

Research on the Construction and Practice of Learning Early Warning System for College Students

Taking the College of Tourism, Huaqiao University as an Example*

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Abstract—In the era of higher education popularity, college students often delay graduation, repeat grades or even drop out of school. The problems of academic safety, psychological safety, personal and property safety and other risks during students' study in colleges not only have a negative impact on their own and family development, but also bring huge burden to the education and management of the university, especially the overseas Chinese schools that cover many countries and regions at home and abroad in the scope of the source of students. This study takes the risk control theory as the theoretical guidance and the college of tourism of Huaqiao University as the pilot. It summarizes the risk points or crises that students may encounter during the school period, and sets up different early warning classification and grade, and forms the corresponding intervention work system. On this basis, a two-year practice study was carried out in the college of tourism. By comparing the implementation effect of the early warning system, the effectiveness and feasibility of the early warning system were tested, and suggestions were put forward for the optimization and improvement of the early warning system and operation process.

Keywords—overseas Chinese school; learning early warning; intervention system; practice research

I. INTRODUCTION

As an overseas Chinese university, Huaqiao University has overseas Chinese, Hong Kong, Macao and Taiwan students from more than 50 countries and regions. Due to the differences of culture, institution and environment, students' late graduation rate has been high for many years. At the school level, the graduation rate of undergraduate students in our school is 92.06% in recent years, while the graduation

rate of undergraduate students in normal module data of ordinary undergraduate universities in 2016 on the national data platform for quality monitoring of higher education is 96.77% [1]. At the college level, in the case of a college in Quanzhou campus, 9.5% of the students who have delayed graduation in the last four years account for the students who should graduate. This situation brings great challenges to the education management of the school, huge security risks to the safety and stability of the school, huge waste of education resources, and great impact on the development of students and their families.

II. THEORETICAL BASIS

Based on the risk control theory as the theoretical guidance, this study makes a comprehensive use of literature analysis method, induction and summary method and expert evaluation method to conduct theoretical research and construction of the types, grades, contents and intervention system of early warning for overseas Chinese students. Based on the conclusions of relevant research literature and the academic early warning index system proposed by other universities, the possible risks or crises during students' study and life in school were summarized, and the elements and evaluation criteria of the early warning and intervention system were finally determined.

Risk Based Supervision(RBS) is a risk-based safety management technology and method system. Compared with the traditional safety management based on accident, event, energy, scale, danger, hazard, standard and standard, RBS method takes risk management theory as the basic theory, combines quantitative and qualitative risk classification, and requires scientific classification and classified safety supervision at the risk classification level [2]. The application of risk management and control theory in this study is mainly reflected in the classification of learning early warning types, scientific classification of early warning

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levels, and research and design of early warning content and intervention system.

Because the early warning elements are independent of each other, it is difficult to assign weights to them by functional relations. Therefore, this study used Delphi method and invited education scholars to conduct anonymous assessment on whether the setting of early-warning level, sub-item of early-warning level and sub-item critical value (judging standard) was appropriate, and finally reached a consensus in the discussion of participants.

III. THE ESTABLISHMENT OF LEARNING EARLY WARNING AND INTERVENTION SYSTEM

The main function of learning early warning and intervention system in the college of tourism of Huaqiao University is to inform students' academic problems and potential risks and prevent them from crisis. That is to guide guardians, classes, departments and colleges to take corresponding remedial and preventive measures by informing students and their guardians of the potential risks. Finally, the communication and cooperation among the college, students and their parents will be established, so that students can complete their undergraduate study successfully.

A. Establishment of the Early Warning System

Early warning system is divided into two parts: early warning grade evaluation system and early warning intervention system. The early warning level evaluation system is an evaluation matrix composed of early warning

classification and grade. At the beginning of each semester, the class or department heads assess the specific early warning level according to the actual situation of students, and provide the college with a list of all kinds of early warning students. In addition, according to the source characteristics of students in the college, the study has different classification and grades of early warning of learning for students at home and abroad.

