

Discussion on the Construction of Scientific Research Management Information System in Higher Vocational Colleges

Zhang Min

Guiyang Vocational and Technical College, Guiyang, Guizhou, China

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Abstract: Higher Vocational College is One of the Leaders of Innovative Technology and an Important Output Base of Scientific Research Results. with the Continuous Development of Network Technology, the Construction of Scientific Research Management Information System in Higher Vocational Colleges is an Inevitable Trend. However, in the Process of Constructing Scientific Research Information System in Colleges and Universities, There Are Many Restrictive Factors, Such as Large Amount of Scientific Research Data and Accumulation, Insufficient Funds for System Construction and Backward Concept of Scientific Research Information Construction. Based on This, Based on the Current Situation of the Construction of Scientific Research Management Information System in Higher Vocational Colleges, This Paper Puts Forward Some Construction Ideas, Such as Clear System Construction Objectives, Management of Scientific Research Projects and Achievements, Improvement of Data Quality and Improvement of Management Team.

1. Introduction

1.1 Literature Review

The investment of human and capital in scientific research in Higher Vocational Colleges increases year by year, which leads to the increasing pressure on the management of scientific research information. With the help of modern information technology, Li Jiao had created a scientific research management system for Higher Vocational Colleges in terms of management papers, achievements and scientific research projects, which also involves social training and characteristic vocational education appraisal (Li, 2015). The scientific research management system of some higher vocational colleges is still in the research stage, without perfect and advanced technology as support. Chen Juanli analyzed the problems of university information system, such as late start, short development time, low information thinking, weak management team and inaccurate system positioning, expounded that the information system has the advantages of sharing basic data, real-time management of scientific research projects and online statistics of scientific research information, and put forward suggestions for building a high service quality management system (Chen, 2016). Zhu Lihan proposed a new development space and driving force for scientific research management work by analyzing the information technology platform and the development concept of digital campus in higher vocational colleges, combined with the practical problems encountered in the construction of scientific research management information system (Zhu, 2018). Zhang Guangtao and others analyzed the problems in the informatization construction, integrated the system positioning and construction concept, and put forward suggestions for building the scientific research management system (Zhang et al, 2017). Zhao Xin believed that the information management system is good at sharing scientific research data and achievements, providing managers with theoretical basis for decision-making and improving scientific research management process, and proposed the idea of building scientific research management information system (Zhao, 2019).

1.2 Purpose of Research

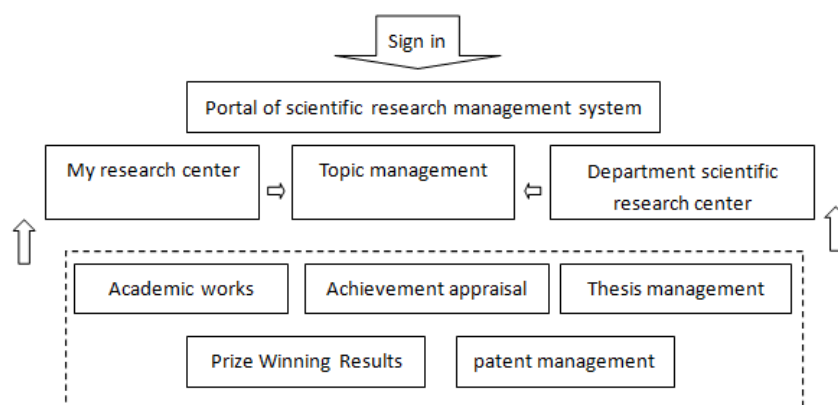
Scientific research achievements are the main supporting force for universities to improve their

academic development and teaching level, and also the main driving force for social and technological progress and economic development. With the gradual strengthening of people's demand for scientific and technological life, it is an inevitable trend for colleges and universities to build digital campus and improve scientific research management information system. In this context, the Ministry of Education issued a number of documents, emphasizing that universities should cultivate research and innovation projects and talents, and regulate network security and research informatization research. Higher vocational colleges are facing a huge challenge of innovation, and it is urgent to innovate the information management mode. Adding modern information technology to scientific research management information system can improve the level of information management and work efficiency, which is of great significance for higher vocational colleges to strengthen their own strength and promote national scientific and technological innovation.

2. The Current Situation of Scientific Research Management Information System Construction in Higher Vocational Colleges

Scientific research informatization was first proposed by the UK, and big data technology and network technology were added to scientific research management. Then developed countries or regions take scientific research informatization as one of the strategies to strengthen international competitiveness and enhance innovation ability, and invest a lot of funds to promote the development of scientific research informatization. China's development in this area is relatively slow. At present, only 20% of colleges and universities have established scientific research exchange platforms, and there are not many vocational colleges using scientific research information systems. Most vocational colleges still use basic office software to collect and exchange scientific research results, which can not meet the requirements of timely, accurate and efficient scientific research information. Some higher vocational colleges are unable to bear the high system funds, so they set up a simple scientific research information system to solve the problem of scientific research management information. Because of no maintenance and upgrading, this simple system has system loopholes and can not connect the educational administration, financial and personnel systems of higher vocational colleges, which leads to information localization. It is not convenient for teachers to operate and use the system, which results in low utilization rate of the system (Zou, 2017).

