

Analysis on the Key Implementation Points of Big Data Analysis Based on Foreign Language Teaching

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Abstract

The era of big data has brought about new opportunities for foreign language education. The comprehensive analysis on the data of learners, educators and educational institutions etc. can help make more targeted educational decisions. This paper briefly introduces the concept of big data analysis to simply analyze the favorable direction of big data learning and analysis in foreign language teaching, in the hope of providing references for relevant personnel in the education business, implementing the big data analysis technology in the process of foreign language teaching well and further facilitating the progress and development of China's foreign language education.

Key words: Foreign language teaching; Large data analysis; Key implementation points

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INTRODUCTION

Foreign language education is an important part of China's education. How to improve the effect of foreign language teaching in the era of big data has also been a topic attracting extensive attention by educational personnel concerned. We can comprehensively master the learning data of learners through learning and analysis. In this way, targeted teaching can be carried out based on different

conditions of learners so that the foreign language teaching model can be improved fundamentally and the foreign language effect can be improved. Therefore, the key implementation points of big data technology are particularly important.

1. INTRODUCTION RELATED TO BIG DATA ANALYSIS

Big data, just as the name implies, refer to huge data and are massive information assets with a high growth rate to be processed in diversified ways through the strong process optimization ability, perception and discovery ability and decision-making power. The definition given by relevant researches is shown below: Big data are a data set which has greatly exceeded the ability of traditional database software tools in the acquisition, storage, management and analysis due to its great scale. It is mainly characterized by the large data size, fast data flow, data type diversity and low value density. The significance of big data technology lies in processing the huge information acquired in a professional way. It can also be thought in this way. Let's draw an analogy. Namely, if big data were compared to an industry, the ability to process such data is the ability to process commodities in the industry. The industry can gain profit-making appreciation only when the information processing ability is enhanced. The feature of big data is that distributed data mining has been carried out for massive data. A big data analysis refers to the analysis on large-scale data. Learning analysis is the specific application of big data analysis in the field of foreign language teaching and is the educational science aiming to acquire and learn data, so it is related to the application of information technology in the field of education.

A learning behavior model for learners was built by collecting, systemizing and analyzing educational big data so as to analyze the existing learning styles of

learners. Relevant educators show, in their researches, that the educational big data are mainly applied in educational information mining and learning analysis, the two of which are greatly different from each other. The educational information mining aims to show the learning behavior model of learners through researches and study learners' learning trend. The objects of research are also those related to learners. As for the research methods, the principle of statistics, machine learning and data mining are used. However, a learning analysis aims to help educators to learn the learning levels and actual needs of different learners so as to implement effective educational ways. In addition to students' learning behavior data, the objects of research also include relevant data of the educational institution. As for the research methods, the technical methods of sociology, psychology and learning science are adopted. This paper mainly explores from the perspective of learning analysis.

A learning analysis refers to establish a data model by analyzing and collecting relevant elements in the students' learning process and discovering elements beneficial to students and their learning law by specifically analyzing the big data model so as to find out the potential values. The analysis includes the analysis on teachers' teaching ways, methods, students' learning content, teaching management modes, teaching environment and teaching organization. The educational institution can learn teachers' teaching information and students' learning trend through a big data analysis so as to optimize the teaching direction, provide a basis for teaching accurateness and realize both the teaching value and teaching goal. The learning analysis has promoted the development of education toward the direction of informatization and datamation, so it has made imponderable contributions to education. The arrival of big data will certainly become a huge impetus for education. The era of big data has brought forward higher requirements for talent training, so the past educational means, learning and evaluation ways can no longer meet the needs of the new era. It is also pointed out in the national educational requirements that the educational department should intensify the reforms in educational means and contents, make modernized transformation of educational methods, make educational information network deployment ahead of time and encourage both students and teachers to expand learning through information technology platforms. The form of informationized education has become one of the major educational forms in the era of big data. The key points for the specific implementation of the form are a problem that educators should consider.

2. KEY POINTS OF LEARNING ANALYSIS

To solve the educational problem in a targeted way, it is required to learn how to make a big data analysis. In

the first place, learn which aspects key points of big data analysis lie in: data collection. The educational data are mainly shown in two aspects: the specific educational system and educational environment. The educational system includes students' activity data and exchange data during learning. The latter exists in social contact hardware and mobile terminals related to online learning resources on the network. With the development of the era, the constantly emerging channels provide learners with abundant learning resources. Under the circumstances, abundant data have also been formed accordingly. In a learning analysis, data generated in real life can be combined with unreal data so that more real feedbacks about learners' learning information can be given. Data analysis mainly achieves the quantitative and qualitative analysis on learners' learning data and the analytical result can be shown to the learners in the form of a visual table or icon. The data analysis, including educational data mining, machine learning, deep learning, statistical analysis and data visualization etc., is mainly adopted.

