

# The Role of Science and Technology Statistics in the Scientific Research Management in Open University

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**Abstract:** Despite its short history of development in Chinese universities, the science and technology statistics boast high-speed development. This article attaches importance to the influencing factors to discuss the necessity of open universities to conduct science and technology statistics reports.

**Keywords:** Science and Technology Statistics; Open Universities; Scientific Research Management

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## 1. Introduction

Science and technology statistics play a role in finding out the law of changes in the development of affairs through effective analysis of data accumulation and provide a valuable reference for future planning. In open universities, science and technology statistics is not only a part of scientific research but also a symbol of scientific research. In China, open universities should not only stress the standardization, conscientization, and institutionalization of scientific research but also pay attention to the reform and development of scientific research management when carrying out scientific research.

Science and technology statistics, a branch of Mathematics, conducts continuous quantitative measurement of the scale, structure, and function of scientific research activities in a country, a region, or a department. It adopts scientific methods to carry out targeted research on various phenomena of scientific research activities, so as to obtain some specific mathematical knowledge<sup>[1]</sup>. As a kind of quantitative testing of the scale, level, structure, and benefit of science and technology, it not only reflects the level and development trend of the current scientific research activities of the institution but also formulates policies for the development of the universities, providing certain scientific and technological support for them to prioritize their school work. The necessities for open universities to conduct science and technology statistics are mainly reflected in the following three aspects: firstly, science and technology statistics provides certain data support for major decisions of the university; secondly, science and technology statistics offers an important means of scientific research management; thirdly, science and technology statistics acts as an important measure of quantitative assessment and evaluation of scientific research. Therefore, the science and technology statistics of open universities play an indispensable role in the improvement of the scientific research management of open universities.

## 2. Factors affecting the science and technology statistics of the open universities

Open universities place great emphasis on the “people-centered” and “people-oriented” theories and have built a “one-stop”, “integrated” and whole-process service system<sup>[2]</sup>. Science and technology statistics refers to a series of investigations, audits, and summaries with a focus on filling in the annual report. It is essential to discuss the factors affecting the science and technology statistics of open universities if we want to enhance their efficiency.

The statisticians of the scientific research management departments in the universities are mainly responsible for the work related to statistics. The qualities of the management personnel have a direct influence on the efficiency and quality of the work related to statistics, which mainly includes their professional ethics, cultural accomplishment, management knowledge, analytical ability, and computer operation ability<sup>[3]</sup>. The final result of statistics is the sign of scientific research activities of universities, directly reflecting the scientific research activities and development management of the universities. At the same time, the modernization of statistics has penetrated into the whole process of scientific research management, and science and technology statistics determine the whole process of school scientific research management. As a result, science and technology statisticians in universities should take active actions to participate in science and technology management, and master the details of all aspects of scientific research management, while having a high sense of social responsibility

and professional ethics at the same time.

### **3.The publication of papers in open universities**

It is surveyed that CNKI has included 726 academic papers related to education from 2013 to 2023. This article has conducted data analysis for 10 academic journals, including Distance Education in China, Modern Distance Education, Open Education Research, etc. which have published more than 50 papers important to open universities. By 2023, it is speculated that these journals have been the main research journals of the open universities in light of the fact that papers published by them have accounted for one-third of the total papers themed by education on CNKI. Based on the data, we come to the conclusion that “adult education” and “distance education” are the main scientific research achievements of China’s open universities. At present, people pay relatively high attention to the papers published in journals such as China Distance Education, Adult Education, Modern Distance Education, and Open Education Research. Open universities take distance open education as their main education method and large-scale online courses as their main teaching method, as a result, the journals of distance education have large-scale papers published; Secondly, open universities set adult education as their main educational object, which are mainly related to fields such as adult education and lifelong education, therefore, adult education journals contain rich articles. Besides, Vocational Education Forum, China Electronic Education, and Modern Education Technology also have a relatively high publication volume, which may be closely linked to the development of adult education, distance education, and modern information and technology.

### **4.The importance of science and technology statistics in open universities**

We may arrive at the conclusion from the above discussion that science and technology statistics has conducted regular, specific, and overall understanding of the phenomenon of scientific research activities through a scientific method. By a series of statistical analyses, the law of the changes of affairs can be discovered finally, which provides scientific support for policy adjustment of countries, regions, and departments.

Science and technology statistics lay the foundation for both major decisions and development of the universities. Therefore, the statistical data of science and technology must be comprehensively analyzed to obtain a deep understanding of the science and technology situation in universities. Shanghai Open University, for example, formulated a calculation method of rewards for scientific and technological achievements and the research workload. On the basis of science and technology statistics in recent years and through comparison, the university finally came up with a reasonable plan, which was beneficial to the school’s development. The plan has inspired the enthusiasm of researchers and promoted the development of scientific research.

At present, open universities in China have made a systematic understanding of the research task volume of the students. Universities should take active actions to work out some quantitative indicators that objectively represent the quantity and quality of the science and technology work. Each indicator should reflect the content of science and technology work. At the same time, scientific and technological data can be used to compare a variety of indicators so that the development of the school’s scientific research activities should be evaluated in a more comprehensive and objective way. Science and technology statistics not only play a relevant role in not only quantitative assessment and evaluation of scientific research but also in other aspects such as professional title evaluation.

The actual situation of the open universities is obtained after data statistics on the scientific and technological work, scientific research, and academic exchanges of the open universities. The universities make an analysis of the advantages and disadvantages of the research based on the data and give strong support to the advantages to promote their development. In terms of the relatively weak areas, targeted measures must be taken to introduce high-level professional and technical personnel, so that the universities achieve rapid development in a short time. In addition, on the basis of these data, we can also make a horizontal comparison with other similar universities, find out the shortcomings, learn from the experience, and work out a set of research and development plans that meet our own conditions. Through the above efforts, high-quality development of the universities can be achieved.

### **5.Conclusion**

The high-quality development of open universities requires scientific research to reserve energies and increase potential energies so that these energies can be transformed into efficiency. Open universities make use of science and technology statistics reports to conduct

tracing and research for the implementation of scientific and technological plans. What's more, relative strategies are mapped out for the improvement of the plans. Scientific research is conducted to promote teaching, management, and services. Teaching, scientific research, and social services are the three major fundamental functions of open universities, among which, scientific research is not only one of the fundamental functions of open universities but also plays an important role in ensuring and promoting the effective implementation of their teaching and social service functions. Meanwhile, open universities conduct analysis and research the advantages and disadvantages of their work to leverage the strengths and avoid weaknesses based on the science and technology statistics report. In China, effective evaluation of the research achievement of the open universities is a comprehensive, systematic, and complicated task. By use of science and technology statistics reports, tasks can be achieved in a complete, objective, and easier way. Subsequently, strengthening the quality management of scientific research and establishing scientific and effective quality assurance mechanisms are of significant theoretical and practical importance for open universities to strengthen their scientific research capabilities and fully leverage their scientific research functions.

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## Funded Project:

This study was funded by the Science Research Foundation of the Yunnan open University (Grant No. 23YNOUZ84 )