Research on the Realization Path of Education through the Scientific Research in Colleges and Universities

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Abstract: With the improvement of the status and importance of scientific research in Colleges and universities, scientific research has become the focus of work in Colleges and universities. However, the relationship between teaching and scientific research has not been properly handled by universities and teachers, so the current situation of separation of science and education is extremely serious. In terms of expanding students' scientific research learning content, innovating scientific research education methods and improving students' scientific and technological innovation ability, it is of great significance to educate students through scientific research in Colleges and universities, which can provide references for promoting the continuous progress of scientific research and education in Colleges and universities. This paper makes a comprehensive analysis of the mode of scientific research and education in Colleges and universities, the problems faced by the way to realize scientific research and education in Colleges and universities, and puts forward a new way to realize scientific research and education in Colleges and universities.

1. Research background

1.1 Literature review

From the perspective of scientific and technological innovation, Tan Hong et al. proceeded from the existing problems in the scientific research and education path of Engineering students, drew the educational path of enriching scientific research and education theory, establishing scientific research management institutions or organizations for students, and establishing coordinated division of labor measures (Tan et al., 2018). Based on the cultural perspective, He Le et al. comprehensively analyzed the existing situation and the connotation of education of University Science and technology museums, and put forward some ways to realize education, such as carrying out campus activities, establishing their own social network relations and formulating cultural publicity and popularization activities (He and Yang, 2015). Xiao Zhongxiang and Du Yongfeng mainly from the relationship between new teaching and scientific research in the new era, comprehensively sort out the problems existing in the process of scientific research teaching, explore the ways of scientific research and education, and propose a living example of teaching and research with problem-oriented teaching and construction of teaching materials. Drive teaching innovation, enhance the effect of education and teaching with the interactive experience of teachers and students (Xiao and Du, 2018). Zhang Jingjing and Wang Peiying analyzed three aspects: constructing a practical education system, innovating and practicing the organization and carrier of educational activities, and constructing a joint construction model for production, education and research, and comprehensively combing the theoretical and practical achievements in the education of colleges and universities (Zhan and Wang, 2017). Based on Delphi method and analytic hierarchy process, Chen Jiahai and Wang Jiayi put forward to construct the evaluation index system of Ideological and political education path for Postgraduates in Colleges and universities. On this basis, they put forward suggestions on improving service and education, innovating and perfecting education path, classifying guidance and precisely implementing policies (Chen and Wang, 2017).

1.2 Purpose of research

With the development of scientific research technology in China, the state has gradually

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strengthened its emphasis on scientific research and education. At the same time, the state pays great attention to the cultivation of students' scientific research innovation ability and the study of scientific research knowledge. In this context, scientific research has become the focus of work in Colleges and universities (Chen et al., 2017). However, the relationship between teaching and scientific research is not well handled by universities and teachers, so the separation of science and education is very serious, which has become a hindrance to the work of national scientific research and education (Liu and Wang, 2015). In view of this, this paper makes a comprehensive analysis of the mode of scientific research and education in universities and the problems faced by the current path of scientific research and education in universities, and puts forward a new path of scientific research and education in universities, with a view to providing reference for promoting the continuous progress of scientific research and education in universities.

2. Analysis on the educational model of scientific research in colleges and universities

At present, there are three objectives of scientific research education in Chinese universities, namely, consolidating scientific research knowledge, cultivating scientific research spirit and strengthening scientific research ethics. Colleges and universities carry out scientific research and education activities on the basis of “science and technology explanation and learning”. The mode of scientific research and education makes use of classroom to train students' ability of scientific inquiry and autonomous learning, and cultivate students' scientific research behavior habits (Cao et al., 2012). Scientific and technological activities such as scientific and technological competitions carried out in Colleges and universities train students' professional skills in order to improve students' practical ability. The mode of scientific research education in Colleges and universities takes science and technology as a bridge to promote the accomplishment of scientific research achievements and realize the transformation from scientific research knowledge to scientific research practice. As shown in Figure 1.

