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## Academic early warning based on the behavior analysis in YCTU

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### ABSTRACT

*In the process of the popularization of higher education from popularization to popularization, in order to strengthen the construction of style of study and improve the quality of talent training, the academic early warning mechanism arises at the right moment. Starting from the current situation, connotation and significance of academic early warning in universities, this paper expounds the implementation process and support system of academic early warning mechanism, and discusses the existing problems and improvement direction of the current academic early warning mechanism, so as to further improve the education quality and teaching management level of higher education in China.*

**Key words:** behavioral data; precision education; combination optimization; stage early warning

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### INTRODUCTION

With the gradual deepening of the information construction in colleges and universities, the integration of various information resources in the campus has entered the stage of comprehensive planning and implementation, and the extensive use of the campus one-card makes the card data become an important part of the campus information construction. At present, all universities are facing the following situation: on the one hand, the university database is expanding, the available information of college students is increasing, the traditional simple statistical means cannot meet the

demand of universities to cultivate high-quality talents; on the other hand, colleges and universities are expanding year by year, the teacher-student ratio is increasing, teachers and education administrators are increasing, it is difficult to balance everyone in the actual teaching process, some college students fail to complete their studies. Therefore, the research of academic early warning system for college students is necessary and urgent for college students, teachers, education administrators and colleges and universities.

### **Learning the status quo of early warning:**

- **Foreign research status**

Jingyi Luo, Shaymaa E. Sorour et al used free comments written by college students at the end of each session in successive courses, Continuously track the learning situation of college students, And improve the prediction of the final performance of college students' final performance; Sorour Shaymaa E, Using latent semantic analysis, similarity measures and square data overlap method, Mine Tsunenori et al, To evaluate the performance of college students; Renza Campagni, Different approaches based on clustering and sequence pattern techniques by Donatella Merlini et al, Explore the influence of the order of course examinations arranged by college students and their performance at graduation, Found that the more college students are arranged in the order given by their ideal career, The better the performance at graduation and grades; Krzysztof Juszczyszyn and Agnieszka Prusiewicz Surjeet experiments using elective data from college students, Using the social network construction approach, To recommend the course selection service for college students; ManWai Lee, Sherry Y. Using data mining techniques, Chen et al, Studies have found that field-independent learners often use forward or back buttons, And spend less time on the navigation, Field-dependent learners who often use the main menu, And more repeat visits; Kumar Yadav, Brijesh Bharadwaj et al, Applied to the past performance data of college students by using the decision tree algorithm, To predict the performance of college students, And early to find out dropouts and college students who need special attention; Cristo Romero, Sebastian Ventura et al, citing the modern system as a case, The application of data mining in the course management system is studied. Godwin By observing the classroom behavior of college students, Find the relationship between the teaching form and the distraction of college students; By analyzing the course scores of 106 undergraduates, Natek et al, Using the decision tree algorithm, Find the elements that affect the undergraduate course grades.

- **Domestic research status**

In the past ten years, the domestic research has made a breakthrough progress. Zhu Tianyu, According to the degree of mastery of knowledge points by college students, By co-filtering the test question recommendation method, To recommend the appropriate difficulty degree of questions to college students; Wu Runze, According to the cognitive model and objective and subjective questions, Liu Qi et al, Proposed a fuzzy cognitive diagnostic framework, Predict the performance of the subjective problems of college students; Zhu Yan, Zhu Hengshu and others, from the perspective of returning the library books, Analyzed the problem of procrastination among college students, And verified several key findings in the field of psychology; Li Hui, Guo Ruiqiang et al. Based on the university evaluation data, Find personalized college students; Liu Qi, Chen Enhong et al. analyzed the cognitive ability of personalized college students, And gives a new research point of view; Hold high, Bai Yanan excavates the correlation between teaching evaluation level and teachers' scientific research ability, educational background, teaching age and professional title;

From 2012 to the present day, Mass open online courses (Massive Open Online Course, MOOCs for short) and other new teaching models have gradually become the mainstream of EDM, The MOOC platform released by Tsinghua University has attracted wide attention. Jin Yifu, Wu Tao et al. proposed a trinity of early warning information discovery and generation model based on classroom, curriculum and extracurricular data mining and analysis, establishing a six-level signal system and feedback mechanism for academic early warning; Yuan Anfu, Zhang Na and others constructed an academic early warning evaluation index system for college students.

