Journal of Innovation and Development
ISSN: 2958-4752 | Vol. 10, No. 2, 2025

Study on the Effect of Autonomous Learning of College Students in the Online Education Model

Mingyue Qi[1, a]

[1]College of Psychology, Zhejiang Normal University, Applied Psychology, Jinhua, China
[a]qi_mingyue@126.com

Abstract: With the arrival of the 5G era, the widespread application of "Internet+" has greatly influenced various fields, especially online education, which breaks the limitations of time and space, providing high-quality educational resources for global users. Researching the learning outcomes of college students under this new model is crucial for understanding educational technology changes and can provide scientific guidance for future educational development. Based on theories such as constructivism, this study conducted a survey on the learning effects of college students in the online education model and the factors influencing them. The results show that most students are satisfied with their autonomous learning effects, and gender, grade, and major have little impact on learning outcomes. However, autonomous learning ability significantly and positively influences learning effectiveness. In the context of digital communication, the Internet not only changes the way information is transmitted but also reshapes the educational ecosystem. The application of tools such as online platforms and mobile applications makes personalized learning paths possible, while also requiring schools and teachers to innovate teaching methods and use digital technologies to enhance teaching interaction and feedback efficiency. Therefore, cultivating students' awareness of autonomous learning, stimulating learning motivation, strengthening the cultivation and training of autonomous learning abilities, and building a positive online education environment are of great significance for improving learning outcomes and promoting students' overall development.

Keywords: Online education; College students; Autonomous learning outcomes.

1. Introduction

With the development of science and technology and the rise of the knowledge economy, countries around the world are paying more attention to teaching students how to learn, building lifelong learning systems, and creating learning societies. These have become the goals of educational reforms and developments globally, which means learners must gradually shift from a passive, teacher-directed learning state to autonomous learning in order to improve their agency, subjectivity, and independence. Autonomous learning is essentially a mode where the learner independently controls their learning process. Unlike teacher-directed learning, autonomous learning is more reflected in the learning process, where learners adjust the learning environment, learning motivation, tasks, and strategies according to their own needs, and take responsibility for their learning. With the gradual popularization of online education, students are now learning from home, and autonomous learning ability has become one of the important factors influencing learning outcomes.[1] To improve the effectiveness of college students' autonomous learning in the online education model, it is essential to develop strong autonomous learning abilities, teach students how to effectively use learning resources, adjust their learning based on their progress, identify problems in the learning process, actively communicate with teachers, collaborate with peers, and achieve the transformation of knowledge and skills.

The concept of "Internet+education," or online education, has been extensively studied abroad, but research on online education in China started relatively late and developed slowly, with an uneven distribution of educational resources. This study aims to investigate the effectiveness of college students' autonomous learning under the online education model, starting from the research background and the current state of research at home and abroad. Based on relevant theories, a survey was conducted, and through data analysis, issues were identified and related suggestions were proposed.

2. Survey on College Students' Autonomous Learning Effect in the Online Education Model

(a) Research Method

This study used an electronic questionnaire via the Wenjuanxing platform, which was randomly sent to 140 college students. [2]The students filled out the questionnaire anonymously. Based on the collected data, the study conducted statistical analysis on the autonomous learning abilities of college students under the online education model, and further explored the effectiveness of online autonomous learning.

(b) Research Subjects

A total of 140 college students were randomly selected as the subjects for this study. Among them, 63 were male (55.3%), and 51 were female (44.7%). In terms of year of study, 17 were freshmen (14.9%), 23 were sophomores (20.2%), 31 were juniors (27.2%), and 43 were seniors (37.7%). The survey also examined the students' major categories: 30 students were in liberal arts (26.3%), 27 in science and engineering (23.7%), 24 in arts (21.1%), and 33 in other categories (28.9%).

(c) Measurement Tools

A total of 140 questionnaires were distributed, with 114 valid responses, resulting in an effective response rate of 81.4%. The questionnaire was designed to assess the basic information (gender, major, year), learning outcomes, learning interest, and the autonomous learning abilities (self-

control, internet operation skills, learning strategies, online listening and understanding) of the respondents, as well as external influencing factors. Eighteen questions were included in total, all randomly arranged. [3]Questions Q1-Q3 collected demographic information, Q4 was a multiple-choice question that identified external factors affecting autonomous learning in the online education model, and Q5-Q17 measured the respondent's autonomous learning abilities and learning outcomes using a Likert-type scale (1-5, from "strongly disagree" to "strongly agree"). Q18 was a single-choice question regarding students' learning interest. The questionnaire demonstrated good reliability and validity.

(d) Results Analysis

Overall Situation Analysis

A total of 114 valid samples were collected, with 63 male respondents (55.3%) and 51 female respondents (44.7%). While the number of male students was slightly higher, the overall difference was not significant, indicating no major gender differences in accepting online education. The results show that most students agree that their learning effectiveness in the online education model is positive. Specifically, 19.3% of respondents strongly agreed and 34.21% somewhat agreed that their learning effectiveness was good. 31.58% agreed to a moderate extent, 8.77% somewhat disagreed, and 6.14% strongly disagreed. These results indicate that most students are relatively satisfied with their autonomous learning outcomes in the online education model[4].

