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Research Article

Teaching Innovation Methods for Literature Majors Based on Higher Education Informatization*

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Abstract

In view of the current situation that it's imperative for literature majors in colleges and universities to undergo reforms, this paper studies the innovation of teaching methods of literature majors under the conditions of informatization. First of all, it analyzes the problems of current literature teaching; then, information technologies that can be used at the present stage of higher education are listed; at last, it proposes a series of innovation methods for literature major teaching based on higher education informatization, and some students from the Chinese Language and Literature major of a college are taken as examples to conduct an empirical study. A comparative analysis of the learning effects of college students of different grades shows the effectiveness of the teaching innovation methods proposed in this paper. The research results of this paper not only propose new teaching methods, but also provide a useful reference for the transformation of the current development concept of higher education.

Keywords

Higher Education • Informatization • Literature • Teaching Innovation

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With the advent of the information age, the way of knowledge storage and dissemination has undergone earth-shaking changes. In contrast, the traditional teaching methods of literature majors are outdated and in urgent need of transformation. Although many researchers are paying attention to the innovation of teaching methods in the information age, how to effectively combine the means of information with the teaching of literature majors is still an unsolved problem (Ramesh, Tan & Sidhu, 2002; Albors-Garrigos, Segarra-Oña & Ramos-Carrasco, 2011).

With the rise of the informatization boom by the end of last century, people began to pay attention to applying information technology to support the improvement of higher education level, and they have conducted a lot of useful attempts in this regard (Ingraham, 1995). Some researchers focus on how multimedia can improve teaching efficiency and the stimulating impact on students' multiple senses (Marsh, Hau, Chung & Siu, 1996). Some researchers pay attention to flexible online education modes such as distance education, and have made positive contributions to the popularization and lifelong education of higher education (Macfadden, 2005). Some researchers concern about the establishment of evaluation models for learning effects of college students, which lays a solid foundation for future generations to do research in this area (Mizikaci, 2006). However, the research of the predecessors is far from taking the information technology to the proper level. In addition, the previous research also lacks targeted research on the innovation of informatization teaching in literature majors.

Targeting on the shortcomings of previous studies, this paper takes the literature majors of colleges and universities as the research object, and proposes a series of teaching innovation methods based on informatization. At the same time, by analyzing the learning effect of college students of different grades, it studies the real influence of the proposed new teaching methods on the teaching effect. The research results of this paper can not only be used to directly guide the reform of curriculum design and teaching methods of literature majors in colleges and universities, but also can be used as an important reference for the transformation of informatization teaching methods in other disciplines.

The first part of this paper is the introduction. The second part analyzes the current situation of the teaching of literature majors. The third part lists the information technologies that can be used at the present stage of higher education. The fourth part proposes a series of teaching innovation methods for literature majors based on higher education informatization, and verifies the effectiveness of the innovation methods by empirical research. The fifth part is the conclusion.

Analysis of the current situation of literature major teaching

Currently, the teaching of literature majors still mainly adopts the teacher-centered radiation teaching mode. Teachers are the main body of teaching activities and they master the initiative of teaching, while students have less freedom in teaching activities and are in a passive position. In the radiation teaching mode, the teacher's knowledge reserve directly limits the teaching effect, and the students' single knowledge acquisition mode is not conducive to the improvement of their professional literacy (Deterding, 2012). In the surveys of teachers and student groups, both parties are willing to introduce information technologies into the teaching process, so

as to reduce teaching costs, achieve independent learning, improve teaching efficiency, and enhance teaching effectiveness (Hawkins, 2015). However, due to the special limitation of the discipline itself and the restriction of teachers' professional background knowledge, the progress of introducing information technologies into literature major teaching is very slow. In addition, with the help of information technology, for the issue of how to effectively carry out teaching activities and improve teaching effects in literature teaching, there are still technical and institutional barriers to be conquered (Fulbright, 2011).

So far, some colleges and universities have tried to introduce information technologies into the teaching process of literature majors. However, most of these methods only digitize massive knowledge information, which is far from the teaching reform under the conditions of informatization. When facing massive information, students are overwhelmed and don't know what to do, and the "sea of information" becomes the "sea of garbage". The facts also prove that the effect of this teaching method is not satisfactory (Mac & Jeffrey, 2014).

