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Research Article

Innovative College English Teaching Modes Based on Big Data*

Yaohua Huang[1]
North China Electric Power University

Xiangru Jin[2]
Hebei Agricultural University

Abstract

College English has always been a basic course in colleges and universities. However, college English teaching in China still adopts the traditional cramming teaching mode, which cannot improve students' English ability quickly. In view of this problem, this paper puts forward an innovative teaching mode based on big data technology, and takes professional college English teaching as a supplement to ordinary college English teaching. Based on big data and cloud computing technology, this innovative teaching model constructs an all-round English teaching cloud system including database, laboratory and after-class online teaching resources. The results show that the innovative teaching model of college English big data cloud system can effectively promote the development of teaching and improve students' English ability by making use of various resources in the age of big data.

Keywords

College English Teaching • Big Data • Teaching Cloud • Innovative Teaching Model

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[1]**Correspondence to:** Yaohua Huang, North China Electric Power University, Baoding 071000, China. Email: huangyh369@163.com
[2]Hebei Agricultural University, Baoding 071000, China. Email: xiangrujin@126.com

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College English is a basic course in colleges and universities. However, due to the old and boring teaching mode, it's hard to promote the rapid improvement of students' English ability (Kim et al., 2015). The traditional teaching mode is a passive learning process for students, lacking active interaction and cooperation between teachers and students (Al-Emran, Elsherif & Shaalan, 2016), basic principles and rules. experience and skills cannot be effectively transferred to students (Hartney & Flavin, 2011), and students cannot fully accept them. These are the shortcomings of traditional teaching (Yang & Huang, 2015). After many years' research and experiments, it is agreed that practicality should be considered in college English teaching model (Zhai & Qiu, 2015), so as to penetrate college English teaching into different professional fields.

In order to solve the above-mentioned problems, this paper, inspired by the rapid development of big data technology, attempts to make use of big data technology in college English teaching innovation. Big data refers to the process of collecting and analyzing massive amounts of data from various pieces of information on the Internet (Jager, Merki & Holmeier, 2012; Reddy, Rao & Govardhan, 2017). The student's learning preferences, learning methods, and all the data of the learning process (Yu & Chang, 2015) can be tracked, recorded and analyzed by students whether by using a computer or a mobile phone (Turner, 2010). At the same time, modern information technology in the age of big data allows teachers to seek help from online information (Haarala-Muhonen, 2011), teaching software, databases, language laboratory and others (Dündar, 2014). Based on the big data background, this paper constructs an efficient, three-dimensional, dynamic and comprehensive college English teaching cloud system, which is composed of college English teaching cloud resources and cloud platform, and innovates the college English teaching model.

First of all, inspired by the advanced technology of cloud computing in the age of big data, which can help solve the problems existing in the course of college English teaching, this paper makes description respectively from the perspectives of teachers and students. Then, it constructs a college English teaching cloud system, and analyzes the demand of cloud teaching, the types of cloud resources, the composition of cloud platform, and the changes brought by cloud system to college English teaching in turn. The results show that the cloud teaching system has helped the traditional college English teaching model innovate and reform, help teachers and students interact better, promote teaching and improve students' English level quickly.

Inspiration of Cloud Computing Technology in the Age of Big Data

In the age of big data, cloud compute technology, as a leading technology, can be summarized as a model of an implementation of the pool of configurable compute resource sharing in ubiquitous network access. The cloud has massive computing and storage capabilities based on big data, and can provide personalized services to end users who pay for sharing. Cloud computing technology in the age of big data has inspired college English teaching from the following two aspects.

Inspiration for teachers

For teachers, teaching resources are available and shared. Their job is to teach English in the context of big data, rather than teaching professional courses in English. So they don't need to memorize all the terminology and delve into complex scientific theories. All they need to do is to filter and download data from the cloud. Moreover, the cloud is a shared pool of all possible means, which means that sharing can greatly improve efficiency and drive college English teachers to develop further as an alliance rather than in isolation.

Inspiration for students

For students, the concept of demand-based buying can be borrowed from cloud computing to achieve personalization. Students are no longer filled with what the teacher passively teaches them; instead, they can take the initiative to find what they need in a vast ocean of knowledge far beyond the classroom. They become the real masters of their own learning, and the process of learning can be truly self-motivated and free. Therefore, cloud computing is fundamentally changing the teaching model of college English.