### **Implementation process of the academic early-warning mechanism**

In order to carry out the academic warning work in a rigorous and orderly manner, many universities adopt the plan that the Academic Affairs Office and the College Student Work Office are all responsible for the school academic warning work, and each college performs the functions of academic warning and support management. It mainly includes the following points:

- At the beginning of each semester, the Academic Affairs Office will analyze the credit study status of college students, determine the list of academic warnings and withdrawal warnings, and issue them to each college. After the review, the Academic Affairs Office issued a formal notice to give relevant college students academic warning or withdrawal warning.
- For academic warning, each college shall inform college students and their parents, organize academic warning talks, issue the Academic Warning Notice on the spot, and inform college students and their parents of the withdrawal and other school status management policies in detail. College students and their parents must sign in the academic Warning Notice for confirmation. The notice is in duplicate, with each college student.
- For the withdrawal warning, each college shall inform college students and their parents, organize the withdrawal warning talk, issue the withdrawal Warning Notice on the spot, and inform college students and their parents of the withdrawal policy and trial reading policy in detail. College students and their parents must sign on the Exit Warning Notice for confirmation. College students who meet the withdrawal policy must apply for withdrawal and go through the withdrawal procedures. College students who meet the trial study policy can choose to apply for withdrawal or apply for trial study. The notice is in duplicate, with each college student. As for the trial reading policy, the university specifies the requirements and withdrawal situation: college students can only apply for one trial reading, and the period is one year during the trial study period; after passing the trial reading, or resume the examination.

### **Establish a comprehensive and effective academic support system**

The Outline of the National Medium-and Long-term Education Reform and Development Plan (2010-2020) clearly states that the purpose of "establishing a help mechanism for college students with learning difficulties and improving the training methods of excellent college students" aims to urge college students to study hard and complete their studies smoothly. Only by actively establishing a comprehensive and effective academic assistance system can the school truly improve the quality of talent training. Academic assistance refers to the provision of targeted assistance and guidance measures for college students under academic warning, and improving the effectiveness of college students in learning from the aspects of learning motivation, learning

attitude and learning activities. The relevant work content includes the following points.

- The Work Office of College Students is responsible for coordinating the assistance plans of college students receiving academic warnings, guiding the college to carry out academic support work, and focusing on counseling and consultation work. Colleges and counselors are responsible for formulating personalized assistance programs for each college student receiving academic warning, and organizing college students receiving academic warning to participate in school opening

All kinds of academic support activities are exhibited.

- For college students who receive academic warning or drop out of school, professional leaders and class tutors guide college students to choose courses reasonably, assist college students to make learning plans, correct learning attitude and improve learning methods. In order to ensure the learning quality of college students, on the premise of ensuring that they meet the minimum cumulative credit requirements, the planned course credits of each semester should be controlled within a reasonable level.
- For college students or college students, counselors will establish detailed files, "one person one", pay attention to their classroom attendance, classroom performance, homework completion, regularly talk with college students, timely understand the problems and reasons, assist them to develop solutions; regularly by telephone or talk, inform parents of the situation, remind parents to cooperate with the school to urge college students to complete their studies.
- For college students who are subject to academic warning or drop out to study, according to the needs of college students, the mental health education center will arrange special psychological counseling, provide peer mentors, and make one-to-one assistance plans. The class psychology committee member pays close attention to the life and study status of college students, and regularly report them to the counselors.
- For college students who drop out of school, counselors should carry out conversation activities no less than once a month, have systematic counseling arrangements every week, and maintain close communication with parents.
- According to the actual situation of college students, each college carries out collective self-study, extracurricular counseling, academic consultation and other activities. For the courses that have not passed a large number of students, the school will accept the application of the college and the consent of the Academic Affairs Office.
- The work office of college students and various colleges regularly evaluate the effectiveness of helping college students. If college students can keep up with the normal teaching progress of their classes or the gap has been narrowed to a reasonable range, the assistance work will be relieved. The college assigns special personnel to continuously track the learning status of college students, and establish a real-time feedback mechanism.
- The university encourages all colleges to formulate detailed rules for the implementation of academic assistance based on the characteristics of their majors and the overall academic situation of college students. Through academic guidance, accurate help.

