. However, learning self-efficacy is the belief that individuals have enough ability to complete learning tasks and achieve academic goals. Many studies have shown that the influence of addiction on emotional and psychological problems is more negative than positive [3,4]. It can also lead to negative learning motivation [3]. Therefore, the high degree of short video addiction will hurt students' self-efficacy. According to Bandura's self-efficacy theory, individuals' confidence in their abilities affects their attitude and code of conduct when facing challenges [5]. Short video addiction may weaken the self-regulation ability of individuals, interfere with the learning process, and then reduce their confidence in their learning ability. Academic self-efficacy plays a significant mediating role between short video addiction and learning performance, in which negative learning emotion and alternative experience are the two key paths.

In the influence of mobile phone addiction on self-efficacy, procrastination plays a significant mediating role [6]. Procrastination not only makes college students face time pressure and task backlog in academic tasks, but also easily leads to anxiety, guilt, and other negative emotions, which weaken their confidence in their ability. With the popularity of smart devices, the instant gratification of short videos aggravates the tendency of procrastination, and the two show a significant positive correlation. This suggests that short video addiction may indirectly affect college students' learning self-efficacy by inducing procrastination. Given the close two-way relationship between self-efficacy and procrastination, improving college students' self-efficacy helps to enhance their time management ability and task persistence, so as to effectively alleviate the learning difficulties caused by short video addiction.

Second, in terms of alternative experience, Individuals often evaluate their abilities by observing the behavior of others and their results. However, the short video platform is full of a large number of "success cases" that have been beautified or exaggerated. For example, counterattack in a short time, easy to get high scores, or quick realization of wealth freedom, these contents are often divorced from reality and lack replicability. Long-term exposure to such information may lead to college students' unrealistic learning expectations, resulting in a comparative psychology of "others can do it, but I can't", and thus reducing self-evaluation and self-efficacy. At the same time, the high-frequency stimulation and fragmented content of short videos occupy a lot of time and energy, reducing the opportunities for college students to participate in real academic activities, practical projects, or social exchanges, limiting the possibility of obtaining positive alternative experiences, and further weakening the development of self-efficacy.

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Regarding the results of the current study, Short video addiction has been proven to hurt students' academic self-efficacy. Therefore, it is emphasized that families and schools should help college students get rid of short video addiction, improve their understanding of short video addiction, cultivate their self-efficacy, and further stimulate their interest in learning and career development.

3.2. The influence of short video "information cocoon room" on college students' learning under algorithm recommendation technology

The concept of the information cocoon room was first proposed by American scholar Sonstein in 2006. Research shows that the factors leading to serious information cocoon are the diversity of some video content and user preferences [7]. Under the coverage of the Internet, people pay more attention to the fields they are interested in and habitually make themselves feel relaxed and happy. Over time, the information obtained from the outside world tends to be more and more unitary and homogeneous, which leads to the solidification of thinking and the reduction of innovation and critical thinking.

Sensory stimulation in entertainment content will become the first field to be impacted by the phenomenon of "information overload" [8]. Over-indulging in the entertaining and fragmented information content of short videos and watching for a long time will lead to college students' thinking inertia and weaken their logical thinking ability to deal with abstract and complex problems. At the same time, the tendency of entertainment supremacy and bad values in short videos will also affect the value judgment of college students, resulting in an impulsive and utilitarian learning attitude. This is not conducive to the development of the physical and mental health of college students.

As for the results of the current research, the problem of the "information cocoon room" in the short video is mostly negative for college students' learning. Therefore, it should standardize students' attitudes and ways of using new media from the social, family, and personal levels, and guide them to form diversified, inclusive, and critical habits of using new media.

3.3. Effect of short video application on college students' mental health

The application of short videos is widely popular among college students. Its convenience and entertainment have brought many attractions, but it also has a complex impact on mental health. For example, humor healing short videos can provide short-term emotional release and effectively relieve academic pressure. However, the use of short videos may trigger social comparisons, leading to anxiety and depression. For example, the display of other people's "bright" lives will lead to their sense of imbalance and reduced self-evaluation. Secondly, relying on online interaction may lead to the degradation of real social skills, and weakening the depth and quality of real interpersonal relationships will lead to increased loneliness. At the same time, the algorithm mechanism of the short video platform tends to push extreme content with emotional incitement (such as opposing arguments and exaggerated information), which may lead to the accumulation of negative emotions such as anxiety and anger by continuously stimulating the emotional response of college students, and then cause long-term psychological fluctuations and instability.

