Analysis of Practical Path of College English Teaching Reform Based on Big Data

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Abstract: The application of big data technology in the field of education has attracted the attention and discussion of many researchers, including the research and practice of College English teaching. Big data provides great convenience for data collection, analysis and application of English and teaching behavior. Therefore, it is particularly important to maintain the awareness of big data and apply big data technology in College English teaching. College English teaching practice is based on the characteristics of big data technology. It demonstrates how college English teachers can meet the needs of change from the perspectives of selection and acquisition of teaching resources, analysis of teaching and learning behavior trajectory, teaching monitoring and evaluation. College English teachers need to keep the awareness of collecting, analyzing and applying data at all stages in order to improve the teaching quality, realize effective English teaching and improve learners' comprehensive ability of using English.

1. Introduction

With the increasingly widespread use of the network, it has gradually become a huge thing, affecting people's daily life through information. Huge information flow is its main feature, so it is known as the era of big data, with a large amount of information, fast transmission, diverse structure and other characteristics [1-2]. For the processing, storage and utilization of big data, we should start with the emergence of cloud technology, which really enters the era of big data, which also means that people's lifestyle, behavior and thinking will undergo tremendous changes, which will have an impact on many industries, including the education industry [3]. In the era of big data, the impact of economic globalization has also been magnified. In this case, learning English as an international language is of great importance. College English is an important part of English teaching [4]. Schools should continue to deepen teaching reform and make changes to college English teaching according to the characteristics of the big data era. Teachers, as the backbone of teaching, should stand firm and actively learn new knowledge and ideas to teach. The characteristics and evolution of big data are shown in Figure 1

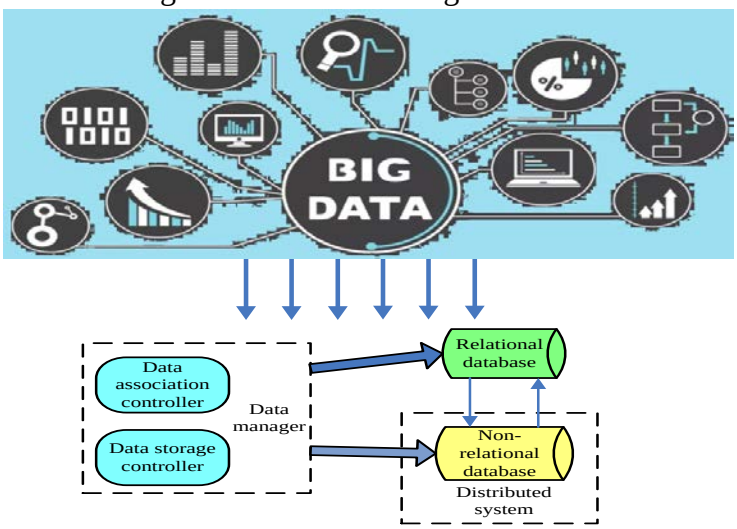

Figure 1 Characteristics and evolution of large data

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2. Analysis of College English Teaching Strain

The popularization and popularization of computer network in the early 21st century has promoted the development of multimodal teaching in College English teaching, but it has not helped English teachers to cultivate data awareness in the teaching process and to deeply understand the learners' English learning behavior and development trends. Therefore, although many college English classroom teaching has achieved a qualitative leap in hardware configuration, the substantial improvement of English teaching is not obvious [5-6]. There are still some problems in College English classroom teaching, such as low input of learners, lack of learning empowerment and low self-energy validity of English learning, which directly lead to learners' lack of interest and motivation for subsequent learning, and the failure to achieve transformative development of English listening, speaking, reading and writing ability.

In contrast, the development and application of big data technology in College English teaching may provide corresponding solutions. The core of big data technology lies in data, which can assist teachers to collect data generated in the process of teaching and learning, assist in the analysis of data, and learn to apply the results of data analysis in English classroom teaching. In this process, College English teachers always need to maintain data awareness and realize the value of data generated in different stages [7]. Specifically, College English teaching needs to incorporate big data technology into the selection of English teaching resources, the analysis of teaching and learning behavior trajectories, learning monitoring and evaluation. The learning monitoring system based on big data is shown in Figure 2