The early warning intervention system is the specific reaction process of the college to students' early warning and the operational guide for education staff to carry out early warning intervention. After determining the list of students to be included in the early-warning sequence, the college will promptly publish it according to different standards, and the head teacher or instructor will communicate with the parents of the students in a timely manner. The college will track the students who have been warned dynamically for a long time and takes effective measures to strengthen the focus of attention and assistance to the students.

B. Early Warning Evaluation System

As shown in "Table I", learning early warning divides the early warning situations of students in study and life into attendance early warning, achievement early warning, punishment early warning, psychological crisis early warning, economic situation early warning, major disease early warning, private living out early warning and other eight types. According to the light to heavy, each type is divided into three levels: first level, second level and third level.

TABLE I. CLASSIFICATION AND GRADE OF EARLY WARNING FOR UNDERGRADUATE DOMESTIC STUDENTS

Classification and grade	Level 1 early warning (class)		Level 2 early warning (department)		Level 3 early warning (college)	
Attendance early warning	Total absenteeism in one semester reached more than 10 class hours		Total absenteeism in one semester reached more than 20 class hours		Total absenteeism in one semester reached more than 30 class hours	
Achievement early warning	First semester of freshman year	Fail 3-5 credits	First semester of freshman year	6-10 credits	First semester of freshman year	Over 10 credits
	sophomore year	Fail 5-10 credits	sophomore year	11-20 credits	sophomore year	Over 20 credits
	Junior year	Fail 7-15 credits	Junior year	16-25 credits	Junior year	Over 25 credits
	Senior year	Fail 10-20 credits	Senior year	20-30 credits	Senior year	Over 30 credits
Punishment early warning	Someone is punished by the school or criticized by the whole school		school warning, serious warning sanctions		School demerit record or above (including demerit record) punishment	
Psychological crisis early warning	General psychological problems or confusion, and students who fall into three categories in school freshmen screening		People with mental disorders, such as depression, mental illness, suicidal behavior or students who belong to class 1 and class 2 in freshmen screening			
Economic situation early warning	Family economy appears temporarily difficult, and school already started college temporarily difficult allowance		Family financial difficulties, and school has been launched related funding according to the school funding system		Family financial difficulties, and school has launched the relevant policies in accordance with the school funding system	
Major disease early warning	If there is a serious illness in the class, it is a direct warning for the first level, and the head teacher and grade counselor need to work together					

Classification and grade	Level 1 early warning (class)	Level 2 early warning (department)	Level 3 early warning (college)
Private living out early warning	For the first time, according to the school community management method, it should give criticism education and deduct the community performance score, and feedback to the class	For the second time, according to the school's community management method, education will be given for criticism and community performance score will be deducted. The college level will notify the criticism and inform the parents	The third time, according to the school community management measures and school discipline, it should give criticism education, deduct community performance points and give school level sanctions
Other	Other classes consider it necessary to give early warning of situations that affect students' graduation		

As shown in "Table I", this study developed evaluation criteria for each warning level of eight different categories of early warning, which is convenient for students' self-assessment of early warning and analysis and judgment of relevant responsible persons. Similar to the early warning classification and grade for domestic students, the standard of absenteeism for overseas students in the early warning level of attendance increased by 5 class hours respectively.

C. Early Warning Intervention System

In the concrete work implementation of early warning intervention, the early warning system stipulates the organizational division of labor, responsibility requirements, and working procedures of intervention work, as well as matters needing attention for early warning at all levels.

1) Organizational requirements for intervention work:

The college has set up a student learning early warning working group, which is headed by the main leadership of the college and composed of heads of departments and classes, counselors of the office of learning and work, and educational administrators. The college establishes a three-level responsibility system under the organization of the early-warning working group:

- The class leader in charge of the primary work for early warning students at all levels shall be the class leader, who shall be responsible for determining the comprehensive level according to the student warning the maximum value of each item, and carry out early warning work at the class level.