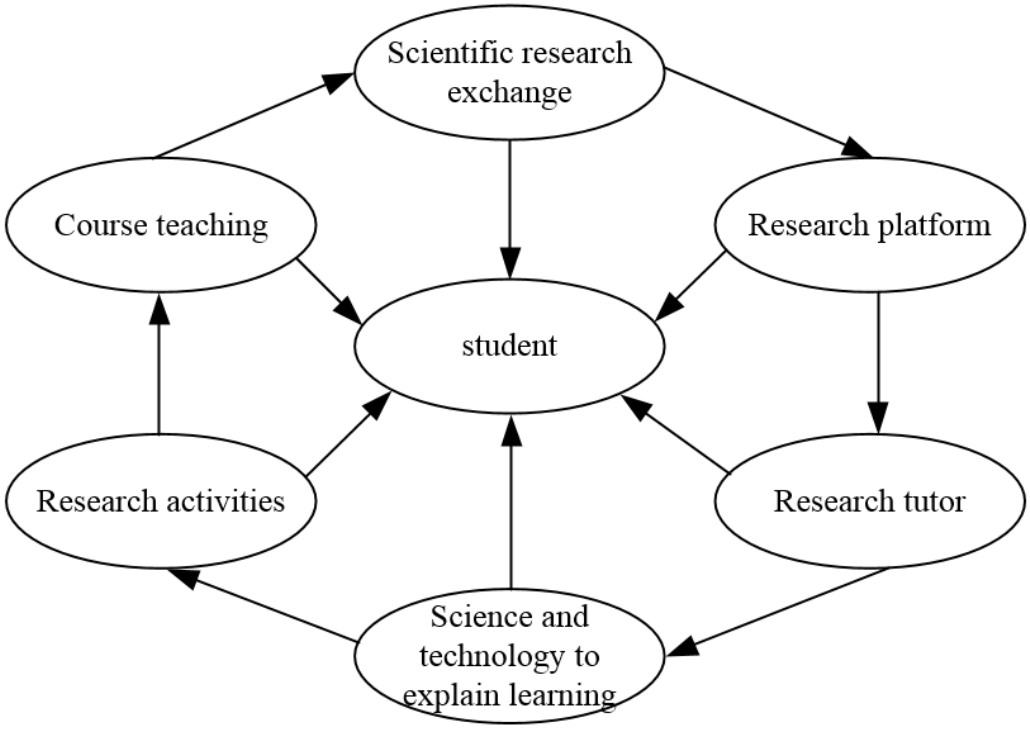

Figure 1. Scientific Research Educational Model in Colleges and Universities

2.1 Dimension of scientific research communication

The dimension of scientific research communication and education is to encourage students to improve their enthusiasm for scientific research and enhance their motivation to complete scientific

research projects. Therefore, the information communication platform between students and markets and enterprises is built. Through sufficient communication among research tutors, students and enterprise representatives, tutors and students can fully grasp market dynamic information and enterprise needs in communication, adjust their research directions according to the specific requirements of the market, and realize the virtuous circle of integrating scientific research achievements into the market.

2.2 Research platform dimension

With the national attention to scientific research and education, the number of scientific research platforms has gradually increased. Students can join research laboratories or tutor studios to conduct scientific research experiments, train their own operational skills and R&D capabilities, and on this basis summarize research methods to improve scientific research capabilities. Scientific research platform is of great significance for training innovative ability, cultivating students'innovative consciousness, scientific research ability and cooperative ability.

2.3 Dimension of scientific research tutor

The dimension of scientific research tutor is to train students' ability of scientific research and learning, and to cultivate the necessary methods of scientific research such as experimental operation, investigation and analysis through tutor's guidance and knowledge imparting. Students can not only participate in the tutor's scientific research projects and carry out battle operations, but also consult the instructor in the specific practice, expand the research horizon and solve the difficult problems of scientific research.

2.4 Learning dimension of science and technology explanation

The dimension of science and technology explanation is mainly based on the classroom in Colleges and universities. Teaching is the starting point of scientific research and education system. The focus of this dimension is to educate people, focusing on cultivating students' awareness of the importance of scientific research spirit, academic ethics and scientific research knowledge. Through explaining and learning of science and technology, students can grasp the frontier knowledge of science and technology, master scientific research knowledge, generate interest and motivation to engage in scientific research work, and establish correct scientific values.

2.5 Dimensions of scientific research activities

Colleges and universities continue to carry out activities related to scientific research, such as scientific research competitions, scientific research exhibitions, scientific research knowledge publicity and other activities. Participants in scientific research activities involve organizers of various departments, as well as instructors, students, evaluation experts, etc. The connotation of all-round, full-staff and whole-process education with students as the main body is fully embodied. Through the dimension of education through scientific research activities, students are encouraged to develop the scientific spirit and innovative ability of daring to question, boldly explore and dare to show their self-innovation consciousness.