The main points of focus of learning analysis fall to students and the data generated in the educational environment, including the contents of educational resources students can access in the educational process, students' social contacts with other educatees in the educational process, their psychological state in learning, performance in learning, media used in learning or type of knowledge they like, persistence or perseverance duration in learning, number of learners, data generated from corresponding management, learning time and order in class etc. Through the analysis on such factors, objective feedbacks can be given to learners so as to enhance learners' learning efficiency. As for the beneficiary groups, learners, educators, education designers and educational institutions are all the major groups who get benefits from the learning analysis, because a learning analysis meets their needs in varying degrees. For students, they can learn their learning conditions based on the objective feedbacks from a learning analysis, optimize their learning modes based on their shortcomings shown, make progress, improve learning, and avoid the incorrectness of their learning methods to a large extent. Educators can clearly learn students' learning characteristics, ways students like and their mastery of knowledge etc. through a learning analysis. Education designers can judge the difficulty level of learning materials and make improvement through a learning analysis so as to improve the teaching quality. Through a learning analysis, educational institutions can make improvement according to the conditions of teachers and their own resources to achieve optimal allocation.

A learning analysis aims to optimize an educational institution's own educational resources, can stand out from the competition with other educational institutions, improve the teaching ability under the condition of big data analysis, achieve correct teaching, realize the

teaching effectiveness during teaching and is a science-based teaching activity. A unique scientific educational mode can be created through various behavior analyses on teaching factors and the preconception ahead of time. Building a relevant model from multiple angles can help learn learners' learning trend more comprehensively so as to make more targeted teaching schemes. For example, build a knowledge model for learners through learners' correct, incorrect and partly correct answer data in network learning, including the time they spend in answering questions accordingly, asking for help, mistakes and mistake repeating data, learners' learning content and corresponding learning duration, and learners' test results etc. so as to give suggestions on learners' feedbacks of their own conditions, help learners to fully understand the knowledge they've learned, find their shortcomings in concepts, knowledge points, contents or ways of thinking, obtain improvement directions and make improvement. For another example, the learner behavior modeling is based on learners' learning results during online learning, such as completion time, accuracy and the comparison between the final result and the actual learning condition in class. Find the difference to finally build the learner behavior model.

3. IMPLEMENTATION AND ADVANTAGES OF BIG DATA ANALYSIS IN FOREIGN LANGUAGE TEACHING

In the era of big data, there are new opportunities for foreign language teaching. The foreign language teaching mode not only is limited to the simple platforms and software but also moves forward in a more characteristic teaching direction. Impacted by big data, foreign language teaching also is also gradually getting close to big data. To put it simply, educators and teaching researchers first analyze learners' learning needs to obtain the project for learning analysis and, then, directionally analyze the learning data of learners in all sorts of learning media on the network. For example, analyze learners' learning data including the error rate, actual learning scores, error point and learning contents etc. on the www.pigai.org, or analyze learners' specific conditions (learning frequency and learning results etc.) during the information exchange and learning in knowledge forums or social software with social network analysis tools such as SNAPP so as to know learners' learning conditions and find out the students with relatively weak learning ability for targeted teaching. Besides, analyze learners' historical browsing data on the internet to learn which aspects of knowledge are mostly needed by learners specifically and thus optimize the teaching mode in the teaching process based on learners' interests. Change the teaching mode; directionally change the practical class into the form of online class; carry out education in the form of

online open class. MOOC is exactly one of these ways. Regardless of the forms of learning analysis, foreign language educators aim to collect and analyze learners' learning data via analytical tools so as to comprehensively know learners' learning trend. Through all-dimensionally learning each learner's learning ability, reasonably allocate teaching resources according to the different conditions of each learner and rearrange the teaching scheme to open a new learning direction. Besides, spread foreign language education resources to learners accordingly through intervention in learners' learning; achieve the teaching characteristics, correctness, scientific teaching and wise teaching; meanwhile, reach a new high level in teaching design and teaching management.

