

Research on Teaching Innovation under Network Conditions in Universities

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Abstract: Teaching innovation is the implementation of quality education. Based on the current teaching practice in higher education, this paper analyzes the current network environment, the existing problems of teaching innovation, its major construction, curriculum, teaching methods, online teaching modes and teaching resources. With the study on a number of online teaching issues under the network conditions, the creative teaching idea in higher education is put forward: updating the education concept, creating a good environment for education reform, constructing network teaching platform, playing the advantages of online teaching environment and cultivating innovative teachers.

Key words: Network condition; Teaching platform; Education innovation; Teaching research

1 Introduction

At present, all countries, especially the developed ones, are cultivating innovative talents as their educational targets. Even though each has its unique teaching concept, one thing is common, that is to emphasize the vision of global development, establish first-class education awareness, develop the modern educational technology, and cultivate innovative talents as the key to national prosperity. China has also raised its educational strategy, set up the 21st Century Action Plan for Invigorating Education, and put forward new requirements especially for higher education aimed at cultivating innovative talents as an educational mission. To accomplish this mission, higher education should conform to the requirements of the knowledge economy development, change the education concepts and teaching modes, make full use of modern network technology, and improve education and teaching innovation.

Many foreign countries, especially the developed countries, invest a lot of manpower and material resources on network teaching, and online teaching has become an important part in economic cooperation and developing nation's higher education system. China also attaches great importance to online teaching. Many universities have invested heavily to establish the campus network and multimedia classrooms. However, there is much to explore and research on how to teach on line.

This paper analyzes the current network environment, the existing problems of teaching innovation, its major construction, curriculum, teaching methods, online teaching modes and teaching resources. With the study on a number of online teaching issues under the network conditions, the creative teaching idea in higher education is put forward: updating the education concept, creating a good environment for education reform, constructing network teaching platform, playing the advantages of online teaching environment and cultivating innovative teachers.

2 Problems of University Education and Teaching under Current Network Conditions

Although the university has never stopped the reform and innovation of higher education and the patterns have been renovated, it is not much effective. The reasons are mainly the following.

2.1 The problems of major construction, curriculum and teaching methods in innovation

Multimedia has been widely accepted and applied in the universities, which indicates that the university is beyond the traditional teaching methods and to innovation. However, the profession development and curriculum issues lag behind the need of society. Graduates of some majors have gone far beyond the social demand. But due to policy, teachers and other factors, these professions are still set according to the original scale. This is also a waste to society.

In addition, the curriculum remains rigid so that courses can not be freely chosen between schools and departments. Even in the university with the credit system, due to various conditions, the elected courses are very limited, and some elective courses have been cancelled because of the small number of students and high teaching cost in the course selection process. New curriculums can not be opened because of teachers and other constraints even though some students want to learn. All of these hinder the innovation in the higher education.

As far as teaching methods are concerned, most teachers teach the students all-roundly with the most advanced multimedia. They think that the use of multimedia is to carry out innovative teaching. Little do they know this is still a traditional teacher-centered method, in which students are always passive. This is neither beneficial to the students' learning initiative and enthusiasm, nor conducive to their creative capacity formation and the emergence of creative talents and training.

2.2 The problems of network teaching mode and teaching resources

At this stage, there are still many problems in online college education, which are related with the shortcomings of internet education, but also with its resources management.

2.2.1 The shortcomings of network education itself

First, there is an uncertainty of online education. Its development is not fully learned from experience. It is still in the period of exploration even in the developed western countries. This has brought a lot of uncertainty to the current network mode and the system operation. Second, its theory and technology is not yet mature. As a new mode of education, it needs a new educational theory to support, and now this new theory is not shaped. It is still to be revised and improved according to the test of practice. Third, its quality and service system needs to be further improved. At present, it needs a large number of careful investigation, research, and further refinement. Fourth, online education is constrained by the traditional teaching thought and philosophy. This constraint is reflected in the teaching process of teachers, but also in the process of students' self-learning. Online education has the characteristics of students' independent study, which puts forward the requirements for both sides. While traditional habits in teaching and learning can not be changed in a short term. Defects in the network education alone are to be made up in other means and methods, which has become the consensus in the field of online education, but there is no effective solutions now.