Construction of College English Teaching Cloud System Based on Big Data

Analysis of college English cloud teaching needs

To construct the cloud teaching environment of college English teaching, we should first analyze the purpose of college English teaching. Most college English teaching is aimed at the practical application of English in professional situations, so we should practice the skills of reading, listening, speaking and writing in the process of simulating professional situations, so as to prevent the inadaptability in future professional situations. For example, a student majoring in engineering may work in a multinational company in the future, and he may have the opportunity to discuss or negotiate with his foreign partners. At the same time, he will be able to share his engineering ideas with his partners in writing and meeting reports. Therefore, in addition to the profound and advanced engineering knowledge required from professional English courses in senior grade, the general technical style and some basic background knowledge of English teaching is taught from college English courses.

Cloud resources of college English teaching

In order to realize the function of college English teaching, the teaching cloud should contain many resources. First, terminology library of different domains is necessary. Students can often use the terminology library as a powerful aid, and teachers can introduce it to the students as a reference rather than requiring memorization of the terminology. At present, with the concerted efforts of English teachers, the terminology library is in the stage of development and prosperity. Big data technology can speed up this process, because big data technology can collect information about frequency of use in order to identify active and inactive words. It can track all possible uses of each word and build a database of phrase collocation and sentences for reference.

It is even possible to sort and classify words according to the degree of difficulty and professional relevance, so as to help teachers carry out targeted tutoring and examinations. The cloud can retrieve all the information and search if needed.

Second, a multimedia laboratory can provide a visual, auditory, and oral environment for practice. Speech recognition technology makes man-machine conversation possible. Students can talk to and interact with the software, practicing speech, grammar, intonation, and spoken skills in any field of context, as long as these functions are pre-programmed in the computer. Big data technology has shown great intelligence to search for information on a global scale, compute the best-matched spoken interactive content, and provide corrections or suggestions when necessary, rather than simply providing audio-visual materials. Students can get the most local, professional, and advanced training environment. Teachers only need to collect and classify different situations and topics in advance, and provide guidance and help in the training process, so as to manage the laboratory.

Third, writing, which used to be considered subjective and must be censored by teachers, can now be practiced online. The online writing system based on big data technology collects the information of students' writing tendency, and can score the papers on the basis of massive corpus. The system can point out writing errors such as too short sentences, too simple sentences, non-native language expression and text incoherence, and can provide constructive modifications. This will be a revolutionary change, because the system helps teachers get rid of the burden of reading and correcting all student compositions. The reformed college English teaching is efficient, since online writing system provides the most appropriate terms and professional expression, but also make up for professional deficiencies in teachers.

Finally, big data technology ensures the availability of all required information and provides a broader perspective for college English teaching. In most areas, extensive reading of English materials is inevitable, and big data technology provides faster, cheaper and more extensive services than libraries; real overseas professionals can communicate online, and even face-to-face, with the help of advanced real-time communication systems; based on big data technology, teachers and students can get up-to-date research results and developments on their majors on the Internet.

Cloud platform for college English teaching

Cloud teaching resources provide powerful support for the construction of cloud teaching platform. As the center of college English cloud teaching environment, the cloud teaching platform for college English provides an advanced, professional and high-quality platform for the interaction between teachers and students. The platform has been tried in most colleges and universities at present, but it needs to be further improved in terms of technology and major in order to adapt to the reform of college English teaching.

First of all, the cloud teaching platform for college English will be widely used. The platform should not only be university-level, although the types of colleges and universities will be different, such as comprehensive universities, medical colleges, science and technology institutions, and normal colleges, the use of cloud teaching platform is uneven, as shown in the table below.

Table 1
Platform Using Status

	Using percent %
University	57
Medical college	75
Institute of technology	82
Normal college	52

However, the nature of the cloud is a huge storage pool, the larger the teaching cloud is, the more useful the teaching cloud is. Information is obtained on a demand basis, not on a hierarchical basis, so each teacher and student can share the teaching cloud. In order to achieve a wide sharing effect, different sub-platforms are set according to different majors, which shall be suitable for different professional teachers and students. With the spirit of sharing, we can ensure the collection of knowledge and reduce the waste of resources and energy to maximum extent, and make the cloud teaching platform of college English a shared platform in the country or even in the world.

Secondly, the cloud teaching platform of college English can realize the interaction of different roles. On the platform, both teachers and students have accounts to share and interact with each other as members. All linked databases are open to each member, but have different account permissions. Teachers have administrative authority to design teaching activities, upload instructional videos, arrange assignments, monitor student performance, and discuss with students. Students often log on to complete tasks, gain specific knowledge and practice in a variety of ways, and can also offer questions as well as suggestions at the forum.