- For students with second-level early warning, the department office shall be responsible for organizing meetings and conversations with students and giving the guidance and corresponding support of the class teacher to the early warning work of students;
- The students with the three-level early warning shall be uniformly organized and implemented by the office of academic affairs of the college, and the grade counselors shall be specifically responsible for it. Among them, the intervention of students with psychological crisis is mainly given priority to the head teacher and instructor, focusing on the linkage work with the education center of school mental health, and the person responsible for work safety is required to perform the work according to the provisions of relevant documents of the school.

2) *The workflow and content for intervention work:* The process of intervention consists of early warning information collection, analysis and judgment, notification and archiving, adopting the tracking and feedback processing. The early warning system defines the main work content of each participant in each process, and jointly completes the monitoring, summarization, analysis and summary of early warning information of undergraduate students in the process of study and life, and establishes the communication and collaboration between the college, students and parents.

TABLE II. THE SPECIFIC PROCESS OF LEARNING EARLY WARNING SYSTEM INTERVENTION

The application process	participant	Specific work content
Early warning information collection	College (academic affairs office)	Providing the list of attendance early warning and achievement early warning student
	College (office of academic work)	Providing the list of punishment warning students and regularly feedback the list of private living out to the class
	Class	Providing early warning list of students' economic, major diseases and psychological crisis and doing well in education work of student safety
Analysis and research judgment	Class	At the beginning of the semester, it should classify and collect the early warning situation of class and grade and report it
	College	At the beginning of the second semester of each academic year, all class teachers will hold a working meeting to analyze and evaluate the early warning of learning situation
Notification publicity and material filing	College	The students who enter the early warning sequence of students should be published according to different standards, and the head teacher should send a learning early warning notice
	Class	Sending the early warning notice of study of students in the school of tourism of Huaqiao University, the early warning notice of study of students in Huaqiao University and the student transcript to the parents of the students who have been warned, and asking the parents to send a feedback form

The application process	participant	Specific work content
The implementation of tracking	Cooperate and finish	Taking all kinds of effective measures timely to strengthen the focus of attention and assistance to early warning students, communicating timely with students and parents, and filling in the corresponding work records, and classify and file
Feedback process	College	It should hold all the class teacher work meeting in every school year at the beginning of the next semester to understand the early warning of students and the results
	Class	Submitting the "tourism college class and grade students learning early warning archives", and withdrawing their learning early warning who have obvious progress
	Cooperate and finish	For students facing the extension of the school system or dropping out of school, the school leaders, head teachers or counselors in charge of student work should contact with their parents and invite them to come to the school for an interview on the academic situation of the students who have been warned

3) *Specific concerns for intervention work:* The entry of students into the early warning sequence may be due to the students' academic difficulties in credit, attendance, punishment termination and other aspects, and the early warning may also be attributed to the psychological crisis, economic status and major diseases of students, so the intervention work of students in different early warning conditions should be focused on and paid special attention to.

- For students with early warning of attendance, achievement and punishment, emphasis should be laid on emphasizing the potential harm of their current situation to their graduation and future development. Through the communication of the college, students and parents, students' willingness to study independently will be reguied, and their learning quality will be gradually improved, so as to remove the early warning.
- Students with early warning of psychological crisis, economic situation and major disease should be supported in spirit and material terms according to relevant policies of the school on the basis of respecting and protecting privacy. For this kind of early warning students, the work system at all levels often needs long-term attention. When necessary, it should be linked with the school mental health center.

- For students with early warning of living out of school without authorization, safety warning should be carried out according to their early warning level, and the class should regularly carry out life safety education for student, so as to guide students to abide by school rules and disciplines consciously.

IV. PRACTICAL RESEARCH RESULTS

The study takes the college of tourism of Huaqiao University as a pilot, and carries out a two-year practical study on all undergraduates of the college. Through the comparative analysis of the early warning data files, it is found that the early warning and intervention system of study has achieved certain results in student development, teaching management, the construction of academic style and other aspects.