2.2.2 The problems of network education resource management

Most universities have spent much in building campus network, but its education resources such as network courseware, multimedia courseware, audio and video resources, virtual laboratories, digital libraries and academic aspects of teaching resources, information management systems are not enough. The reasons mainly lie in: 1) lack of construction funds of network resource library; 2) Some old-fashioned education teaching staff have been used to the traditional mode with a piece of chalk and blackboard; 3) The university lacks the appropriate supporting policies to motivate the teachers to develop the network resources; 4) Teachers also worry about the lectures made into online teaching courseware programs will affect their future teaching workload. Therefore, only a small number of teachers frequently use the network (A survey on the university teacher' use of network has been conducted, the results shown in Figure 1.); 5) Different attention paid by the university and different technologies equipped to the network management also directly affect the development and utilization of the online teaching resources. (We also launched a survey in this aspect, and Figure 2 is the results on teachers' use of courseware authoring tools.)

In summary, the existing education and teaching problems in the network environment have directly affected the teaching innovation and do harm to the educational reform in the information age. Therefore, we should always research the new situation and problems appearing in teaching, and explore solutions and measures continuously.

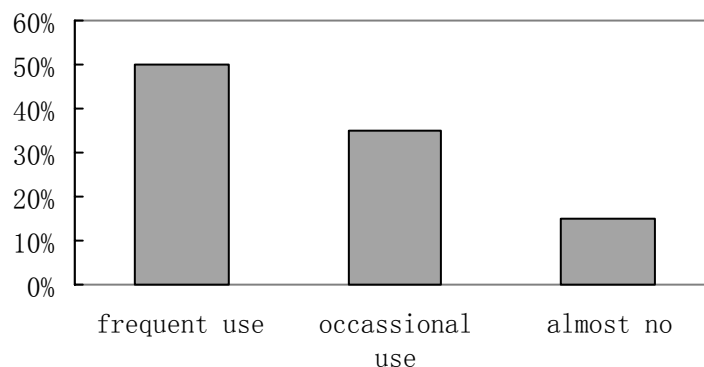


Figure 1 Survey Result on Teachers' Using Internet

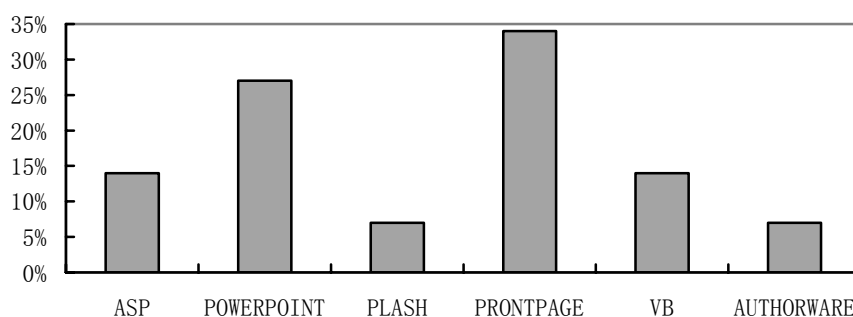


Figure 2 Survey Result on Courseware Authoring Tools

3 Seeking Network Resources and Developing Network Teaching

Currently, network teaching creates a historic opportunity for higher education reform. Many efforts need to be done on how to make full use of the network environment and carry out teaching innovation. I think that the following should be done now.

3.1 Update the educational concept, and create innovative teaching environment

Educational ideas determine the success or failure of educational reform. If universities carry out education innovation in the network environment, the educational concept must be firstly updated. Network teaching environment, compared with the traditional teaching, is very different: 1) The students are unconstrained from time and space; 2) Equality and interaction between teachers and students can be truly achieved; 3) Students become the real subjects. They can participate in the use and development of the curriculum resources, choose courses of different schools and styles, and be independent of the course evaluation; 4) Teachers have not absolute advantages in the possession of information, and students can easily access materials and other references on the Internet. Change in this environment requires the teachers to update their concepts. Teachers who teach knowledge should act as students' learning guides, assistants and facilitators. The teachers' main task is to teach students how to learn effectively in modern information technology environment. Only by establishing such a concept, can online education be truly implemented.

3.2 Construct the network teaching platform, carry out network teaching, and play the advantages of online education environment in education and teaching innovation

Network technology, as a new teaching mode, can provide a good teaching environment for a new teaching structure. Rational use of network and multimedia technology can make the abstract teaching content and complex process become concrete, sensible, easy to understand, and be memorized for a long time in the means of sound, image, animation. But to teach through the network, the following must be done.