Higher education information technology support

This section introduces three kinds of information technologies that have developed well in recent years and have broad application prospects in higher education: cloud storage technology, mobile computing technology, and artificial intelligence (AI) technology.

Cloud storage technology

Cloud storage technology refers to a modern computing technology which is built on the cloud computing platform, it implements remote centralized storage based on storage cluster technology, computer network technology and relational database technology. The advantage of cloud storage technology is that it can provide users with information storage services that are rapidly deployed, inexpensive, easy to use, highly stable, and highly scalable. Through cloud storage technology, colleges and universities only need to purchase services according to the teaching requirements, without having to pay attention to the technical details of the software and hardware construction in the early stage of storage capacity. During application, higher education resources can also achieve fast upload and download, secure backup and exchange sharing. Moreover, when there is a change in the demand of business departments of colleges and universities, the companies that provide cloud storage services generally respond quickly, thus ensuring the normal operation of teaching. According to the specific cloud storage schemes adopted by different colleges and universities, cloud storage companies can also provide private cloud services for teachers and students, so that teachers can carry out independent teaching and students can learn independently.

Mobile computing technology

Mobile computing technology refers to an information exchange technology that allows wireless portable terminals to be free from geographical restrictions under the premise that the communication technology is guaranteed, and it is developed based on computer network technology and distributed computing technology.

Wireless devices such as smartphones, tablet devices, and notebook computers that people use every day are all based on mobile computing technology without exception. Mobile computing technology enables students to break through the limitations of space and time when acquiring knowledge, so that their learning behavior can be carried out anytime and anywhere as needed. Meanwhile, mobile computing technology has also effectively promoted the development of social media, such as instant messaging software such as QQ, WeChat, MSN, and other knowledge sharing platforms such as Weibo, Douban, and Zhihu. Surveys show that young teachers and college students can expertly use instant messaging software and knowledge sharing platforms, more or less, they use social media to publish or query living information. Therefore, the introduction of mobile computing technology into the field of higher education can be seamlessly connected, and it is expected that there will be less resistance.

AI technology

AI technology studies machine human intelligence based on various disciplines such as cognitive science, biological science, and computational science. AI came out in 1956, its appearance is much earlier than cloud storage technology and mobile computing technology, however, limited to the lack of certain links in the basic theory, the development of AI is quite tortuous. In recent years, with the improvement of hardware computing ability, a new generation of AI technology based on deep neural network learning has attracted people's attention, it has amazing performances in the areas of chess games, big data analysis, natural language processing, and automatic driving. Then, AI returns to people's sight and it's very suitable for higher education. For example, AI can automatically recommend the next teaching link and learning content based on pre-set expert experience, students' acquired knowledge, teaching path and learning effects. Another example is that AI can judge the content that students are interested in and actively push according to the knowledge points that the students have inquired, the pages that have been viewed, and the similar learning contents, which can greatly improve the learning experience of students.

Literature major teaching innovation method based on higher education informatization

Based on the information technology methods listed in Section 3, this section proposes three teaching innovation methods for literature majors. After teaching, these methods can push relevant knowledge to students in a timely manner, and provide students with a platform for exchange and discussion. A good teaching method not only helps students improve their knowledge structure, but also helps them improve their thinking level and master knowledge and supplement missing knowledge.

Literature major teaching innovation method based on cloud storage technology

Based on cloud storage technology, local literature major education resources and relevant resources on the internet are placed together uniformly. Teachers and students can log in to the system for self-learning through

the cloud account. On the cloud storage platform, both teachers and students can complete the teaching process either in a synchronous manner or in an asynchronous manner. The cloud storage platform can completely record and reproduce the teaching process of teachers, and can also fully record and evaluate the student's learning. Besides, in the learning process, teachers and students can also temporarily store the resources that they are interest in in the private space, so as to facilitate self-learning. For the literature major teaching innovation method based on cloud storage technology, its difficulty is that it requires to instruct teachers and students to familiarize themselves with the operation of the cloud platform in advance. Whether users can use the cloud storage platform skillfully is the key to teaching effect improvement. This paper takes the students from the first to fourth grades of Chinese Language and Literature major in a university in Beijing as examples to evaluate the practical effects of the literature major teaching innovation methods based on cloud storage technology. Two groups of students were taught using the traditional methods and the new methods proposed in this section. The comparison of the average exam scores is shown in Table 1.