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4. Suggested solutions for the correct use of short videos

4.1. Self-regulated learning through short video messages

College students can improve their self-regulation ability by setting goals and making corresponding plans, and reconstruct the attention mechanism with the help of micro-interval training. In other words, the interval viewing mode uses the natural segmentation characteristics of short videos to strengthen attention muscle memory. At the same time, students can use self-monitoring to achieve in-depth reflection and transform the fragmentary information of short video content into a system framework, so as to transform short video content into an effective learning tool.

In terms of learning self-regulation response ability, self-regulation learning (SRL) has both preconditions and follow-up effects, both of which will have an impact on learning outcomes [9]. Therefore, there is a two-way dynamic game relationship between SRL and short-time frequency use. For example, high SRL learners can transform the "dynamic and fragmented" information in short videos into effective learning. In other words, through continuous reflection to recognize their advantages and disadvantages and targeted improvement, it can effectively improve the learning effect [10]. SRL requires learners to understand their learning style, strengths, and weaknesses, to enhance their self-awareness, better plan their personal learning and development path, and improve their learning enthusiasm and initiative. However, the cultivation of SRL can be combined with strategy training, motivation stimulation, environmental design, and so on to form a multidimensional intervention system. For example, starting from the metacognitive training of a single course, guide students to set specific and achievable learning goals and make phased plans. Then gradually expand to interdisciplinary applications, and finally realize the development of students' lifelong learning ability.

The special stimulation attributes of short videos (fast rhythm, high sensory load) can reshape the attention mechanism. Therefore, learners' attention in the learning process will also affect the learning effect [11]. Through self-monitoring and adjusting attention, students gradually form self-learning habits and develop their self-learning ability. At the same time, reshaping the attention mechanism requires students to remain focused in the face of learning problems and find effective solutions, which helps to improve the ability to solve problems. For example, the information can be processed in blocks, and the long-term learning task can be divided into 15-25 minutes of attention units. After each unit, 2 minutes of eye-closed recall can be arranged to keep it in an efficient learning state in the fragmented information environment.

At the same time, the reflective stage of self-regulation can improve the quality and efficiency of learning. Therefore, the reflection stage has a positive impact on learning performance by directly or indirectly optimizing learning methods, which is an important feature of SRL [12]. In addition, through the circular feedback mechanism, the self-regulated reflection stage can continuously strengthen the preparation and implementation stages, so as to continuously improve the learning effect [13]. The reflection stage also meets the needs of current education, helps students adapt to a personalized and differentiated teaching environment, and helps students' all-around development. For example, through self-monitoring, students can be encouraged to use learning logs or digital tools to record learning progress, preview before class, and regularly reflect on the completion, which can effectively improve the learning effect of students.

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4.2. The innovative fit between ideological and political education and short video behavior

The popularity of short video platforms has brought a new perspective and method for ideological and political education. Ideological and political education is not only related to students' personal growth, but also an important cornerstone of national and social development. In this context, the combination of Ideological and political education and short video behavior innovation to guide students to form scientific and healthy use habits must be closely combined with the construction of College Students' Core Beliefs, and use short videos to spread positive energy. At the same time, in innovating the form of Ideological and political education, colleges and universities must be based on problem orientation, constantly improve the media literacy and media application ability of Ideological and political educators, and consolidate their education position by innovating the working mode [14].

In terms of behavior habit cultivation, ideological and political education can guide students to reasonably plan the use of short videos through the concept of "self-management". It helps students recognize the negative impact of excessive addiction to short videos on learning efficiency and quality of life, and encourages them to develop a "daily screen time plan", which can use the "digital health" function of mobile phones for self-monitoring.

4.3. Integration of short video and online education

The integration of short videos and online education is promoting the innovative development of digital learning. Short video enriches the form of online education with its advantages of fragmentation, visualization, and strong interaction, while the systematic characteristics of online education effectively make up for the limitations of short video learning, and the two form a two-way interactive relationship with complementary advantages.