In addition to teaching, the functions of colleges and universities include scientific research and social service. With the strengthening of innovation consciousness and the reform of university system in higher vocational colleges, scientific research has been paid more and more attention. The places of scientific research information collection and scientific research gradually appear in higher vocational colleges, which drives students to love scientific research experiments. Scientific research management needs to control scientific research projects, costs, research results and researchers. The specific framework is shown in Figure 1. Scientific research management information system can connect the resources of various departments in higher vocational colleges, improve the efficiency and management level of scientific research, promote scientific research achievements and put them into practical application in the society. Transparency and openness of scientific research information can promote scientific research projects to produce results quickly, form an efficient and executable scientific research model, and enrich the research direction and results in the scientific research database. With the help of Internet technology, colleges and universities gradually innovate methods and contents in teaching, which will need the support of perfect scientific research management information system. Teachers can see the learning situation of students in the system and adjust the teaching plan in time, and can also share the latest research results into teaching content to students through the system (MA and Ding, 2017).



Figur 1. Research Management Information System Framework

3. Restricting Factors of Scientific Research Management Information System Construction in Higher Vocational Colleges

3.1 The Accumulation of Scientific Research Data is Large

In the initial stage of scientific research project collection and management in higher vocational colleges, there are not many researchers, projects, funds and achievements involved. With the help of the proposed software, data information can be managed well. With the development and importance of scientific research in Colleges and universities, the number of researchers is increasing, the amount of capital flow is increasing, and the tedious related affairs are increasing. The traditional scientific research management system has been unable to deal with these scientific research information. When the University updates the system, it will be limited by the original database, which can not fully meet the new needs of scientific research management information or need higher consumption to complete. In addition, due to the low network technology, colleges and universities usually use the form of bidding to introduce scientific research management system, most of the low-cost systems can not meet the needs of scientific research management for a long time. Finally, the updating frequency of scientific research system in Colleges and universities is low, which can not meet the needs of scientific research management, accumulate a large number of scientific research data, and reduce the role of the system.

3.2 Insufficient Funds for System Construction

Compared with ordinary colleges and universities, higher vocational colleges have fewer types and quantities of scientific research projects, less scientific research funds and less scientific research business costs. The establishment of scientific research management information system and the introduction of funds are often the main influencing factors for leaders to make decisions. Higher vocational colleges are lack of systematic technical talents and infrastructure, and it is difficult to independently research and develop the system, usually choosing a relatively perfect information management system. In addition to the initial purchase funds, the management system also needs to pay a large amount of system maintenance costs every year, which is stressful for higher vocational colleges. Therefore, the most direct influencing factor of the construction of scientific research system in Colleges and universities is the amount of scientific research cost and business cost. Because the system construction is not perfect, the scientific research information is relatively unsafe, and the information leakage incidents occur from time to time.

3.3 The Idea of Scientific Research Information Construction is Backward

From the perspective of educational purpose, research schools focus on cultivating research talents, while higher vocational colleges tend to cultivate students' practical ability and shape application talents. Therefore, vocational colleges in the construction of scientific research management information platform, focus on the construction of teaching content and form, do not

pay attention to the scientific research process. The unbalanced utilization of scientific research and teaching results in the incomplete development of management information system and the decrease of enthusiasm of teachers and students for scientific research. In this case, even if the university provides a powerful scientific research system for teachers, it still cannot improve the scientific research level of the University. Scientific research management information system is actually a management system, not just a technical system. The school's management system is not standardized, orderly and scientific, which leads to the low application rate of scientific research management information system and poor scientific research ideas.

4. Thoughts on the Construction of Scientific Research Management Information System in Higher Vocational Colleges

4.1 Clear Construction Objectives and Focus on Overall Planning

When colleges and universities implement the scientific research management system, higher vocational colleges should issue a clear goal of information system construction. Considering the research situation of the University, the university will integrate the information system into the specific plan of building a digital campus to improve the construction of the campus. Scientific research management information system should have the characteristics of security, availability, simplicity, operability and cutting edge. The system needs to meet the user's scientific research needs, run the basic work of scientific research management, and ensure the accuracy and speed of management information. The management system shall be able to operate safely for a long time without disclosing information. A part of upgrade space is reserved for the system, so as to update and accommodate new scientific research information in time. The information system is simple and easy to operate. It can be connected with other campus systems to complete the sharing of information and realize the integration of digital campus planning and practice in higher vocational colleges.

4.2 Strengthen Project Management and Improve Results Based Management

Scientific research management information system not only pays attention to the whole process management of scientific research projects, but also manages scientific research achievements. In the new system, scientific research achievements and projects are created into two repositories. Among them, the scientific research achievement database can be properly open to the society, provide help for social scholars to carry out scientific research, and seek potential social cooperative enterprises and companies. Colleges and universities put their scientific research achievements into the society for practical test, promote the development of social economy and accelerate the input of scientific research achievements into social production. Colleges and universities should improve the efficiency of management of scientific research projects, enhance the comfort of teachers and students in using the system, and improve the utilization rate of the system. In the management of scientific research information, higher vocational colleges should strengthen the management and control of scientific research project process, improve the operation speed of scientific research projects, and improve the output of scientific research results.

4.3 Improve Data Quality and Improve Management Team

Scientific research data is the basic element of management information system, which determines the quality of information system. The direction of scientific research involves many aspects, which means that the management system should meet the requirements of management. The quality of scientific research data directly affects the accuracy of teachers and students' personal calling information. For example, when teachers sign up for professional titles, they can query the number of scientific research projects completed by individuals and the content of scientific research achievements in the management system for a period of time; when colleges and universities count the scientific research of teachers for a year at the end of the year, they need to find the information of teachers completing scientific research projects in the system and The

departments concerned need to know the progress of the whole scientific research in our university recently, and we need to get relevant data from the system. Therefore, the quality of data and information can not only rely on personal check, but also rely on information technology to ensure the accuracy of information, and establish a sound management and scientific research information team to ensure the normal operation of the system.

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