2.6 Teaching dimension

The construction of curriculum education dimension aims at cultivating students' inquiry ability and autonomous learning ability through curriculum learning. There are many forms of educating people in the dimension of curriculum teaching, such as turning over the curriculum, integrating research into teaching, and seminar teaching. In view of the difficulties and difficulties in students' learning, the flip course and the seminar teaching form put forward and designed problems to guide students to explore and explore. In the form of educators, teachers' scientific research achievements are combined with curriculum content, and students are encouraged to develop their enthusiasm and curiosity for scientific research through the combination of teaching and research.

3. Existing problems in the way of achieving scientific research and educating in colleges and universities

3.1 Schools attach importance to the acquisition and research of scientific research projects and neglect the quality of teaching

According to research, the top universities in the world all emphasize scientific research. China's university rankings also take scientific research achievements as an important indicator to measure the level of universities. The weight of scientific research quality in the whole evaluation system is 40-90%. The top universities all meet the three indicators of more research results, strong scientific research ability and high academic reputation. Therefore, under the influence of external environmental conditions, scientific research occupies the primary position of Chinese universities. According to the number and level of scientific research papers published by teachers, the number and level of science and technology awards awarded, the number of science and technology patents granted and applied, the school evaluates the level and contribution of teachers, and judges whether teachers can be promoted and the value of year-end allowance. As for teaching, schools only require students to attend classes on time, and they pay little attention to the quality of teaching.

3.2 Teachers attach importance to the acquisition and research of scientific research projects and neglect the quality of teaching

Due to the influence of school, teacher evaluation system and social environment, most university teachers focus on scientific research projects and academic research, and put teaching in the second place. Some people jokingly call university teachers the bosses of scientific research projects, and generalize this phenomenon as “first-class teachers engage in scientific research, last-class teachers engage in teaching”. In addition, the salary of university teachers is small, and they tend to earn remuneration through scientific research projects, so as to improve the quality of life, so there are often phenomena that teachers are reluctant to attend classes. The state attaches great importance to this issue, and the competent educational authorities issue a number of documents to solve this problem. However, 90% of university teachers have undertaken the teaching task, but there are still insufficient attention to the quality of teaching.

3.3 Teachers' direction of scientific research is inconsistent with teaching content

The teaching method of university teachers should be based on the teaching content to carry out scientific research projects, and finally apply research experience to teaching. However, the phenomenon of scientific research for scientific research is prevalent among teachers. Among the existing university teachers, some teachers regard themselves as scientific researchers and do not teach at all. They only study the relevant contents of their subject areas. Some of the research topics selected by teachers have low relevance with their own teaching content, and can not involve their own research results in the curriculum content. The low correlation between scientific research content and teaching content has resulted in the fact that many university teachers do not devote much energy to teaching and are unwilling to devote more time and energy to improving teaching quality.

3.4 Scientific research and education neglect subjectivity and integrity

At present, the way of scientific research and educating people in Colleges and universities is generally outdated, and the effect of educating people is not obvious. In order to stimulate students' enthusiasm for scientific research and cultivate their scientific research ability, many colleges and universities have launched various scientific research activities, such as large-scale projects, academic lectures, scientific and technological competitions. But it has not fundamentally affected students' subjective initiative. In recent years, colleges and universities have actively promoted the work of scientific research and education in response to the call of “three-all education” and “two-creation education”. Although the school invests a lot of time and energy in scientific research activities, the enthusiasm of students to receive education on their own initiative is generally not

high. Most students passively participate in various kinds of scientific research activities, lack the initiative of the main body, and the effect of scientific research and education is not good. In addition, most colleges and universities do not attach enough importance to the work of scientific research and education, and do not add this plan to the content of the school development strategy. Therefore, the planning of scientific research and education is often only a partial planning made by the educational administration, scientific research and student management departments from their respective functions, lacking macro-integrity.