Short video, in its short, vivid, and intuitive form, significantly improves the learning experience of online education. For example, short videos can help improve learners' understanding and memory efficiency through animation and scenario simulation. Although short video has significant advantages, their fragmentation characteristics and problems, such as "information cocoon room," also easily lead to problems such as knowledge system fragmentation and insufficient in-depth learning. The online education platform can alleviate these disadvantages in an effective way and can build a hybrid learning path to connect scattered knowledge points into a systematic curriculum system. Secondly, the online education platform designs ladder learning tasks, guides learners from the short video entry to in-depth exploration, according to the performance of students, dynamically adjusts the follow-up learning difficulty, and achieves individualized teaching.

5. Conclusion

Through the analysis of the current situation of campus short video and college students' learning ability, this paper finds that short video, as a new carrier of knowledge dissemination, has penetrated the field of college education with its characteristics of fragmentation, interactivity, and visualization, affecting college students' learning cognitive mode and behavior habits. However, short videos distract students' attention and weaken their deep thinking ability to a certain extent. How to use and how to guide all sectors of society has become an important issue for educators. The content innovation of short video platforms, the diversification of communication methods, and the flexibility of participation are all important advantages of its application in learning education. Therefore, the organic combination of short videos and college education is not only a need to deal

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with the challenges of network informatization, but also an effective way to improve the effectiveness of education.

References

[1] Manasrah, A., Masoud, M., & Jaradat, Y. (2021). Short Videos, or Long Videos? A Study on the Ideal Video Length in Online Learning. In 2021 International Conference on Information Technology (ICIT), 366-370.
[2] Jiang, Z. (2025). Production and Innovative Dissemination of Short Video Media. Content Journalist Cradle, (08), 96-98.
[3] Ye, J. H., Wu, Y. T., Wu, Y. F., Chen, M. Y., Ye, J. N. (2022). Effects of Short Video Addiction on the Motivation and Well-Being of Chinese Vocational College Students. Front. Public Health, 10, 847672.
[4] Błachnio, A., Przepiorka, A., SenolDurak, E., Durak, M., Sherstyuk, L. (2017). The Role of Personality Traits in Facebook and Internet Addictions: A Study on Polish, Turkish, and Ukrainian Samples. Comput. Hum. Behav., 68, 269-275.
[5] Bandura, A. (2024). Self-Efficacy: Toward a Unifying Theory of Behavioral Change. Adv Behav Res Ther. 1978; 1 (4): 139–61.
[6] Zhao, Z., Kou, Y. (2024). Effects of Short Video Addiction on College Students' Physical Activity: The Chain Mediating Role of Self-Efficacy and Procrastination. Front Psychol., 15: 1429963.
[7] Li, N., Gao, C., Piao, J., Huang, X., Yue, A., Zhou, L., & Li, Y. (2022). An Exploratory Study of Information Cocoon on Short-Form Video Platform. In Proceedings of the 31st Acm International Conference on information & Knowledge Management, 4178-4182.
[8] Zhao, Y. (2023). The Impact of the "Information Cocoon" on the Perceptions of Chinese Youth and Ways to Improve Them. (eds.). Proceedings of the 2nd International Conference on Interdisciplinary Humanities and Communication Studies(part 1), Communication University of China, 622-628.
[9] Zimmerman, B. J., & Schunk, D. H. (Eds.). (2013). Self-Regulated Learning and Academic Achievement: Theoretical Perspectives. Routledge.
[10] Raković, M., Bernacki, M. L., Greene, J. A., Plumley, R. D., Hogan, K. A., Gates, K. M., & Panter, A. T. (2022). Examining the Critical Role of Evaluation and Adaptation in Self-regulated Learning. Contemporary Educational Psychology, 68, 102027.
[11] Schunk, D. H., & Zimmerman, B. J. (2007). Influencing Children's Self-Efficacy and Self-Regulation of Reading and Writing Through Modeling. Reading & Writing Quarterly, 23(1), 7–25.
[12] Yu, H. H., Hu, R. P., & Chen, M. L. (2022). Global Pandemic Prevention Continual Learning—Taking Online Learning as an Example: The Relevance of Self-regulation, Mind-Unwandered, and Online Learning Ineffectiveness. Sustainability, 14(11), 6571.
[13] Cleary, T. J., Velardi, B., & Schnaidman, B. (2017). Effects of the Self-Regulation Empowerment Program (SREP) on Middle School Students' Strategic Skills, Self-efficacy, and Mathematics Achievement. Journal of School Psychology, 64, 28-42.
[14] Wei, P. (2023). The Challenge and Response Strategies of Short Video Entertainment to Ideological and Political Education in Universities. Media, (7), 81-83.