

# A Study on the Two-way Impact of Online Learning Platforms on Learning Outcomes in Higher Education

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**Abstract:** The purpose of this study is to investigate the positive and feedback effects of online learning platforms on learning outcomes in higher education. Through a comprehensive study from the perspectives of learners and educational institutions, it reveals the role of online learning platforms in facilitating learning outcomes in terms of learning resources, learning flexibility, and learning motivation. At the same time, this study also explores the feedback effects of higher education learning outcomes on online learning platforms, including learners' satisfaction with online learning platforms, the association between academic performance and online learning platforms, and the interactive effects of learning experiences and online learning platforms. By analyzing the factors and mechanisms of two-way influence, this study aims to provide insights into the development of higher education learning and online learning platforms.

**Keywords:** Online learning platform; Higher education; Learning effectiveness; Two-way impact

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## 1. The impact of online learning platform on the learning effect of higher education

### 1.1 The impact of online learning platform on learners

1.1.1 Richness of learning resources. Online learning platforms provide diversified learning resources, such as teaching materials, videos, online discussions, etc., which enrich learners' learning contents and ways. For example, the Chongqing Higher Education Smart Education Platform brings together all kinds of high-quality courses, including information technology, foreign languages, culture and art and many other fields, to meet the needs of different learners.<sup>[1]</sup>

1.1.2 Increased learning flexibility and autonomy. Online learning platforms allow learners to schedule their learning at their own pace and time, providing flexibility and enhancing learner autonomy. <sup>[2]</sup> For example, Beijing Normal University's Chinese Philosophy has been offered eight times on the China University MOOC platform, with more than 10,000 students taking the course each time it is offered, allowing learners to arrange their own study schedule according to their interests and progress.

1.1.3 Increased motivation and engagement in learning. The online learning platform has stimulated learners' motivation and increased their participation through a variety of learning methods and interactive features. For example, the Calculus offered by Professor Su Demin of Zhejiang University presents the course content in various forms such as videos, animations, and tests, and also sets up interactive areas such as discussion forums and Q&A areas to encourage communication and cooperation among students.

### 1.2 The impact of online learning platforms on educational institutions

1.2.1 Transformation of teaching mode. Online learning platforms promote the transformation of the traditional teaching model into an innovative model, and facilitate the renewal of teaching methods and strategies of educational institutions. <sup>[3]</sup> For example, Hangzhou Normal University uses online courses to realize the hybrid teaching mode of "online and offline", using online courses as basic courses and offline courses as extension courses, realizing the effective combination of teaching and learning, online and offline, theory and practice.

1.2.2 Optimization and integration of teaching resources. The online learning platform integrates various teaching resources, enabling educational institutions to better utilize and manage educational resources and improve teaching efficiency and quality. For example, the national first-class undergraduate course "Appreciation of Chinese Heirloom Paintings" is jointly offered by several universities such as Peking University, Tsinghua University and the Central Academy of Fine Arts, which showcases the best Chinese

masterpieces of paintings through the ages online and invites several experts to comment and interpret them.

1.2.3 Improvement of teaching quality. Online learning platforms provide assessment and feedback mechanisms, and educational institutions can keep abreast of students' learning, make targeted teaching adjustments and support, and improve teaching quality. For example, Kong Xiao et al. analyzed the current situation of online education during the epidemic and found that most college students were satisfied with the effect of online learning, the online learning provided students with abundant learning resources, and the interaction between teachers and students was more frequent.

## **2. The influence of higher education learning effect on online learning platform**

### **2.1 Learners' satisfaction with online learning platform**

Learners' satisfaction is an important indicator of the quality and effectiveness of online learning platform. The learning effect of higher education is closely related to the functionality, friendliness of the interface and richness of learning resources of the online learning platform. When learners are more satisfied with the online learning platform, they are more likely to actively participate in learning activities and more willing to use the resources and tools provided by the platform, thus enhancing the learning effect. At the same time, the effectiveness of higher education learning will in turn affect learners' satisfaction with the online learning platform. When learners' academic performance, learning experience, and motivation improve, they will also rate the online learning platform's features, interface, and resources more highly.

