

Research on Students' Diversion during the Transformation Process in Local Undergraduate Universities

-Taking the joint training stage of Hebei University of Science and Technology as an Example

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Abstract—The application transformation of local undergraduate institutions is the trend to adapt to the development of higher education in the new era, the transformation means the transformation of training objectives from theoretical academic research to employment-oriented practical talents. This paper takes the problem of students' diversion selection in the joint training stage during the implementation of the "four-four system" transformation in Hebei University of Science and Technology as the research object. The study found that personal motivation and support from family and peers were the most direct factors, while professional characteristics were the most core factors. Therefore, according to the characteristics of the major, the triage problem can be improved from three aspects: career planning and design, work content of students' selected direction and policy support.

Keywords—shunt; graduation choice; transformation; Interpretative Structural Modeling Method

I. INTRODUCTION

In recent years, the destination of college graduates has become a hot topic. In addition, the state vigorously promotes the transformation of application-oriented colleges and universities, cultivating a large number of talents to promote social innovation and development. Under this background, the school of science and technology of Hebei University of Science and Technology implemented the application transformation reform of the "4-4 system". That is, through the four education stages of general education, macrodirectional training, professional training and joint training, four types of talents of applied technology, technical research, innovation and entrepreneurship and international expansion are cultivated for the society. The program started with the class of 2018 and

involved 3,561 students. but the number of students who choose the four directions is seriously unbalanced, which deviates from the original intention of school application transformation and the social background of advocating innovation and entrepreneurship. Therefore, it is necessary to explore the root causes affecting students' choices of diversion, and give appropriate guidance to promote the smooth development of application transformation.

At present, there are many related researches in China. Liu Zhao focused on exploring the impact of non-cognitive factors and cognitive factors on undergraduate graduates' destination and job search results [1]. Lu Qingqing thinks that the psychological capital factors of college students, especially the positive psychological tendency, can stimulate the innovation and entrepreneurship of college students [2]. Sun Qijin thinks that the level of the institution is directly proportional to the likelihood of getting a better way out [3]. In terms of social factors, Chen Jiaquan believes that regional urbanization level and regional economic development level affect the innovation and entrepreneurship development of college students [4].

All of the above scholars are from the macro background, most of them are on the personal factors of the students' future career choice, but few are on the factors that affect the formation of the future career in the training stage. However, one of the ultimate goals of application-oriented transformation training is to guide students to establish correct choices by sorting out the development path of the training phase. Therefore, based on the background of the implementation of the "four-four system" training program in the institute of science and technology of Hebei University of Science and Technology, this paper studies the influencing factors of student diversion at the stage of joint training, through the analysis and exploration of the fundamental reasons affecting

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students' choice, and as the basis for the revision of the "four-four system" training program, provide guidance for students to establish a good career planning.

II. EXTRACTION OF INFLUENCING FACTORS OF STUDENT DIVERSION IN THE JOINT TRAINING STAGE

Through literature review and investigation, this paper gives full consideration to the fact that there is still a long time buffer between college students and employment. The factors affecting the triage of joint training are divided into four levels: personal factors, professional limitations, school factors and social factors.

A. personal factors

Zhang jing et al. proposed the influence factor of self-efficacy [5]. Wang Li et al. summarized the characteristics of learners as learning ability, learning motivation, etc [6]. To sum up, personal ability, personal interest, family economic ability, personal motivation, family and peer support, personal self-efficacy and conformity psychology were classified as individual factors.

B. School factors

In terms of school factors, guidance on employment courses, guidance from counselors and special lectures in professional fields are uniformly classified into school guidance.

C. Professional limitations

This paper divides the major limitation factors into major characteristics and the degree of difficulty in completing the work in the chosen direction. The characteristics of the major are suitable for the development direction of the undergraduate major.

D. Social factors

At the social level, graduates should consider the general needs of the society for their major. In terms of policy, state policy support and school policy support are unified into policy support.

To sum up, the factors influencing students' choice of diversion are summarized and sorted out, and 12 influencing factors are obtained, as shown in table 1.

TABLE I. INFLUENCING FACTORS OF CHOOSING DIVERSION DIRECTION FOR SENIOR UNDERGRADUATES

Serial Number	Influence Factor	Interpretative Statement
S ₁	Personal ability	Including personal academic achievement and skill reserve, etc.
S ₂	Personal Interest	-
S ₃	Family economic capacity	-
S ₄	Personal motivation	To stimulate and maintain the internal psychological process or internal motivation of individual activities under the guidance of objectives or objects.
S ₅	Support from family and peers	-
S ₆	Personal Self-efficacy	Individual expectations about their ability to operate in a particular context.
S ₇	Professional characteristics	With regard to the major of graduate oneself, whether suit to start a business, take an examination of grind or be obtain employment, study abroad
S ₈	Group psychology	-
S ₉	Policy support	Including school and social aspects of training, publicity and subsidies.
S ₁₀	School Guidance	The school assigns the related teacher to carry on the related training to the student.
S ₁₁	The degree of difficulty in completing the work in the chosen direction	The materials to be submitted and the work to be done during the graduation period
S ₁₂	Demand for Professional Talents	In the social aspect, talents with certain skills or professional knowledge

III. ISM MODEL CONSTRUCTION OF INFLUENCING FACTORS OF STUDENT DIVERSION IN JOINT TRAINING STAGE

By referring to the research results of many scholars, this paper USES ISM model to analyze the relationship between the influencing factors of shunt in the joint training stage, and tries to discuss the fundamental and superficial reasons that affect the students' shunt, so as to analyze the formation mechanism of shunt results.