An independent sample t-test was performed to analyze whether gender affects students' learning outcomes in the online education model. The F-value was 1.508, and the significance level (p) was 0.478, which is much greater than 0.05. This suggests that gender does not significantly affect learning outcomes in the online education model, meaning there is no difference in learning outcomes between male and female students at a 95% confidence level.

Analysis of Internal Factors Affecting Autonomous Learning Outcomes

The study performed linear regression analysis on the four internal factors—self-control, internet operation skills, learning strategies, and online listening and understanding—and found that all four factors had positive standardized regression coefficients, with p-values less than 0.01. This indicates that these factors significantly and positively influence students' autonomous learning outcomes at a 99% confidence level. To improve learning outcomes in the online education model, students need to improve their self-control, master internet operation, apply appropriate learning strategies, and enhance their understanding of online lectures.

Analysis of External Factors Affecting Autonomous Learning Outcomes

According to the multiple-choice question Q4 "What difficulties or problems have you encountered in autonomous learning under the online education model?" the following external factors were identified: lack of a focused learning environment, not knowing how to evaluate online learning effectiveness, the abundance of internet resources that are difficult to navigate, inability to interact face-to-face with teachers to solve problems in time, distractions from online games and videos, and other factors. The results showed that 73.68% of students chose "lack of a focused learning environment" and "not knowing how to evaluate online learning effectiveness," while 71.05% selected "the abundance of internet resources," and 51.75% chose "inability to interact with teachers face-to-face." These findings suggest that the learning environment, evaluation mechanisms, and the complexity of online resources are the primary external factors affecting students' autonomous learning effectiveness.

3. Strategies to Improve College Students' Autonomous Learning Effectiveness in the Online Education Model

(a) Cultivating Students' Awareness of Autonomous Learning

According to the research results, although most students are satisfied with their autonomous learning outcomes, their awareness of autonomous learning is not strong. Many students use the internet more for socializing and entertainment rather than studying[5]. Therefore, it is essential to enhance students' awareness of autonomous learning, especially through freshmen orientation and career planning courses. By recognizing the importance of autonomous learning, students can shift from "learning because I have to" to "learning because I want to" and from "forced learning" to "proactive learning."

(b) Stimulating Students' Learning Motivation

Based on the Yerkes-Dodson law in psychology, learning motivation significantly impacts work efficiency. Motivation needs to be stimulated to enhance students' cognitive intrinsic drive, which is crucial for promoting autonomous learning. The study found that most students use the internet for entertainment and socializing, with only 22.81% using it for learning. Therefore, motivating students to learn and enhancing their cognitive drive will improve learning outcomes[6].

(c) Strengthening the Development and Training of Autonomous Learning Abilities

Students need to learn how to devise appropriate learning strategies and reflect on their learning process. Many students, especially those with lower levels of learning ability, tend to struggle with online autonomous learning due to their inadequate ability to adjust learning methods. Therefore, it is crucial to improve their ability to identify and correct learning issues during the learning process.

(d) Creating a Positive Online Learning Environment

Establish an effective evaluation and resource system for online autonomous learning. Teachers should implement an "electronic portfolio" system to assess and analyze students' actual learning outcomes from online courses, providing personalized assistance and using feedback to improve learning evaluation mechanisms[7].

4. Conclusion and Future Outlook

The study suggests that improving students' autonomous learning effectiveness in online education requires stimulating their autonomy and interest, enhancing learning motivation, and creating a supportive learning environment. Building a robust evaluation system and refining online learning resources are key to improving learning outcomes. Moreover, students should strengthen self-management, improve self-control, and become adept at using learning strategies, while also learning how to provide self-feedback during their online education experience.

References

[1] Jiang Ye. Study on the Factors Affecting Elementary Students' Autonomous Learning Ability under Flipped Classroom[D]. Central China Normal University, 2020.

[2] Qiu Defeng, Li Yanxi, Yu Zeyuan. International Research Trends and Frontiers on Autonomous Learning in Students[J]. Teaching Research, 2021, 44(01):7-15.

[3] Zhu Chaocai, He Liangjing, Ma Jie. Research on Strategies for Cultivating Students' Autonomous Learning Ability during the Pandemic[J]. Journal of Tonghua Normal University, 2020, 41(04):84-87.

[4] Zhang Yusheng, Wang Weijiang. Teaching Reform of Ideological and Political Courses in Universities under the Background of MOOCs[J]. Education Observation (Monthly Edition), 2015.

[5] Lü Linhai. A Survey of the Regional and Provincial Distribution of Quality Teaching Resources in Basic Education[J]. Shanghai Education Research, 2019:5-9.

[6] Nancy J. Stone. Exploring the Relationship between Calibration and Self-Regulated Learning[J]. Educational Psychology Review, 2000, 12(4):437-475.

[7] Autonomous Learning[M]. East China Normal University Press, by Pang Weiguo, 2003.