### **2.2 The relationship between learners' academic performance and online learning platforms**

Online learning platforms have a direct or indirect impact on learners' academic performance. First, online learning platforms provide rich learning resources and learning support tools, such as textbooks, videos, tests, discussions, etc., which enable learners to deepen their understanding and mastery of knowledge, improve their ability and quality through independent or interactive means, and thus have a positive impact on their grades. For example, a junior student majoring in computer science took the Calculus course offered by a professor at Tsinghua University online, watched the video lectures online, completed the post-class assignments and quizzes, and exchanged his experiences with other students in the discussion forum, through which he not only consolidated the basic knowledge of calculus, but also improved his mathematical logic and problem-solving ability, and finally achieved In the final exam, he got excellent results. Secondly, the online learning platform also provides classroom assignments, quizzes and assessments, which can help learners understand their learning situation in a timely manner, identify and remedy weaknesses in their knowledge, and thus improve their performance. For example, a sophomore English major took the English Writing course offered by a professor at Peking University online, read the textbook and model essays online, completed the weekly writing assignments, and checked the evaluation and suggestions of her teacher and peers on her work in the assessment section. Through this course, she not only improved her English writing, but also found and corrected her mistakes in grammar, word choice and logic, and finally achieved excellent results in the final exam.

### **2.3 The connection between learners' learning experience and the online learning platform**

The learning experience of learners is closely related to the interactive effect of the online learning platform. The design and functions of the online learning platform in terms of interface friendliness, interactivity in the learning process, and personalized learning support have an important impact on the learners' learning experience. A good learning experience can stimulate learners' interest and motivation in learning and enhance their participation and engagement. For example, online learning platforms that provide diverse learning resources, personalized learning paths, and customized learning feedback can help learners better understand and absorb knowledge and increase their satisfaction and self-confidence. For example, a freshman history major took a course on Chinese Philosophy offered by a professor at Beijing Normal University through the online platform, watched the video lectures online, read the textbook and reference materials, and raised his questions and opinions in the Q&A section. Through this course, he not only expanded his knowledge horizons, but also stimulated his interest and thinking about Chinese philosophy, and finally achieved excellent results in the final exam.

## **3. Factors and mechanisms of two-way influence**

### **3.1 The influence of learners' characteristics on the online learning platform and the learning effect**

The individual characteristics of learners have an impact on the online learning platform and the learning effect. Characteristics such as learning style, technical ability and self-discipline are closely related to the suitability of online learning platforms and the choice of learning strategies. For example, learners who prefer interactive and collaborative learning are more likely to benefit from the collaborative tools and social features provided by online learning platforms, thereby improving learning outcomes. Therefore,

the diversity of individual learner characteristics needs to be considered in the design of online learning platforms to meet the needs of different learners and improve learning effectiveness.

### **3.2 The influence of the design and functions of online learning platforms on learning effectiveness**

The design and functional features of the online learning platform have a direct impact on the learning effect. The design and features of the interface ease of use, personalized learning support, and feedback mechanism can provide better learning experience and learning support, thus promoting the improvement of learning effect. For example, clear and concise interface design and personalized learning path settings can help learners better organize and manage learning content and improve learning outcomes. Therefore, the design of the online learning platform should focus on user experience and personalized needs, and provide rich and easy-to-use functions to enhance the learning effect.

### **3.3 Influential relationship between social interaction and online learning platform**

Social interaction plays an important role in online learning platforms, and there is a mutual influence relationship between it and learning effectiveness. Communication, collaboration and mutual assistance among learners, as well as interaction between teachers and students, can promote knowledge sharing and learning motivation, and thus have a positive impact on learning effectiveness. Online learning platforms provide social features such as discussion forums, instant messaging, and collaboration tools that offer learners the opportunity to interact with peers and instructors. By discussing and communicating with others, learners can share knowledge, solve problems, and motivate and support each other, thus contributing to improved learning outcomes.

In summary, learner characteristics, online learning platform design and functionality, instructional strategies, and social interactions interact to influence the relationship between online learning platforms and learning outcomes. Learners' individual characteristics influence their adaptability to the online learning platform and their choice of learning strategies, while the design and functions of the online learning platform can meet learners' needs, and the reasonable use of teaching strategies and the promotion of social interactions can improve learners' participation and learning effectiveness. Therefore, in the online learning environment, these factors need to be considered comprehensively and corresponding strategies and measures need to be developed to optimize the two-way influence relationship between the online learning platform and the learning effect.

## **4. Conclusion**

This study has explored the two-way impact of online learning platforms on learning outcomes in higher education, revealing the advantages and influencing factors of online learning platforms. Online learning platforms can provide rich learning resources, flexible learning styles and enhanced motivation to improve learner satisfaction, performance and experience. It is also necessary to consider learner characteristics, the design of the platform, teaching strategies and social interaction to optimise the interactive effects of online learning platforms. This study provides insights and guidance for the development of higher education and online learning platforms, encouraging educational institutions, teachers and learners to make the most of the opportunities of online learning platforms to enhance learning effectiveness and outcomes. It also provides references and ideas for future in-depth research on the relationship between online learning platforms and learning outcomes in higher education.

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