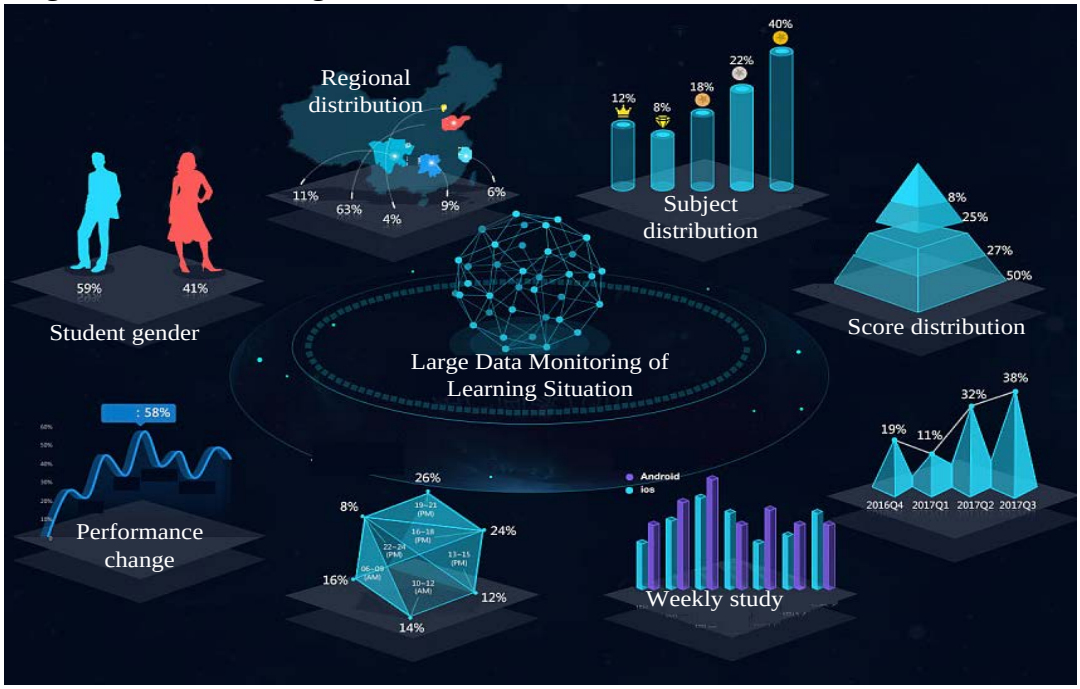

Figure 2 Learning monitoring system based on big data

2.1 Selection of English Teaching Resources

English teaching resources can be divided into in-class teaching resources and out-of-class teaching resources according to the time they are used; according to their nature, they can be divided into English textbooks and English auxiliary resources; according to the presentation form, they can be divided into paper teaching resources and electronic teaching resources [8]. The popularization of computer-assisted English teaching has made many colleges and universities in China provide English network learning platform and mobile network learning platform, greatly improving the accessibility and multimodality of learning resources, making learning break through the time and space constraints, and making English learning multi-channel. Networked learning platform will also make a lot of paper textbooks electronic, extracurricular learning resources may also be transformed into in-class teaching resources, the original boundaries tend to be blurred.

The promotion of big data technology can further optimize the allocation of learners' English learning resources and recommend learning resources. It can not only help English teachers to identify the most popular learning resources in listening, speaking, reading, writing and translation, but also automatically push learning resources according to learners' individual or group learning preferences and needs [9]. With the support of large data, the top-down mechanism of English learning resources has been enlarged. The click-through rate, residence time, residence location and when to start paying attention to learners can be used by college English teachers in combination with learners' individual and group characteristics. Based on this, teachers can infer and predict the types of popular English learning resources, the suitable objects of English learning resources, and the suitable modes of English learning resources for individuals or groups, so as to select more appropriate and accurate learning resources for College English learners, which is highly targeted and can mobilize the enthusiasm of English learning to a certain extent [10]. For the English teaching resources themselves, big data can change the situation that English learning resources in the era of Net-based Teaching are mixed with each other, which makes learners and teachers have no choice. High quality English teaching resources will stand out from a large number of evaluation data of English learners and teachers, and will be recognized and used by more English learners and teachers at a faster speed.

Big data technology traces the time and frequency of English learning materials used by English learners or teachers for a long time, and calculates individual learning needs and preferences of learners through various optimization algorithms. At the same time, it can calculate the learning needs and preferences of the same group of learners, and automatically push targeted and individualized learning resources of listening, speaking, reading, writing and translation to different English learners or teachers. The active push of learning resources supported by big data can greatly save the time of retrieving appropriate learning resources, and also maximize the peer motivation mechanism of similar English learning groups and promote learners' initiative in English learning. The choice of English teaching resources supported by big data is the superposition of a large number of learners' choice behaviors, which strengthens the allocation of high-quality learning resources. While saving time and improving learning efficiency, it can also optimize English teaching resources, release the value of excellent English learning resources greatly, and make college English learning groups benefit.

2.2 Trajectory Analysis of Learning Behavior

In the age of computer-assisted English learning, it can help English teachers acquire rough data of English learning behavior, such as the time when learners log on to the English learning platform, the pause time of an interface, the total pause time, the degree of activity and tendency, etc. Teachers are unable to understand more specific English learning behaviors, including the length of pre-writing thinking, pause and revision in the process of writing, the means to solve difficulties when encountering writing difficulties, the location and length of peer revision, and specific revision behavior.

