

The Influence of Students' Learning Behavior on Their Academic Performance in Online Teaching

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Abstract: Live online teaching activity is a new teaching method, teachers can detect students' learning behavior through online teaching form, and then predict its impact on academic performance. This paper takes the college students using the Wisdom Tree platform as the research object, analyzes the students' learning behavior in online live teaching and its influence on their academic performance. The results show that online learning behavior can positively predict students' academic performance, that is, the more online learning behavior students have, the more significant their academic performance will be. Among them, the number of students reading announcements online has a significant positive correlation with their academic performance. Conclusion: The application of information platform in online live teaching will affect students' academic performance.

Keywords: Online live teaching; Learning behavior; Academic performance; Information management platform

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1. Introduction

The online course digitizes the offline teaching content and teaching process, and carries out the online teaching and learning process based on the course content with the learning management system as the carrier ^[1]. At present, the existing research on the correlation between learning behavior pattern and learning effectiveness mainly analyzes the online participation of the whole learning management system or discussion activities. By exploring the relationship between the total duration of watching teaching videos, the number of login times, the number of replying to course information, the number of discussions created and the final course score, the learner's course score can be predicted ^[2]. Online learning behavior has been proved to be closely related to learning performance. Learning behavior can be used as an important representation to predict students' learning performance. By monitoring learning behavior, students can be guided to carry out beneficial learning behaviors, thus improving the effective learning ratio of students ^[3].

Based on the above background, this study will carry out the course "Personality Psychology" and take psychology majors and non-psychology majors as the investigation objects to explore the influence of online learning behaviors of students, including the total number of pages of PPT viewing, class attendance rate, the total number of times of publishing barrage, the number of times of reading announcements and other indicators on their academic performance.

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2. Research method

2.1 Objects of investigation

In this study, 164 undergraduates of different grades were selected to participate in the teaching experiment, taking general educa-

tion elective courses as the carrier, in order to investigate the application of information management platform in the teaching process of live online courses and its influence on students' academic performance. In this study, materials on Personality and Mental Health on the Wisdom Tree platform of online learning were used as analysis data

2.2 Application of information platform

In order to collect the process data of teaching management, this study applied the Changjiang Yu classroom information management platform. This platform is a new smart teaching voucher jointly launched by Tsinghua University and Xuetang Online, which can effectively record various classroom management behaviors such as attendance, classroom barrage, exercise push and student grouping. In this study, data such as students' slide viewing, class attendance and bullet screen are mainly collected, which can reflect students' pre-class preview and classroom interaction. Through the understanding of these behavioral data, students' online learning situation is predicted, and the relationship between it and academic performance is explored.

2.3 Collection of academic achievements

In this study, the investigation of students' academic performance is mainly based on the total score of students' mid-term examination and final examination, among which the mid-term score and final score account for 50% respectively. It mainly examines students' understanding and application of basic knowledge of the course, and students' academic performance can better reflect students' learning and mastering of the course knowledge.

2.4 Organization and implementation of teaching

In order to avoid the interference to normal teaching, this study combined the arrangement of semester teaching tasks and completed 18 weeks of classroom teaching tasks for students. In addition, Yangtze River Rain classroom information management platform was applied in teaching to carry out daily teaching management, such as student attendance, questioning, announcement, teaching courseware push, etc.

2.5 Data collation and analysis

Using the background management of Yangtze River Rain classroom, the relevant data of classroom teaching are derived and matched and integrated with students' academic performance. SPSS 26.0 (trial version) statistical analysis software was used for data analysis. Descriptive statistics, correlation analysis, regression analysis and other statistical analysis methods were used to discuss the influence of students' online learning behavior on academic performance.

3. Result

3.1 Descriptive analysis of students' online learning behavior and academic performance

According to descriptive statistics, the average attendance rate is the highest, which may be related to the assessment rate of teachers. The attendance rate is also a part of the assessment results. The average value of the total assessment results is also high, indicating that students pay more attention to their academic results, and it is also related to the attendance rate.

3.2 Correlation analysis between students' online learning behavior and academic performance

Correlation analysis results show that there is a significant correlation between the total number of pages watched by students and the number of announcements read ($p < 0.05$), which indicates that students will watch the number of announcements read while watching PPT and master the course content by watching PPT. The number of reading announcements is significantly correlated with the total score, and the number of reading announcements ($p < 0.01$) is more significant than the rate of reading announcements ($p < 0.05$), which indicates that the rate of students' attendance is related to their academic performance, which is related to teachers' course assessment requirements. Teachers link students' attendance rate with their academic performance, and urge students to complete online teaching. There is also a significant positive correlation between the number of reading announcements and academic performance, which indicates that with the increase of online learning behavior, students' academic performance will also be significantly improved, and students' learning motivation will also promote the improvement of academic performance, from passive acceptance of learning to active independent learning.

3.3 Regression analysis of students' online learning behavior and academic performance

The results of regression analysis show that students' online learning behavior: the number of reading announcements has a significant impact on the overall score, while the number of watching PPT pages, class attendance rate, the total number of bullet screen online learning behavior has no significant impact on the academic performance. According to regression analysis, the standardized regression equation is: total score = $0.101 \times$ total number of pages of PPT watched + $0.173 \times$ class attendance + $0.025 \times$ total number of barrage + $0.198 \times$ number of announcements read, and the coefficient of determination $R^2 = 0.104$.

In this study, undergraduates carrying out the course Personality and Mental Health Education at school were investigated, and the relationship between learning behavior and academic performance of students in four grades during online learning was discussed. The results show that both the attendance rate and the number of announcements read have a significant impact on the overall score, that is, the attendance rate and the number of announcements read can positively predict the overall score, and the higher the attendance rate and the number of announcements read, the higher the overall score, which indicates that students' online learning behavior will have a positive effect on their academic performance.

4. Teaching suggestion

The online learning mode breaks the restrictions of time and place. Students can watch the playback of course videos anytime and anywhere, which strengthens the timely consolidation of important and difficult knowledge points in skill courses, saves learning time and improves learning efficiency. At the same time, the immediacy of online courses also reduces the economic cost of students' learning^[4]. However, due to the lack of timely supervision and feedback, higher requirements are put forward for students' self-management and autonomous learning ability^[5]. Therefore, we need to pay more attention to the problems existing in the process of online teaching and give full play to its teaching advantages based on the characteristics of online teaching.

The author believes that in the process of online live teaching, teachers should guide students to actively construct knowledge theories and explore independently in the course. For the problems existing in the process of online teaching, teachers should make full use of online and online teaching resources and adopt mixed teaching mode to stimulate students' learning desire. Adhere to the fundamental task of cultivating morality and educating people, adhere to the working principle of "student-centered, problem-oriented and continuous improvement of teaching quality", and strengthen the monitoring of online teaching discipline, online teaching quality and online teaching implementation content^[6]. The construction of online learning environment is particularly important in online live teaching. The online learning environment includes the unblocked network, the advantages and disadvantages of learning equipment, the use of learning platform, the quality and optimization of learning materials and the surrounding learning environment of online learning^[7]. Teachers should create a good environment for online learning. Students are the main body of learning, students should explore independently, effectively use learning resources to carry out learning, find questions, timely and effectively feedback the problems in the learning process. Finally, schools should also provide timely technical support and maintenance of network platform services to create a good online learning environment for teachers and students.

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