4. Ways to achieve scientific research and education in universities

4.1 Enhancing students' subjective initiative

As the direct beneficiaries of scientific research and education, students' subjective initiative is the fundamental means to realize scientific research and education in Colleges and universities. Enhancing the enthusiasm of students to participate in scientific research and educational activities and giving full play to students' independent learning and creativity have a multiplier effect on the work of scientific researchers and educators. Colleges and universities should organize and lead students to actively participate in various scientific research and innovation activities. In the process of participating in the activities, the school can cultivate students' team spirit and interest in scientific research, make them exchange with each other, summarize the experience and methods of scientific research innovation activities, encourage students to play their own research talents and strive for leadership role in scientific research.

4.2 Enhancing the Training and guidance effect of college teachers

Teacher training guidance plays a very important role in scientific research and education in Colleges and universities. It is not only the core of scientific research and education, but also the basis of its work. In the course of classroom teaching, teachers should strengthen students' consciousness of scientific and technological innovation. In scientific research activities, teachers use case analysis to standardize students' scientific research innovation behavior. In addition, in communicating with students, teachers can teach by example to cultivate students' independence, decisiveness, self-control and persistence in scientific research and innovation. In order to realize the combination of scientific research and education with classroom teaching, ideological and political education and practical activities, teachers should give full play to the role of training guidance.

4.3 Promoting the organization and coordination of colleges and universities

As an important carrier of scientific research and education, colleges and universities play an important role in scientific research and education. Colleges and universities need to build a system from three aspects, namely, scientific research and education system, evaluation system and service system. Through the scientific research and education system, colleges and universities can set up a strong team of teachers for scientific research and education. Through the evaluation system of scientific research and education, colleges and universities can strengthen the evaluation of scientific research and education. Through the service system of scientific research and education, colleges and universities can provide material guarantee for the work of scientific research and education. Give full play to the macro-coordinating and coordinating role of colleges and universities, and promote the orderly development of scientific research and education work. By fully mobilizing the enthusiasm of management, teachers and ideological and political educators, strengthening students' scientific research consciousness, innovating and guiding scientific research methods, and standardizing scientific research behavior in all directions, the whole process of scientific research and education can be realized.

4.4 Playing the leading role of the competent authorities in the direction

The competent departments of education and teaching at all levels should strengthen the recognition of the importance of scientific research and education, and take scientific research and

education as an index of the evaluation system of effective management objectives to supervise, promote and guide the work of scientific research and education in colleges and universities. Organizational management departments can also use supervision, evaluation and other ways to promote the development of scientific research and education in colleges and universities, and play an innovative and guiding role of education and teaching departments at all levels. In addition, the organizational departments can use scientific research project research and other ways to summarize and exchange the work experience of scientific research and education in colleges and universities, so as to play the leading role of educational and teaching departments at all levels in the work of scientific research and education in colleges and universities.

References

[1] Tan H., Wu N., Jiang Y.L. (2018). Research on the Path of Scientific Research and Education for Engineering Students under the Perspective of Scientific and Technological Innovation, Journal of Liaoning Radio and Television University, 148 (3), 12-13.

[2] He L.,Yang L. (2015). Research on the Path of Educating People in University Science and Technology Museums from the Perspective of Culture, Journal of Jiamusi Vocational College, 32 (2), 105-106.

[3] Xiao Z.X., Du Y.F. (2018). Research on the Mechanism of Teaching and Research Integration and Education in Teaching and Research Universities, Modern Educational Science, 461 (08), 42-46.

[4] Zhang J.J., Wang P.Y. (2017). Research on Multi-dimensional path of College Students' Practice Education, Quality Education in the West, 3 (10), 105-105.

[5] Chen J.H., Wang J.Y. (2019). Research on the Path Evaluation of Postgraduates' Ideological and Political Education--Based on the Investigation and Analysis of Graduate Students in Gansu Province, Graduate Education Research, 49 (01), 37-42.

[6] Chen T.T., Li Y.P., Liu Y.Z. (2017). Research on the Collaborative Innovation Path of Government, Industry, University and University Research Based on the Perspective of Talent Training in Colleges and Universities--Taking Qiqihar Medical College as an Example, Science and Technology Innovation Report, 14 (20), 219-220.

[7] Liu S.S., Wang X.X. (2015). The Educational Characteristics of University Research--The Unification of Teaching and Research in Universities, Teaching and Education (Higher Education Forum), 12 (33), 20-21.

[8] Cao Y., Xu H., Wang W. (2012). Under the Concept of “Engineering” Education, the Role of Scientific Research in Universities Promotes Teaching, Guangzhou Chemical, 40 (18), 149-151.