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Research of College Teacher Training based on Big Data

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Abstract

The traditional teacher training has some problems, such as the training form is too single, the course content is divorced from practice, and the evaluation method is limited to appearance. The emergence of big data has provided new solutions for the training of college teachers. Based on big data technology, this paper expounds the training of teachers in colleges and universities from the aspects of effective data mining, data and teaching phenomenon association, data-to-personalized recommendation, professional development cooperation model, and collaborative construction of smart teaching space. At the same time, some problems should be paid attention to in the process of teacher training.

Keywords

College Teachers; Data Mining; Offline Teaching; Personalized Recommendation.

1. Introduction

The quality of College teachers is the cornerstone of the quality of higher education. With the development of science and technology, the teaching profession has been given higher requirements. Cultivating high-quality teachers has become one of the common goals of educational reform in various countries. In recent years, many countries like Britain, Germany, Australia and other countries have launched excellent teacher education programs [1]. In 2014, the Ministry of Education issued the plan of the excellent teacher training, which aims to expand the excellent teacher team, improve the quality of education.

The emergence of big data provides a new solution for the training of outstanding teachers. Big data refers to a large number of complex data that are difficult to analyze with traditional methods and tools. Big data technology is the calculation of relevant operations on the data generated or used in a specific time period through certain computer software [2]. In recent years, big data technology has been widely used in many fields. Based on big data technology, an integrated platform and standardized database can be built, which can effectively open up all links of teachers' lifelong career development process and provide strong support for the realization of process of teachers' training.

2. Teacher Training based on Big Data

The traditional teacher training has some problems, such as the course content is divorced from practice. The root of the problem lies in not doing a good job in supply and demand. Based on big data technology, reform and innovation can be carried out in terms of training needs, course content, training mode and evaluation methods. The key is as follows.

(1) Mining validity data. It is particularly important to define the boundary of effective teacher education data and implement operable big data mining methods to ensure that the mined data can fully and effectively analyze the research objects. For Hadoop, an applied tool of big data, the validity data that can be collected in teacher education include: basic data, online teaching data, online feedback data, monitoring data, operation data, offline record data, measured data, etc. These data

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have a strong directional connotation to the learning, work, behavior and habits of teachers and students.

(2) Realize the connection between data and teaching phenomena.

At present, the education big data research pays more attention to the analysis of correlation, but desalinates the causal relationship. For the big data analysis in the growth and development process of teachers and students, we should extract the causal relationship between behaviors and phenomena from the data as much as possible, so as to provide a basis for the optimization and upgrading of resource modules, personalized recommendations and top-level education decisions in the growth environment of students. The correlation analysis of learning effect is the key analysis component of the ternary analysis framework. The content semantic analysis tool, the encoding and decoding are used to study the correlation between the utilization rate of each teaching function module and the learning effect of the student group. Therefore, data extraction, algorithm conversion and merging strategies will be the focus of the research on the teacher education ecosystem.

(3) Realize the guidance of data to personalized recommendation.

Based on the perspective of professional application of teacher education, data mining is used to drive personalized recommendation of teacher education. Specific personalized recommendation modes mainly include content-based recommendation, collaborative filtering algorithm based on user behavior, and collaborative filtering algorithm based on items. The selection of algorithms will have different effects on the online learning experience of students analyzed by different analysis methods. Appropriate personalized recommendation algorithms will effectively stimulate students' learning enthusiasm, To improve the teaching effect of students, learners' sense of experience of the teaching ecological environment will be enhanced. According to the analysis results of the teacher training process in recent years, the data modules and data streams mined and analyzed belong to low noise and high redundancy, which are more suitable for content-based personalized recommendation paths, and the recommended resources and teaching paths are more accurate; On the contrary, the data module and data stream belong to high noise and low redundancy. The collaborative filtering algorithm based on user behavior and Project-based Collaborative filtering algorithm will be more accurate.

In addition, the personalized resource recommendation platform for teacher development is the key factor to achieve the training of excellent teachers. Through the construction of the platform, the training system can be connected with the data of teachers' lifelong learning archives.

(4) Establish an online teacher professional development cooperation model

In the era of "Internet + Big Data", the key path for teachers to grow is to form "online" motivation and awareness, to be able to carry out social interaction and data exchange in an online environment, to complete the construction of teaching content, and to form an online environment. trend of self-development. As a management organization for cultivating teachers' growth, education authorities should focus on researching and discussing the online development of outstanding teachers, and take the initiative to connect with teacher training schools and teacher training schools, formulate relevant policies, and improve various mechanisms for cultivating outstanding teachers. The Internet system of "cloud computing + big data" is used as an important means of teacher training, such as teacher guidance, process management, award evaluation, professional title evaluation, performance appraisal, etc. At the same time, teachers should form a model of using "online learning" to guide students , using the "Internet + Big Data" teaching system to build a truly highly engaged and personalized learning experience for students.

(5) Collaborative construction of smart teaching space

Different teachers have great differences in professional literacy, information literacy, intelligent thinking, digital literacy, and deep learning. It is not feasible to use the same standard to guide the literacy improvement of teachers. , the effect is not good. Therefore, the content and teaching methods of many teaching tasks have undergone tremendous changes under the background of big data. How

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to combine the training work according to the current background of the big data era is one of the key directions of the education and training staff in the department. The collaborative smart teaching model of "big data + education", in order to effectively improve the professional quality of teachers, mainly includes the following elements: First, based on "big data + learning analysis" to drive the cloud platform for targeted analysis of teachers, and formulate corresponding The second is to use HaDoop+MapReduce as the support for algorithm operation, and to set the corresponding personalized recommendation model to realize personalized guidance and targeted resource recommendation for teachers and students; Leasing, independent development and other forms of enriching the resource library to provide teachers with high-quality resource services; The fourth is build a smart teaching system based on open collaboration, form a teacher training area alliance, form a long-term smart teaching environment, and achieve high-quality teacher growth and development path.

(6) Diversified evaluation

In the era of big data, teachers' evaluation tends to be diversified, objective and precise. A data-driven evaluation model should be developed, and efforts should be made to build a diversified intelligent evaluation system such as online mutual evaluation, offline interviews, questionnaires, cloud digital portraits, and video joint evaluation, and use data as the standard to describe and describe the characteristics of teachers in the process of growth. Depiction, everything speaks with data, and strives to form an objective, real, three-dimensional digital portrait of the teachers under evaluation, and form personalized growth guidance, resource recommendation and training programs.

3. Conclusion

The era of big data has come, and various fields are making full use of big data to provide data support and help for their own development. Under the background of big data, the current research on teacher training is gradually extending from the theoretical and conceptual level to the modeling analysis and data application level. The data application level research focuses on the teaching quality monitoring statistics, activity analysis, Interactive feedback analysis, teaching recommendation decision-making and other dimensions. Big data provides new ideas for the training of college teachers. Subsequently, we will further explore the contribution and help of big data technology to teachers' growth, and seek more theoretical and practical support for teachers' independent development.

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