Specific learning behavior data can help English teachers accurately locate the status and problems of English learners. Vygotsky believes that teaching activities must take into account the learners' recent development areas. Projection in English teaching requires English teachers to pay attention to the differences between learners' current and forthcoming development levels. Big data technology can help teachers acquire timely and accurate information about English learners' listening, reading, writing and translation. For example, Inputlog software can capture information about keyboard input and cursor movement in the process of English learners' writing, while Translog can collect specific learning behaviors in the process of English learners' specific translation. The acquisition of similar information can reduce the teaching activities that do not conform to the current level of English learners, avoid the gap between learners and classroom teaching activities, and reduce the classroom teaching effect.

English learners can learn in a well-designed big data learning situation in a way and rhythm that suits them as much as possible and seek progress on the basis of their original English proficiency.

College English teachers can also analyze long-term learning behavior of English learners driven by big data technology to find out their preferences, patterns and tendencies in and out of class learning behavior. It is found that there is a logical relationship between the real learning rules and learning behaviors of College English learners. It is necessary to adjust teaching planning and design timely and effectively, dynamically adjust learning contents and learning methods, realize customization of individual learning activities, and ensure teaching in accordance with students' aptitude to the greatest extent.

2.3 Evaluation of English Learning

Teaching evaluation can be divided into summative teaching evaluation and formative evaluation, or outcome evaluation and process evaluation. Summative assessment is the final judgment of what learners have learned at a certain stage in order to understand the level and position of students in the group. Specifically, in College English teaching activities, summative assessment refers to learners' final examination results. Formative assessment is to understand the development of learners in the learning process, including attendance, classroom participation, homework completion and in-class tests. The two evaluation methods can provide English teachers and learners with a better understanding of the staged learning situation from different levels, so they should not be neglected.

Traditional College English classes and computer-assisted College English teaching can correctly recognize the significance of formative assessment. However, due to the limitation of technical means, it is impossible to obtain abundant information about learning process for learners to make timely and correct assessment, so it mainly relies on the means of summative assessment. Previous summative assessment and rough formative teaching assessment can hardly truly reflect English learners' learning conditions and achievements.

Nowadays, the introduction of big data technology will increase the weight of formative assessment and enhance the status of formative assessment in English learning. English teachers can acquire information about learners' learning behavior in the preview stage, the classroom learning process and the completion of corresponding learning tasks at each stage after class, so that they can make a detailed and accurate formative assessment report for each learner, and give students a natural, objective and scientific assessment of English learning. According to the diachronic data of learning process, learners, with the help of College English teachers, can reflect on learning, summarize learning experience and lessons, and re-plan or adjust College English learning.

3. On the Innovation of English Teaching in the Big Data Era

3.1 Change teaching concept and implement top-level design

Ideas determine ideas, and ideas lead the way out. Top-level design should follow the law of education and systematization, highlighting practicality and professionalism. On the one hand, we should make full use of big data analysis to strengthen curriculum design and orientation. The statistics and analysis of big data are more conducive to the design and positioning of English courses, to the cultivation of students' comprehensive English literacy, important skills for sustainable career development, comprehensive ability of listening and speaking and oral English communication in the workplace. On the other hand, we should make full use of big data analysis to strengthen the diversified needs of English curriculum design. The curriculum of “pertinence” and “individuality” should be set up, and the basic English + industry English should be set up to be tailored to different majors or professional groups, so that public English can be transformed from the traditional “basic”, “universal” and “unified” to the “combined” type of foreign language teaching and professional training.

3.2 Optimizing teaching content and innovating English teaching mode

Big data can be used for statistics and analysis of students' common and individual needs, making full use of the universality and aggregation of big data to achieve maximum optimization of

teaching content. At the same time, heuristic, discussion, conversation, task-driven, inquiry and discovery, learning guidance and other classroom teaching methods are adopted to enhance students' interest, cultivate students' ability and improve the timeliness of the unit. Implementing project-based teaching methods and fragmented and mobile learning methods such as network learning to enhance students' autonomous learning and training of mobile terminals such as spoken and listening to improve students' hands-on ability and communicative ability. The traditional teaching method of “teachers teach in class and students finish their homework after class” is innovated by means of mixed learning such as “flip classroom”, “micro class” and online and offline learning.

3.3 Using data analysis, innovative English assessment

With the help of large data and sufficient statistics and analysis, we should strengthen the procedural assessment and innovate the English test. Oral English, writing, reading aloud, project-based teaching process, group projects and cooperation, number of community participation, miniaturization + identification and conversion of learning outcomes, homework, comprehensive exercises, team cooperation outcomes, network, mobile, autonomous learning platform, coursework, personalized learning and personalized teaching are also innovations in teaching testing. The process-based assessment of innovative English testing. Make full use of online and offline procedural learning to achieve timely training and learning of listening, speaking and composition. For example, Juku Composition Network can provide students with repetitive revision of composition. Avoid students learning dumb oral English and a test paper to determine the direction of the universe.

