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Analysis of the Application of Statistics in Education

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Abstract: Today, most people think that there is no use of statistics in education, a subject that does not seem to be directly related to data, or does not understand the use of statistics in education. This paper will introduce the application of statistics in three different aspects of education. Educational statistics is an important tool in educational management, educational decision-making and educational reform. People can use statistical methods to improve educational management and improve the quality of education, make better educational decisions and promote educational reform.

Keywords: statistics, educational statistics, applied analysis

1. Introduction

Statistics is a kind of social activity of human beings, and it is a set of purposeful and planned social management behaviors gradually formed when human society develops to a certain stage [1]. The word statistic originally refers to the comprehensive calculation of the quantity relationship of a large number of things. Educational statistics is the application of statistics in the field of education and is the main means of quantitative education management and quantitative research [1]. As a research method, educational statistics is the work of sorting, analyzing and interpreting the data obtained in educational practice based on the general principles and methods of mathematical statistics. The object of education statistics is data. Therefore, it is closely related to the processing of data results of investigation methods and experiment methods.

In today's society, most people think that there is no use of statistics in education, a subject that does not seem to be directly related to data, or do not understand the specific use of statistics in education. However, in fact, it is just the opposite. The application of statistics in educational research promotes the development of educational activities themselves. Its application can be as small as the teacher using statistical methods to analyze the wrong probability of each question in a class after each test, and predict the enrollment rate of a school according to the previous data. It can also be as large as the use of statistical methods to summarize educational theories. Educational research in ancient times was almost a philosophical activity. With the development of modern educational experiments and educational tests, educational statistics and educational scientific research are closely combined. Many modern educational theories are put forward and many educational experiments are designed and carried out with the help of accurate statistical methods.

This paper focuses on the application of statistics in education. If education is divided into three major sectors: educational management, educational decision-making, and educational reform, what is the position and role of educational statistics in these three sectors, respectively? This can also

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help more people understand the particularity of educational statistics and its application. This paper provides a reference for the development of the application of statistics in the field of education.

2. Analysis

2.1. The Status and Application of Education Statistics in Education Management

As we all know, modern management cannot function without statistical activities. In modern management, people systematically collect, sort out and analyze relevant statistical data to reveal the inherent regularity and inevitability of a large number of accidental events or random phenomena, so that managers can grasp the management elements to improve the quality of management. Similarly, educational statistics is also one of the indispensable scientific methods in modern educational management activities [2]. In modern education management, people need to use the method of education statistics to investigate various educational activities and educational phenomena, and to collect various data systems. At the same time, it is also necessary to use statistical techniques to extract and comprehensively analyze the causal relationship from disorganized data or complex emotional education phenomena, to study and master the law of education development, so as to improve the quality of education, teaching and management. Thus, it can be seen that educational statistics play an extremely important role in educational management. Educational statistics is an important means for educational administrators and teachers to study and analyze education and teaching situations, improve educational methods and strengthen management. Education statistics is the main means of quantitative education management and research [2]. Only by combining qualitative analysis with quantitative analysis can school administrators achieve the optimization of educational management objectives and realize the modernization and scientific education management. For example, these statistical methods are applied in the assessment of teacher education and teaching and the analysis of students' test scores, so as to provide specific guidance and help when using statistical methods [2]. In the process of teaching, in order to improve the quality of teaching, teachers must be familiar with their educational objects, understand the learning situation of students, and analyze the characteristics of the distribution of students' overall development and existing problems. The progress of these works is indispensable to the application of statistical methods.Education statistics, as an important work in education management, is not only related to whether the local education department can make scientific decisions and scientific management, but also related to the overall situation of promoting the comprehensive, coordinated and sustainable development of schools and making efforts to do a good job of education to satisfy the people [3].