Based on the practical investigation of all students in the school in the 2016-2019 academic year, this study classifies and sorts out the early warning situations of all students in the school, and takes intervention measures to those students who enter the early warning sequence in time. Taking the most representative students of grade 2015 and grade 2016 as an example, by comparing the dynamic changes of early-warning situation in the three school years, it is found that the early-warning proportion data has shown a good development trend of the overall academic situation of the students in this grade.

TABLE III. CHANGES OF STUDENTS' EARLY WARNING STATUS OF 2015 AND 2016 IN THE SCHOOL OF TOURISM, HUAQIAO UNIVERSITY

Academic year	Grade	Results	Discipline	Live outside	Major disease	Psychological crisis	Attendance	Mixed condition	Total
2016-2017 Academic year	Level 1	41	0	13	0	0	-	0	54
	Level 2	37	0	0	0	2		1	40
	Level 3	9	0	1	4	9		13	36
	Total	87	0	14	4	11		14	130
	Proportion	66.92%	0.00%	10.77%	3.08%	8.46%		10.77%	100.00%
2017-2018 Academic year	Level 1	42	1	4	0	1	0	4	52
	Level 2	16	4	6	0	3	0	6	35
	Level 3	10	3	2	0	6	0	8	29
	Total	68	8	12	0	10	0	18	116
	Proportion	61.82%	7.27%	9.45%	0.00%	9.09%	0.00%	16.36%	100.00%
2018-2019 Academic year	Level 1	30	6	6	0	1	7	11	61
	Level 2	13	0	1	0	6	0	6	26
	Level 3	10	4	2	0	3	0	9	28
	Total	53	10	9	0	10	7	26	115
	Proportion	46.09%	8.70%	7.83%	0.00%	8.70%	6.09%	22.61%	100.00%

As shown in “Table III”, the tracking survey on the early warning status of students in the class of 2015 and 2016 in the 2016-2019 academic year shows that the total number of early warning students decreases year by year in the three years, and the early warning level tends to change from heavy to light.

From the perspective of early warning categories, the number of early warning students kept decreasing in the three school years. Achievement early warning, as the most important early warning problem, is also the most obvious part of the improvement under the influence of early warning and intervention. This achievement effectively reduces the problems of students' deferring graduation, repeating grades and dropping out of school. It fully shows that the implementation of learning early warning and intervention system can effectively reduce students' academic difficulties and arouse students' crisis awareness.

From the perspective of early warning level, there is a general trend that high warning level will be transformed into low warning level and low warning level will be gradually lifted. In addition to the improvement of achievement warning, the changes of disciplinary warning and psychological crisis warning are also worthy of attention. The decrease of the number of disciplinary early warning shows that under the influence of early warning and intervention system, students can take the initiative to face the punishment and remove the punishment by improving their performance in study and life. The lifting and alleviating of early warning of psychological crisis often requires long-term attention and guidance from families and school authorities. This result fully shows that the early

warning and intervention system effectively monitors students' ideological dynamics and forms a joint situation of joint management and assistance between families and schools.

V. RESEARCH IMPROVEMENT AND OPTIMIZATION DIRECTION

A. Optimization of Early Warning Intervention Implementation

The causes of academic difficulties may include internal reasons such as psychology, habits, learning methods and foundations, as well as external factors such as family, place of origin and professional characteristics. Therefore, it is difficult to guide early warning students to actively analyze the internal and external causes of their own academic problems through a large number of early warning conversations conducted by the head teacher or instructor, and even trigger their resistance.