Help, full participation, joint management, help learning difficulties college students successfully complete their studies.

### **The existing academic early warning system has some problems and the effective ways to improve it**

At present, the academic early warning system of higher learning plays an important role in promoting students' correct learning attitude and improving learning effectiveness. It is of great significance to strengthen the construction of study style and the management of school roll in colleges and universities, but there are still the following problems that need to be improved.

- The "result warning" based on the results of students' assessment reduces the effectiveness of academic warning. The current academic early warning system in colleges and universities is mostly based on the phased assessment results of students, and the learning scores and gates of students who fail to pass or pass are compared with the warning standards set in advance. Compared, to determine whether the student is warned. For students, such a warning is remedial and post-treatment warning. Although it has the effect of being better than late, it cannot achieve the effect of "preventing small problems and learning from past mistakes to avoid future ones". Institutions of higher learning should establish a warning mechanism for error prevention, and move the focus of early warning work forward, so as to promote the transformation of students' academic management to "prevention in advance".
- The early-warning regardless of grade or major violates the original intention of flexible learning under the background of credit system reform. At present, most of the academic early warning system implemented by I universities is based on students' academic performance and the average accumulation of academic scores according to the growth of grade, without considering the characteristics and rules of talent training in different grades and majors. Such a warning is conducive to the interpretation and implementation of the system, but for students is rigid and even unreasonable basis. Institutions of higher learning should fully consider the characteristics of talent training of different grades and different majors, follow the objectivity and law, and further refine the academic forecast and police work content through classification and classification of warning methods, so as to achieve the purpose of promoting students' academic progress and preventing the deterioration of academic problems.
- Students who receive the most serious academic warning are expelled, which not only means a waste of educational resources, but also has a negative impact on students and families who suffer academic failure. Most institutions of higher learning, according to their own characteristics, set the to of students with poor academic performance. From the warning to the trial reading, and then to the school early warning system in the gradual process to provide students with room to work hard, but also to learn. Students are labeled as poor students, and the management method of deterring students by dropping out lacks humanization. Dropout not only brings economic pressure and pressure to students and families

The psychological burden will also cause a huge waste of schools and national educational resources. Institutions of higher learning should adhere to the idea of "student-oriented" and build

up their schools

As the fundamental task, Deshu implements flexible management in the academic early warning mechanism, positive encouragement, humanistic care, and guides students to regain their confidence in learning. The warning method should be improved, reasonably supplemented by flexible exit mechanisms such as transfer, major transfer and training level reduction, so as to form an all-round and whole-process academic early warning system to achieve the purpose of guiding and helping students to grow up and become talents.

- There are difficulties in the implementation process of the academic early-warning mechanism. From the perspective of the goal of the early warning mechanism, academic early warning is the education warning of students in accordance with the purpose of ensuring the quality of talent training. It is not for the purpose of "elimination", but to take precautions and spur students to complete their studies with both quality and quantity guaranteed. One party, due to insufficient policy document support, early warning information management system is not mature, system organization structure has not yet build and staffing is not perfect, academic early warning by students as severe punishment or punishment, trigger students rejection, students cannot timely learning attitude, reasonable arrangement of time, which is difficult to achieve the purpose of promoting students to complete their studies. On the other hand, there is a lack of communication among various departments, and the early warning work is inefficient.

In these problems, colleges and universities should cultivate the process management concept, cultivate the quality culture of colleges and universities, take big data and information technology as means to improve the academic early warning system, train professional teams, form a stable organizational structure, and normalize the academic early warning mechanism.

### **CONCLUSION**

The establishment and improvement of the academic early warning mechanism in institutions of higher learning, the operation and implementation process is complex, so it is necessary to sum up the experience and lessons in time in the long-term practice and improve them continuously. Based on the current situation of academic warning and the implemented academic warning, this paper deeply discusses the existing problems and the improvement direction of the current academic early warning mechanism in China. The suggestions proposed in this paper are conducive to the further improvement of the academic early warning mechanism, which has a positive effect on improving the quality of education and teaching management level of higher learning.

### **CONFLICTS OF INTEREST**

The authors declare that there is no conflict of interest.

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