3.4 Make use of big data to strengthen the co-construction and sharing of English teaching resources

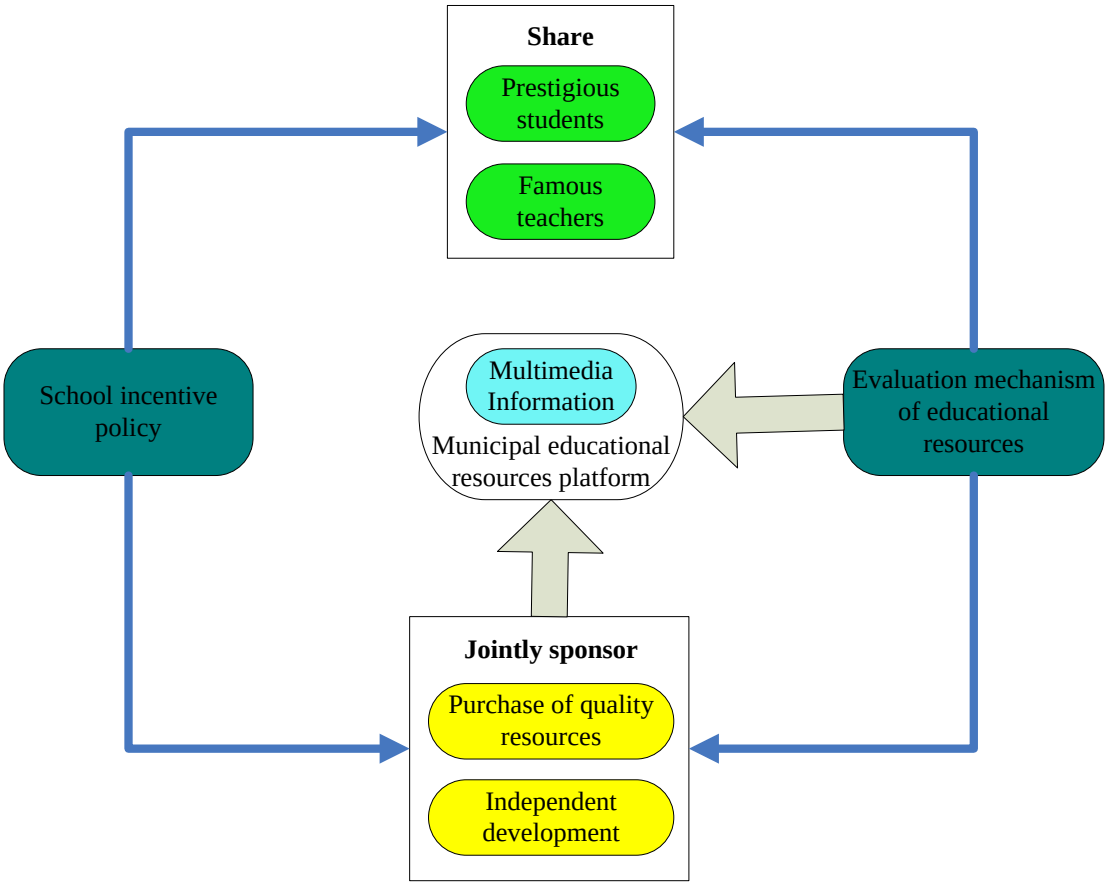

Figure 3 Resource sharing and construction

One is to use big data to select English textbooks at different levels. The practicability, applicability and individuation of teaching materials are conducive to teaching stratification,

integration of lesson certificate, integration of lesson competition and individuation teaching. Second, we should use big data to strengthen the construction of English resource bank, as shown in Figure 3. Make full use of QQ group, Wechat, Cloud End, Mailbox and English Teaching Website to strengthen the integration and construction of network teaching platform of English Teaching Resource Base. The construction, application, accumulation and sharing of three-dimensional web-based teaching resource bank and English corpus can be combined in and out of class, constructed by teachers' team, constructed by teachers and students, and communicated vertically and horizontally at school level. The large data can be used to fully exert the learning function and potential value of the teaching resource bank.

4. Conclusion

It takes a long time for big data technology to be introduced into English teaching theory and practice, which is difficult to achieve overnight. At present, the preliminary framework of large data-assisted College English teaching has gradually become clear, and how to enrich and optimize it needs to be further studied. As a foreign factor, big data technology is the key to break through in College English teaching. English teachers and students are the focus of College English teaching. Big data technology must be able to connect with English teachers and learners, support teachers and learners to acquire and analyze data on the use of English learning resources, analyze learners' behavior data and achieve scientific learning evaluation. Teachers also need to adapt to changes and achieve teaching response.

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