Investigation on the learning interest of senior undergraduate students in Optoelectronics specialty

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Abstract: With the increasing number of the graduate students, many of them have some troubles in job finding. This situation make a huge pressure on the senior students and loss them the interesting in study. This work investigate the reasons by questionnaire survey, panel discussion, interview, etc. to achieve the factors influence their learning interesting. The main reason of students do not have the motivation on study is that they do not understand the development and competition of photoelectric specialty, lack of innovation and entrepreneurship training, hysteresis of the learning knowledge and practical application. Finally, the paper gives some suggestions through teaching reform on how to improve students' learning enthusiasm. This work will contribute to the teaching and training of senior undergraduate students of optoelectronics specialty.

Keyword: learning interest, senior undergraduate students, major in optoelectronics.

Introduction

The employment problem of college students has aroused widespread concern in the community, the contradiction between the increasing number of college graduates and the demand for certain employers is becoming more and more prominent；Indirectly led to the needs of enterprises and employment ability of college students do not match. The students do not understand the enterprise, lack of job skills and professional quality. At present, most students have no understanding of professional skills and job skills, dazing their learning of the knowledge and application; although universities have taken relevant measures, such as increasing the activities of science and technology, social practice and other forms, but these measures in improving the students' enthusiasm of learning need to be further refined[1].

At the beginning of 2016, Division of Teaching Guiding Committee for Optoelectronic Information Science and engineering under the Ministry of Education set up the third batch of hot and difficult research project for national universities photoelectric professional education[2]. It hope in the form of establishing some relevant researches, through investigation and study, providing reference for training and teaching reform for the next one. This project is based on the photoelectric specialty in Xi'an Technological University, make the third grade undergraduate students as the research object, to obtain some basic data by questionnaire survey and interviews, and according to the related data statistics, analysis and discuss the factors affecting the interest of undergraduate study.

1. Basic research process

School of Optoelectronic Engineering, Xi'an Technological University, personnel training program is: in Grade 1 to 2, some basic and individual professional foundation courses are supplied; some professional basic

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courses and professional direction courses are carried out for grade 3 to grade 4. However, the basic courses in grade 3 have a great influence on students' innovation ability and employment orientation. The third year of university is also a key year for students to change their learning state and realize the goal of training talents. How to accurately find the main factors that affect the students' interest in learning, through the reform of education and teaching reform, and finally to improve the personnel training programs in the amendment, is the focus of this study.

The questionnaire was designed with the undergraduate students of grade 3 as the subjects. The questionnaire is anonymous, the object is 300 undergraduate students in the class of grade 18, which are randomly selected in the photoelectric class. The design of the questionnaire, the project group first combined with the literature research and interview information established the influence index of active factors in learning, and invited experts to select these indicators. According to the screening indexes compiled a questionnaire, 30 questions are designed. Among which 28 objective problems and 2 subjective questions. Objective questionnaire using LikertScale five scale, from high to low is divided into 5 grades, the higher the level, the higher the score. These problems not only cover the state of students learning, professional learning motivation, learning objectives, the professional education approval degree, also focus on students of professional interest, including the cause and influence of professional interest in the students of the school for science and technology innovation, entrepreneurship training platform providing to undergraduate. At last, the understanding, acceptance and on the employment competitiveness of personal assessment are also need to be evaluated here.

300 questionnaires were sent out, and the questionnaires were returned to 300. Students with questionnaire indicators, evaluation scoring according to their own understanding of the problem; analysis of project group through the questionnaire data statistics, analysis of undergraduate students' learning status and influencing factors of photoelectric enthusiasm. Through the subjective questionnaire for respondents short answer questions, so as to understand the students through the construction of professional platform, such as college students' innovation and entrepreneurship projects to understand the status and implementation of training platform, to participate in the contest, students joined the photoelectric research group projects and a series of College Students' innovation and entrepreneurship platform.