Table 1
Comparison of Average Scores of Students Taught by Different Methods

Grade	Course	Traditional teaching method	Teaching method based on cloud storage technology
Freshman	Chinese Philosophy	71	75
Sophomore	Ancient Chinese	68	76
Junior student	Ancient Chinese Literature	81	90
Senior student	Chinese cultural history	85	89

It can be seen from Table 1 that, in the “Chinese Philosophy” course of the freshman year of university, the “Ancient Chinese” course of the sophomore year of university, the “Chinese Ancient Literature” course of the junior year of university, and the “Chinese Cultural History” of the senior year of university, the scores of students who were taught using the new methods increased by an average of 4 to 9 points.

Literature major teaching innovation method based on mobile computing technology

Based on mobile computing technology, teachers use the social media to send literary expertise regularly or irregularly to guide students to use fragmented time for learning. Through QQ or WeChat, teachers initiate the learning interest groups, or students spontaneously form interest groups of subdivision fields. In the interest groups, discussion of a topic is initiated to encourage learning and speaking freely, and exchanging knowledge and information of individuals, so as to maximize the flow and sharing of educational resources. Still, we take students from the first to fourth grades of the Chinese Language and Literature major in a university in Beijing as examples to evaluate the practical effects of the literature major teaching innovation method based on mobile computing technology. Two groups of students were taught using the traditional method and the new method proposed in this section. The comparison of the average exam scores is shown in Table 2.

It can be seen from Table 2 that in the “General history of China” course of the freshman year of university, the “Modern Chinese” course of the sophomore year of university, the “Foreign Literature” course of the junior year of university, and the “Chinese Ancient Cultural Relics” course of the senior year of university, the scores of students who were taught using the new method increased by an average of 9 to 13 points. The comparison between Table 1 and Table 2 also shows that the effect of teaching based on mobile computing technology is

better than the effect of teaching based on cloud storage technology, which may be because young teachers and student groups are quite familiar with the use of social media.

Table 2
Comparison of average scores of students taught by different methods

Grade	Course	Traditional teaching method	Teaching method based on mobile computing technology
Freshman	General history of China	86	97
Sophomore	Modern Chinese	82	95
Junior student	Foreign literature	77	86
Senior student	Ancient Chinese artifacts	65	74

Literature major teaching innovation method based on AI technology

Based on AI technology, under the authorization of teachers and students, cookie technology is used to collect user identity information and learning process data. Before learning recommendation, senior professors of literature and former students are invited to provide expert experience for the study content, which is taken as the preparatory knowledge before the launch of the self-learning recommendation system. Then, during the use of the recommendation system, personalized knowledge is pushed to the students. And at last, closed-loop feedback is performed based on the accumulated data of the usage of students to complete the self-learning of the system and the re-planning of the course path. Still, we take students from the first to fourth grades of the Chinese Language and Literature major in a university in Beijing as examples to evaluate the practical effects of the literature major teaching innovation method based on AI technology. Two groups of students were taught using the traditional method and the new method proposed in this section. The comparison of the average exam scores is shown in Table 3.

It can be seen from Table 3 that in the “Introduction to Literature” course of the freshman year of university, the “Chinese Contemporary Literature” course of the sophomore year of university, the “Aesthetic Research” course of the junior year of university, and the “Ancient Philology” course of the senior year of university, the scores of students who were taught using the new method increased by an average of 4 to 8 points.

Table 3
Comparison of Average Scores of Students Taught by Different Methods

Grade	Course	Traditional teaching method	Teaching method based on artificial intelligence technology
Freshman	Introduction to literature	81	85
Sophomore	Chinese contemporary literature	83	91
Junior student	Aesthetic research	72	79
Senior student	Ancient philology	65	71

Conclusion

Aiming at the outdated status of current teaching reform of literature majors in colleges and universities, this paper studied the teaching innovation methods of literature majors based on higher education

informatization, and proposed three new teaching methods based on cloud storage technology, mobile computing technology, and AI technology. At the same time, this paper took the students of Chinese Language and Literature major in a university in Beijing as examples to evaluate the teaching effect. For “Chinese literature” and other 11 courses, the learning effects of college students of different grades who were taught by the new and the old methods were compared, which verified the effectiveness of the proposed teaching innovation methods. The research results of this paper can be used as an example for the teaching reform of literature majors in other colleges and universities, and it also provided a useful reference for how to change the development concept of higher education under the conditions of informatization.

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