2.2. The Status and Application of Educational Statistics in Educational Decision-making

Educational statistics can help decision makers explore the nature of educational phenomena and the relationship between various educational phenomena. Everything has both quality and quantity [1]. These two aspects are dialectically unified; When we study things, we should first understand the attributes of things, find out the difference between them and other things, and determine the quality of things. At the same time, we should also pay attention to the quantity of things and phenomena. Therefore, in our educational work, in order to find out the nature of educational phenomena from the quantity, we must organize the quantity, calculate the average, standard deviation, coefficient of variation and other statistics, and use these statistics to explain the nature of educational phenomena. There is often a certain relationship between things and phenomena. The change of one thing often causes the change of another thing, or the influence of a certain factor on many things, and some changes will occur at the same time [1]. All kinds of educational phenomena are related and restricted to each other. Correlation analysis in educational statistics can assist us in

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determining the relationship between two or more educational phenomena as well as the degree of closeness of the relationship based on the quantitative aspects of various educational phenomena. Educational statistics is an important part of the work of educational administrative departments and an important basis for formulating educational policies. In planning and formulating policies, administrative departments of education need statistical work to provide a data basis. After the determination of the policies, it is necessary to provide accurate and reliable data through investigation to test their implementation [1]. Therefore, educational statistics are an important means of examining and supervising educational policies and policies. Government education departments need to use educational statistics as a basis when formulating corresponding policies and policies. After the implementation of various educational policies and policies, it is necessary to review and test the implementation of them and the subsequent implementation of the work through the relevant data obtained from education statistics. Thus, educational decisions can also be reviewed using educational statistics to guide the follow-up education policy work [4].

2.3. The Status and Application of Education Statistics in Education Reform

Nowadays, with the all-around advancement of education reform, people do not only need to make reasonable adjustments to the existing education structure, but also make comprehensive planning and prediction for the future education [5]. At the same time, it is indispensable to evaluate the quality of education scientifically and explore the form and benefits of running a school [6]. Secondly, it is more necessary to analyze the phenomenon of education, understand and explore the laws of educational development to promote the formation and development of new ideas and theories of education [7]. All of these cannot be done without education statistics. Education statistics, as a modern management tool and a scientific method, is a very basic task in modern education management. As education reform deepens, not only do higher update requirements for education statistics emerge, but education statistics are also becoming more widely used in space, giving education statistics a new mission [5].

In the period of educational reform, in addition to improving the quality of teaching and actively carrying out scientific research, it is also necessary to keep closer contact with society outside education, the market and the international community, and timely understand and master various educational information and trends to carry out educational reform. So, statistics play an important role here. First of all, education statistics should balance and coordinate the relationship between cultivated talents and the market economy, and actively collect various information inside and outside of education. This means that education statistics should balance social and domestic and foreign markets, and analyze various data. According to market demand, use educational statistical tools to carry out enrollment plans from the aspects of talent training orientation and professional setting [2]. At the same time, relevant departments should also carry out educational work on graduate employment and graduate quality follow-up surveys [2]. Then, the information is comprehensively analyzed by the analysis method with high reliability, so as to improve the teaching efficiency and enhance the vitality of running a school [8]. Secondly, education statistics should balance and coordinate the relationship between scientific research and market economy, conduct extensive market research, and provide statistical consulting services. Only in this way can scientific research and the market be closely integrated, a bridge between scientific research and market economy can be built, and scientific research achievements can be transformed into economic benefits. Teaching and scientific research in colleges and universities can promote local economic construction services. Ultimately, teaching, scientific research, service, and economic benefits can promote each other and achieve the highest degree of harmony [2].

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3. Conclusion

This paper studies the application of statistics in education, corresponding to three aspects of education: educational management, educational decision-making, and educational reform.

In educational management, teachers can use statistical methods to get familiar with their educational objects, understand the learning situations of students, analyze the characteristics of students' overall development status distribution and existing problems, and improve the quality of education and teaching based on these. In educational decision-making, statistics can help us to find out the relationship between two or more educational phenomena and the close degree of the relationship from the quantitative aspect of various educational phenomena, so as to formulate educational policies. In educational reform, the use of statistical methods can let us timely understand and grasp all kinds of educational information and dynamics to carry out educational reform, so that scientific research and the market are closely combined.

This paper only introduces the application of statistics in education, but does not specifically mention the specific statistical methods that can be used to obtain more accurate statistical data to improve the quality of education and promote better education reform.

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