2. Results analysis

2.1 Professional recognition

Through the questionnaire, we found that most of students satisfy for their major,professional satisfaction accounted for 70% (210 students); only nine students do not satisfy for their major. It can be said that the students' awareness and satisfaction are at a high level. That is, photoelectric undergraduate students have already approved their major status through professional education and their own understanding. As it is said, "interest is the best teacher", only students have their own professional recognition at high level, then can have sufficient internal motivation, and high enthusiasm for learning naturally. However, by further analyzing the data, we can find that only 51 students are very satisfied with their professional interest, accounting for more than 17%. In other words, after three years of basic courses and professional education, these students are still have not high degree of their professional recognition. It is imply that students apply for college majors blindly, without a clear positioning, herd mentality, indifferent attitude directly affects their professional interests, and then influence their four years' university learning situation. In particular, there are some students are not satisfied with the

professional recognition, their slack will have a more adverse impact on other students. This also reflects the three grade students' interest in learning is not high, the current situation is consistent with the statistical data. It is suggested that colleges and universities' works should pay more attention to the students' understanding of the specialty, to the introduction of the students' professional development, to the professional skills and employment orientation, and cultivate the students' long-term occupational planning ability.

2.2 factors that affect learning motivation

The positive factors of affect learning were investigated from five aspects, namely the influence of main reasons for your professional interests: professional development, personal interests and expertise, the nature of the work, professional and social status and professional understand degree. 114 students, accounting for more than 38%, choice the professional development in the future; 90 students, accounting for more than 30%, select the personal interest; and 36 students, accounting for 12%, think the social status of the professional and the nature of the work need to be concerned. As can be seen from the data, the current college students' professional attitude is relatively rational. They can look at the future development of employment oriented from a professional perspective. But other very important information is, students generally think that personal interest is an important factor affecting the learning initiative. It also requires the ability to enhance the development, know the status quo of professional understanding, and keep a step with the development of professional. Therefore, we named people-oriented, we must give full consideration to the students' interest in learning expertise in the instructional design, focus on teaching students in accordance with their aptitude. Although some college students have a more realistic and utilitarian motivation, such as job income, which can also enable them to combine their own expertise to develop a more clear career development plan or academic planning. But it is undeniable that some students do not know their own development goals, college life is still relatively blind.

College stage is a key stage that ensure the students' thinking method, learning method, scientific research ability, physical and mental quality and other aspects of stable. If students can get a systematic, scientific guidance and help, it will be more conducive to the development of them. Therefore, this factor should be taken into consideration in the design of education administrators. At the same time, teachers in theory and practice teaching, they should understand the characteristics of contemporary students, such as hobbies, thinking ways, personal expertise. The individualized, personality training teaching methods, the Moc class inversion of new teaching ideas, and the inquiry learning mechanism should be considered.

2.3 **the degree of concern for existing innovation and entrepreneurship training platforms**

There are many levels of innovation and entrepreneurship training platform in Xi'an Technological University, which can meet the needs of different students in the design principle. For example: a professional learning tutorial system, open experiment plan, research plan, undergraduate college students' innovation and entrepreneurship program mode, let the students experience the process of innovation and innovation and fun. Gradually guide the students to the professional cognition, enhance the student's study enthusiasm. However, to the implementation of the innovation and entrepreneurship training platform for college students, it is found that only 56 students, accounting for more than 19%, are very clear to that. There are more than 155 students, accounting for more than 51%, do not understand or participate it ever before.

It is true that there are special funds and special events to promote the development of the program for college students each year from the Ministry of education, the Provincial Department of education innovation and Entrepreneurship Program. At the college aspect, followed by a series of incentives. However, the active

participation of students is the main purpose of policy formulation. It is clear that the data shows the degree of college students know the national and school policy needs to be improved. It also warns educators can timely transfer the national policies and regulations to students. Students can clearly understand the implementation requirements of each project, time schedule, skill requirements, at last, they can have the opportunity to participate selectively.

2.4 research on the recognition of specific innovation platform

The questionnaire also investigated the Undergraduates' participation in the research group, the participation in the major projects, in the photoelectric competition and the willingness to participate in the open experiment. In particular, 59% of the students expressed their willingness to actively participate in the research group of teachers, as soon as possible to engage in scientific research and training, improve practical application ability. There is also a positive attitude towards the photoelectric contest and open experiment (ratio of over 48%). College students innovation and entrepreneurship projects, 38% of the students expressed a wait and see attitude, indicating that their understanding of the policy is not good enough. More open experiment, the effect may not be recognized by students, 18% of the students expressed concern or objection.

In addition, it also makes a thorough research on the current state of learning, the most desired skills, the future career planning, the expectations of the hardware platform, and the requirements of teachers. For the current state of the investigation of students, found that 43% of students said that they know the future situation is grim, but now they feel very confused and do not know how to work hard; From the results we can see that these students on the current status of the study, although the person is not satisfied, but also do not have a clear idea about whether to develop their own future; learning plan, choose "making but not strictly enforced" and "never" accounted for 45%, indicating that these students also need guidance in school and occupation planning.