Based on the principle of simplification, layering and grasping the reality, the study improved the intervention work arrangement. Through the adjustment and implementation of the main body and intervention work content, the study enhanced the personalization and pertinence of the help work. That is to say, at the beginning of each semester, the office of academic affairs of the college directly provides the list of early-warning students. The class committee, head teacher, grade instructor and dean of each class of the college carry out intervention work in different levels according to the three-level early-warning. The specific requirements are shown in “Table IV”:

TABLE IV. THE OPTIMIZATION TABLE OF INTERVENTION WORK AND IMPLEMENTATION SYSTEM

Warning category	Implementation body	Job content
Level 1 warning	Class committee	Each semester, the class teacher directs the class study committee member, the psychology committee member and the youth association liaison member to carry on the academic support and the psychological care to the first-level early warning student. The class establishes the academic support system, and keeps the work record, as to the corresponding class committee's appraisal basis.
Level 2 warning	The teacher in charge	Each semester, the teacher at least has a parent-school contact for each student who is in early warning class 2 and talks with students, and record the parent-school contact information and conversation records in "the overseas Chinese university teacher in charge work manual". Delivering it to student affairs office when head teacher assessment each year, and taking the implementation of this work as a class teacher annual assessment and performance assessment' basis
Level 3 warning	Grade counselor	Each semester, the counselor at least has a parent-school contact for each student who is in early warning class 3 and talks with students, and record the parent-school contact information and conversation records in "the overseas Chinese university counselor work manual". Delivering it to student affairs office when counselor assessment each year, and taking the implementation of this work as counselor annual assessment and performance appraisal' basis. Corresponding class head teacher should give the necessary support.

B. Improvement of Early Warning and Guarantee Work

1) *Strengthening the specialization of the subject of students' early warning intervention:* It is difficult to focus on the discipline characteristics of students to carry out assistance with counselors or head teachers. The relatively weak work of solving professional problems and planning professional learning programs makes the intervention work too simple. Therefore, it is necessary to emphasize the

participation of heads of departments in the early warning intervention work of students.

All department heads should attach importance to the early warning of study and the construction of study style of students in the department, and hold regular meetings with the construction of study style or study early warning as the main body, and discuss the implementation plan of intervention work with professional characteristics on the basis of the intervention work system of the college. For the

first-level and second-level early warning students, the department head can participate in the assistance by training and guiding the class head. However, for the difficult cases in the three-level early warning, the head teacher and the grade counselor should contact the department head together to discuss targeted solutions.

2) *Setting up the supervision mechanism of students' early warning intervention:* The existing learning early warning and intervention system has not yet set up a clear supervision mechanism and corresponding responsibility system, so that many substantive work of learning early warning is still in the superficial form. Different departments and personnel's unclear job responsibilities make the coordination and scheduling of learning early warning and intervention work into a dilemma.

Therefore, this study set up a supervision mechanism for the implementation of early warning and intervention, and conducts hierarchical management of early warning intervention, and formulates corresponding management system at the early warning work level. In addition, the department in charge of teaching in the college is responsible for the supervision of the intervention work of each major, and regular and sampling inspections are conducted on the effect of learning early warning work [3]. At the same time, the early warning and intervention system of learning can be linked with the existing supervision system of academic style in the college of tourism of Huaqiao University. While paying attention to the whole situation, the class with serious early warning should be supervised, so as to find problems timely and put forward suggestions for rectification at the class level.

VI. CONCLUSION

Based on the risk control theory as the theoretical guidance, this study summarizes the risk points or crises that may occur during students' study and life in school to form an early warning system. Every six months, each student will be assessed for early-warning risks. For students entering the early-warning system, education staff will inform the students and their parents of the possible adverse consequences of such risks in advance, and initiate corresponding intervention measures. Through the establishment of "school-student-parent" trinity of "learning warning and intervention system", shifting the school and the parents from "background management" to "front management", changing the school from "passive" to "active" and the parents from "do not ask" to "support". Both sides form a common care "chain". By learning early warning, shifting the students from the "unconscious" to "voluntary", and guiding the student to attach importance to learning, change attitude, and enhance the level of professional literacy and ability. It is effective to improve students' study initiative, improve the quality of teaching, implement the humanized management, build the link of house, students and school, form the good situation of the interactive and complementary among them, and supply qualified personnel to society maximally.

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