3.1 Meet Learners' Learning Diversification During Foreign Language Learning

The traditional educational forms are usually too rigid for learners when they learn a foreign language. However, the arrival of the era of big data has brought more good news for them and fully satisfied their diversified needs. For example, the www.pigai.org analyzes each learner's data with the learning analysis technology and students' behavioral analysis in the informal learning pattern, and finally forms written evaluation feedbacks. After analyzing learners' data left on the platform during writing, it makes a feasible, developmental and detailed evaluation on their learning results. As it eliminates the disadvantage of no result evaluation in traditional tests, learners can timely get feedbacks, timely realize their mistakes in learning and, thus, timely correct their ways of expression. The self-tracking helps learners to understand themselves more through external evaluations. The foreign learning pattern is developing toward the directions of "de-authorization" and "decentralization". In addition, each learner can combine their mutual learning advantages and disadvantages as well as the mutual specialty differences, largely meeting learners' psychological identity and emotional demand in learning; in this way, they can get extremely individualized learning processes.

3.2 Realize Individualized Foreign Language Learning

With the arrival of new media, learners have more individualized learning modes. While learning a foreign language, learners can utilize abundant network resources, which have provided learners with a rich learning environment system, enlarged the learning space infinitely and diversified the learning modes. For example, when students learn English writing, the www.pigai.org can be used; teachers guide students to collect materials based on the writing requirements, and find writing methods and excellent articles for writing; in this way, writing can be finished through the online and offline communications. Besides, students can repeatedly modify and edit their articles in the writing process, check their articles and thus make their articles to reach their expected effects. This

way has realized the openness, autonomy and interaction of the writing process and has taken leave of the passive closed way. Especially, it shows not only the flexibility of network learning platforms but also the importance attached to learners' dominant position in foreign language learning. Multifunctional individualized learning largely stimulates learners' sense of participation. For example, during the foreign language learning, students can put their articles in foreign languages to a learning platform, where students can mutually evaluate their articles and give suggestions on improvement; then, learners' interest and level are enhanced. The characteristics writing, reading and evaluation can help improve the learning mode and, thus, enhance learners' learning ability.

3.3 Achieve Individualized Foreign Language Teaching

The big data analysis can help teachers to learn students more comprehensively so as to conduct targeted teaching. For example, the www.pigai.org can generate enormous objective and real data, can show all sorts of problems students encounter during foreign language writing, the specific conditions of grammatical mistakes in writing, writing levels, rationality of word organization, modification of articles during writing and other problems. After knowing such problems in this form, teachers can rethink about and adjust their teaching modes, arrange targeted writing exercises based on the specific conditions, choose more targeted questions, start from students' practical conditions and, thus, build their individualized teaching modes.

In the era of big data, the information sharing and emergence of new media lead to more flexibility and diversification in learning. Thus, teachers need to utilize the characteristics of the era to improve the boring teaching mode. They should start from the perspective of students, combine teaching contents with emerging technologies in specific teaching, realize the organic combination in and after class and make teaching not only limited to classroom. Besides, they should broaden the scope of knowledge in combination with the teaching contents during foreign language teaching and teach students through online short films, pictures and other forms. In addition, in foreign language teaching, teachers should evaluate and guide every learning result of students, communicate with students about learning and share high-quality foreign language learning resources on social software, and also conduct foreign language games through WeChat etc.. In this way, the combination of

reality and network can more the educational mode more individualized, arouse students' learning interest and achieve especially outstanding teaching effects. However, there are also shortcomings in most big data analyses. As students leave abundant data on websites during learning, how to guarantee their privacy when data trusteeship is caused by oversized data has become the problem needing more attention. Moreover, all such problems as the secrecy of data of foreign language education institutions, training of foreign language talents as well as sharing and pushing of various teaching resources also need to be considered in foreign language teaching. As for the specific key implementation points of big data analysis in foreign language teaching, there is still a long way to go.

CONCLUSION

With the continuous development of the era, education has always been the topic attracting most attention from the society. The constant economic communications among countries lead to the increasing importance of foreign language education. In the era of big data, educators should comprehensively analyze students' learning needs and directions with big data based on the characteristics of the era, continuously improve the teaching mode, apply the learning analysis technology in the specific education and teaching based on the characteristics of the era, and make students to have more initiative and timeliness in learning so as to improve China's foreign language teaching level and promote the continuous development of education in China.

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