Finally, the cloud teaching platform of college English can realize self-optimization. Each action on the platform will be saved and studied by big data. The platform will store all data, from the frequency of use across the country to the learning time of individual students, from the teacher's preferred functions and common behavior to the most commonly used terms, and from the evaluation of English proficiency of students from different backgrounds to the location of the login system.

Big data will go deep into every corner of college English teaching, dig out all structured data and unstructured data, analyze them and add them to the new college English teaching database for future research and enhancement, so as to make the cloud teaching platform of college English grow and optimize on its own.

College English teaching cloud system

Based on the cloud resources and cloud platform of college English teaching, an efficient, three-dimensional, dynamic and comprehensive cloud system for college English teaching is constructed, as shown in the figure below.

Firstly, the cloud system of college English teaching greatly alleviates the shortage of teachers and the difficulty of teaching preparation. Traditional college English teaching has little knowledge and background of English major. However, in the cloud system, teachers can prepare lessons better by introducing the field and learning simple knowledge of English major. In addition, college English teachers all over the country can communicate and share easily not only in the preparation process, but also in the teaching process, and get the help from the peer teachers.

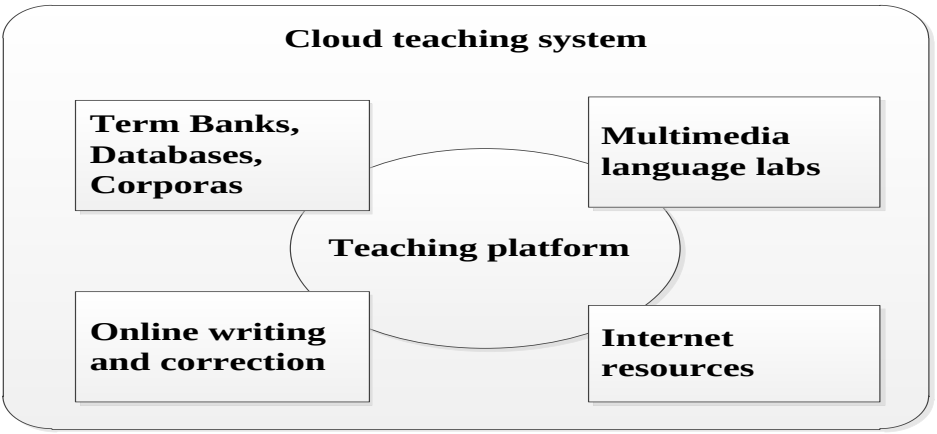

Figure 1. Cloud teaching system.

Secondly, college English teaching can be transformed into various forms of dynamic teaching. Role-playing or small research group assignments can be arranged on the platform, and teachers will provide the necessary guidance and rules before the students spend several days collecting information and exercises. Teaching and evaluation can be done not only in the classroom, but also on-line laboratory, or in a real environment. Multimedia technology is easily used in the teaching process, and help teachers make teaching videos, using MOOC teaching to draw lessons from teachers' excellent teaching ideas all over the world.

Finally, the test, evaluation and feedback of college English teaching will be changed easily and effectively. The database technology of the big data age makes the examination and the evaluation of the examination less laborious than before, and the evaluation of the students is comprehensive and complete, because the big data keeps track of the learning process of the students. The results of each examination or evaluation, the questions of the students, the suggestions and problems in the teaching process will be fed back to the cloud, and then analyzed by the big data technology to get the effect of the current students' English learning and provide the guidance for the next step of learning improvement.

ESP teaching has subverted the past college English system. The cloud teaching environment will bring about changes and help the immature ESP teaching in China develop vigorously. People in the new era should adapt to the convenience brought by technology, and believe that in the near future, the cloud teaching environment will be included in the new national ESP syllabus and be popularized in most colleges and universities.

Concluding Remarks

First of all, inspired by the advanced technology of cloud computing in the age of big data, which can help solve the problems existing in the course of college English teaching, this paper makes description respectively from the perspectives of teachers and students. Then, it constructs a college English teaching cloud system, and analyzes the demand of cloud teaching, the types of cloud resources, the composition of cloud platform, and

the changes brought by cloud system to college English teaching in turn. The results show that the cloud teaching system has helped the traditional college English teaching model innovate and reform, help teachers and students interact better, promote teaching and improve students' English level quickly. It is believed that in the near future, cloud teaching system will be widely used in most colleges and universities.

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