3.2.1 Establish a complete, easy to operate, interactive network teaching platform

In this way, teachers can put their network teaching resources such as tutorials, lab courseware, test bank, subject dynamic, curriculum management information on the internet. In accordance with the teaching requirements, the students' cognitive rules and the new teaching ideas, teachers can organize teaching flexibly, make full of the multimedia for the teaching service, and provide a good learning environment for education and teaching innovation.

3.2.2 Improve the network course designing

Whether network course designing is reasonable, whether the content is appropriate, and whether it can reflect the requirements of innovative education, have a direct impact on classroom results. Design and production of Network course should be given full consideration to the following points: 1) the ability to operate the network; 2) whether the abstract content is specific in some technical means; 3) whether the complex work or technological process is treated in animation; 4) whether each experimental project makes students clear at a glance; 5) whether the courseware is to interact with students; 6) whether the student can manage it; 7) whether there is syllabus, difficult and important points; 8) whether it reflects the requirements of the current subject development; 9) whether it has the maintainability .

3.2.3 Give full play to the advantages of online teaching environment and develop education innovation

Online teaching can be unconstrained from time, space and personnel system restrictions to organize the best teachers, create a completely new teaching mode, expand the teaching scale, reduce education costs, improve learning opportunities and perfect teaching quality. The following can be considered: 1) Classify the basic courses, form a number of platforms, organize the outstanding teachers and experts to prepare teaching plans, curricula, and develop training plan to meet the needs of society. The existing network can be flexibly expanded or updated with the development of economy, academy and cultivating scale, and some emerging discipline, knowledge of frontier can be expanded into the appropriate curriculum. It can save the teaching cost and improve the quality of teaching as well. 2) As to the specialized courses and professional basic courses, excellent teachers can be organized by the department to prepare the professional development of teaching plans, curricula, and select materials for its goals. The difficult and important points in teaching and the abstract or the edge of the subject content can be made into network course. All content of some courses can be made into network course for students' election or independent study. 3) The content of some experiments can be made into courseware, the main form of which should be simulation experiments. Before the experiment, students look through its courseware. With a good understanding of the corresponding experimental content, procedures, data, results and precautions, it would be handy for the students to do physical experiments with less errors.

Of course, as we see that online education can make up for the lack of traditional education, we should also realize its weak points. It is not simply to move the textbook and the chalkboard to the network. It also needs updating the teachers' educational concept, philosophy, theory, and has a higher request for the teachers and students. The network education only acts as a supplement for the traditional form, not a total negation of it.

4 Network Education Innovation Calls for Innovative and High-quality Teachers

Teachers play a key role in innovation education, and the same is true to education innovation in the network environment. Only by cultivating a high-quality and innovative teachers, will develop an atmosphere of educating, and will innovation education be implemented.

4.1 Guide teachers to learn new knowledge

Knowledge of innovative teachers is refined by the extensive expertise and solid knowledge of educational theory, modern information and human. How to construct innovative teachers' knowledge is an important and urgent problem. First of all, make construction plans; Secondly, provide teachers with good learning conditions and encourage them to make full use of modern means of information; thirdly, establish evaluation system for teachers to implement the responsibility system and reward system to make learning variable into a conscious action.

4.2 Strengthen the information literacy education to in-service teachers

For various reasons, it is difficult for Chinese teachers to adapt to the information society in information awareness, skills and ethics. The best way to solve this problem is to do their continuing education of information literacy. As an innovative teacher, he must master the multimedia teaching software design and production under the premise of the basic operation of the computer. To achieve this, the university should take the initiative to provide a good environment for them, in addition to continuing education for teachers themselves consciously.

4.3 Cultivate their innovation to educate and teach

Innovation is not a mystery, and everyone has a potential capability to do it, although each is different in levels. Meanwhile, students' innovation is to be developed. If it can not be waken up and developed, it will shrink, or even be destroyed. Therefore, teachers must have a sense of crisis and responsibility to develop the students' creative thinking and innovation and establish a correct concept of innovation in teaching. Innovative teachers should have the self-monitoring ability, innovative teaching ability, and the ability to guide the innovation practice and the scientific research.

5 Conclusion

Education reform and innovation is a long and arduous task, and education and teaching innovation in the network environment is a new topic. We are convinced that with an awareness of the existing problems and its enormity, by working out ways to solve these problems, training the innovative teachers, speeding up network resources building and innovating teaching modes, teaching innovation under network conditions in universities will take on a new look in the near future.

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