A. The model construction process of the relationship between influencing factors of student diversion

Brainstorm the above 12 influencing factors and get the adjacency matrix between each factor. Matlab is used to solve the accessible matrix $M(L)$ of each factor. Through level division and iterate to get skeleton matrix A' .

B. ISM model of shunt influencing factors

According to skeleton matrix A' , the step structure model of shunt influencing factors in the joint culture stage was established, as shown in figure 1.

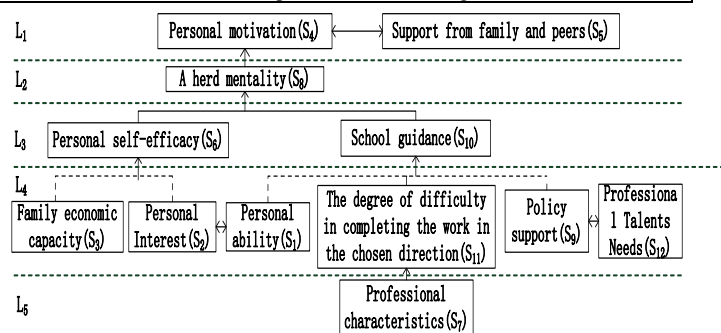


Fig. I. Explanatory structural model of influencing factors of graduates' graduation destination.

IV. MODEL INTERPRETATION AND ANALYSIS

According to figure 1, it is found that the levels of various factors are different, and there are also differences in the mode and degree of effect of various factors.

The representation factor is "personal motivation" and "support from family and peers". Through interviews, we found that the family and peer support will become the driving force for the students to make a choice, but most of the senior students will still according to their analysis and judgment to choose their own want to future development direction, that is to say, is the combination of subjective factors and objective factors eventually affected their choice.

The core influencing factors are the factors that have no prior set in the fifth and fourth layers. In the interview, it was found that "the degree of difficulty in completing the selected job" had a great influence on the students' diversion route, and this factor was influenced by the characteristics of the major. If the student wants to be engaged in the job of counterpart major after graduation, at this time characteristics is very prominent. Different from the characteristics of the major, the two factors of personal interest and personal ability are subjectively influencing the choice of students. Besides, these two aspects cannot be changed in a short time, so we will not discuss them in this paper. At the same time, policy support and the need for professional talents in the society are not factors that can be changed by the school, which can only be matched by the reform of the school itself. In addition, the influence of family economic ability on self-efficacy. Students with poor family conditions may not have the confidence to try the high-cost direction of starting a business, thus affecting their choice.

Conformity psychology is a transitional factor. This shows that some students have no direction and no goal when they graduate due to their indulgence in the undergraduate stage. The third layer is self-efficacy and school guidance, among them, self-efficacy affects students' self-confidence and makes them lose their motivation, which makes students miss opportunities suitable for themselves. But school guidance can compensate for the negative influence of students' self-efficacy on themselves.

V. CONCLUSIONS AND SUGGESTIONS

Through the ISM model construction of the factors affecting the graduates' triage, the direct factors and the most core factors affecting the students' triage in the joint training stage were found, and the following Suggestions were put forward.

A. Professional career planning education is provided in three stages

In order to make students understand their choice of direction and the characteristics of the major. The school can offer three stages of professional career planning courses. The first stage is freshman year, we will arrange full-time teachers to answer professional contents and prospects. The second stage is the major transfer stage in sophomore year, which is dedicated to explaining and answering questions of a small number of students who have changed majors, and establishing a database of students who have changed majors for later

analysis. The third stage is the senior year will be triage stage, at this point, most students are already familiar with their major, so the school can arrange full-time teachers to analyze and suggest the direction they have chosen, and at the same time, help those students who cannot make a suitable choice to analyze the professional form, and put forward personalized suggestions based on the characteristics of the students. Set up graduate information base to facilitate analysis and statistics.

B. Adjust the work content of diversion direction

Specialty characteristics directly affect the degree of difficulty in completing the work in the chosen direction. Many students don't understand the work that needs to be done in their chosen direction. To this end, first of all, the relevant requirements of the work content should be timely and effectively communicated to the relevant students; Secondly, the corresponding standard or process should be established to give the tutor the right to change the specific content of the training program. On the other hand, the school can properly adjust the content of work required in the four streams. Technical research students can reduce the practice and focus on cultivating students' basic training in academic research, so as to lay a foundation for their future postgraduate work. Students of applied technology should focus on application and solving practical problems in their graduation thesis (design). In terms of innovation and entrepreneurship, the school allows students to fill in their own voluntary forms according to their interest in entrepreneurship direction, and make classification and summary of them to set up corresponding training courses, according to the interest to cultivate the ability of innovation and entrepreneurship, at the same time, the content of the graduation thesis can also be adjusted to the entrepreneurial direction of the business plan and other relevant content. In the direction of studying abroad, the school can change the thesis into relevant exams. On the one hand, it helps students consolidate basic knowledge to lay a foundation for their study abroad; on the other hand, it also reduces the pressure of overseas students in graduation thesis.

C. The school makes relevant policies to broaden the channels for "minority" to choose the direction

Most college students earn their living from their families before they leave college. Inadequate family conditions can lead to a lack of self-efficacy. On the one hand, schools should cultivate students' knowledge and skills; on the other hand, they should provide financial support for students with insufficient family conditions. For example, funds are set up for students studying abroad, which are provided for students with excellent academic performance and outstanding performance in various aspects, but insufficient family conditions. For students who start their own businesses, professional review process should be developed to simplify and clearly inform the loan application process, so as to facilitate students' choice.

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