3. Discussion

3.1 strengthening professional cognitive education

Learning interest is divided into "direct interest" and "indirect interest" caused by the learning process and knowledge. These two interests are necessary for learning. Lack of direct interest, it will make learning a dull burden; no indirect interest, it will make students lose the perseverance and perseverance of learning. Paying attention to the cultivation of College Students' professional interests should begin with understanding the major. In higher education, professional ideological education is of vital importance to the formation of professional interest and stable interest. There are many reasons for the instability of professional thinking, the key is not to know the professional knowledge, no interest or not form the central interest in study. Regardless to students with "unpopular" or "hot" major, we should increase the training of professional interest to them. College Students' professional cognitive education should start as early as we can. It is better from the beginning at the first year of college, step by step to carry out systematic awareness education. Emphasize the professional cognitive education into professional learning students in school during the whole process. The measures taken is: in the first semester of college, 16 hours of professional introduction course is set up. Professional introduction take discipline responsible person system, namely the professional person in charge of the basic situation of the professional, including professional development, basic requirements, main disciplines, main courses, graduation, employment skills, employment etc.; and then divided into 5-6 topics talked by professional teachers in the professional knowledge module, shown in Table 1.

Table 1. The semester's professional introduction

No.	Content	Keynote speaker
1	Professional introduction	Head of Department
2	Optical design technology and its key technologies	Professional person in charge
3	Photoelectric detection technology and its key technologies	Professional teachers
4	Laser principle and key technology	Professional teachers
5	Principles and key technologies of optical communication	Deputy Dean
6	Digital image processing and its key technologies	Deputy Dean
7	Thin film technology	Professional teachers
8	Summary and assessment	Head of Department

3.2 improve the attention of college students on the innovation and entrepreneurship training platform

Since 2007, the Ministry of education has issued a project, Innovative experimental program for College Students, the undergraduate students take part in research is promoted in wide range which is regarded as an effective way to cultivate students' innovative quality. In addition, the college school also offers other platforms to promote students innovation, such as encourage undergraduate students joining the work group of teachers, e.g. School of Optoelectronic Engineering, Xi'an Technological University, provides 200 positions for undergraduate in 2016. With the synchronization, as well as various types of photoelectric competition, industry associations organized by the competition, etc., which also arranged a special guidance teachers. However, the discussion on how to guide students to participate in scientific research and how to promote the development of students' innovative quality is lagging behind. This leads to the design of the training platform and the expected results have a certain gap. Therefore, it is necessary to expand the discussion, and at the same time expand the publicity and guidance to students. The measures taken is: create a model for innovation and entrepreneurship, the implementation of a typical incentive. On College Students' innovation and entrepreneurship in the heart of the identity with vivid case to stimulate the innovation and entrepreneurship, improve the driving force; improve the degree of concern, students of innovation and entrepreneurship training platform. Take measures to ultimately improve the participation degree and quality.

3.3 guide college students' interest in the standard system

Let students participate in research projects, it can not only improve the professional cognitive ability and employment competitiveness, also stimulate the learning motivation of college students. However, this wide range of the new training system must be combined with college students' interest in learning, establish the basic system of undergraduate participation in science and technology training. Not only make more and more students join in

the project, but also need pay attention to the quality of execution. From the basic requirements of training, process control, assessment and other aspects of the norms and guidance. At the same time, pay attention to teachers and students to participate in scientific and technological innovation training incentives. In addition to all kinds of experimental teaching center, technology innovation service platform open to students freely. For teachers, their performance evaluation can be encouraged according to the university education reform project or research projects; it can also carry out preferential policies in the workload, job promotion and annual assessment.

4. Conclusion

Taking undergraduate students, grade 3, major in Optoelectronics of Xi'an Technological University as the research object, through the design and analysis of the questionnaire, it can be seen on students' satisfaction and professional knowledge professional overall good; analyzes the influencing factors of influencing students' learning enthusiasm. Some suggestions are put forward: strengthen the professional education and improve the innovation and entrepreneurship training platform of the attention. This efforts can protect the incentive mechanism, help to establish the good conditions and environment for college students' scientific research training, and ultimately achieve the goal of improving college students' learning enthusiasm.

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