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## Exploration of web-based teaching platform on biotechnological pharmaceuticals

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### ABSTRACT

Webucation for external and internal students is playing an increasingly important role in modernization construction of higher education. Through tuition on the Internet, educators can improve the quality and efficiency of education, and on the other hand, learners can strengthen the learning ability and the capacity to survive and develop in the information society. Biotechnological Pharmaceuticals is a specialized core course that merges the superiority of biotechnology and pharmaceuticals. So, in this article, to adapt the development of modern education, we made a deep research on the construction of a Biotechnological Pharmaceuticals web-based teaching platform and hope to accelerate the process of informationization construction.

### KEYWORDS

Biotechnological; Pharmaceuticals; Web-based teaching platform; webucation, Modern education.



## INTRODUCTION

Webucation for external and internal students is playing an increasingly important role in modernization construction of higher education. The establishment of a digital educational environment would promote the reformation of educational concepts, contents and methods, improve the quality and efficiency of education, and strengthen the students' learning ability and the capacity to survive and develop in the information society<sup>[1]</sup>.

Biotechnology is a burgeoning novel method that is used to reform and utilize the life organism based on human's will, applying the latest achievements of life science. And biotechnology is an extremely active area of science in the progress of the science around the world. In recent years, along with the rapid development of biotechnology, Biotechnological Pharmaceuticals has become one of the fastest emerging industries<sup>[2]</sup>. In addition, Biotechnological Pharmaceuticals is a specialized core course that merges the superiority of biotechnology and pharmaceuticals, which focus on the basic study of new drugs development.

Hence, construction of Web-based teaching platform would become an important part of education research and reform in colleges. This article has preliminarily touched on the necessity of Biotechnological Pharmaceuticals web-based teaching platform, in order to adapt with the demand of the modern education development, utilizing the advantages of biotechnology. And we hoped to accelerate the pace of the information construction in university.

## RESULT AND DISSCUSS

### **Importance of web-based teaching platform.**

Based on the Internet, Web-based teaching platform is a software system designed to provide comprehensive support services for webucation, through the combination of modern information technology and modern educational theory<sup>[3]</sup>. The overall performances, functionalities and resources of the Web-based teaching platform are directly related to that whether students can study with a high efficiency. A well-designed platform would provide a comfortable learning environment for students and make sure the users can concentrate on knowledge obtaining, instead of wasting time on extraneous cognitive load. So, by usability evaluation, existed problems would come to the table, which is helpful to improve the interface, function and user experience, thereby improving teaching efficiency.

With the wide application of network technology, traditional teacher-centered mode of instruction is no longer suitable for webucation, due to the geographical separation of teachers and students. Students should become the main body of education; as a result, optimal resource allocation should be student-centered. While the Internet is a rich source of knowledge, teachers just play a leaders' role now that teach the students how to obtain information. Moreover, teachers should also help to resolve students' problems during the process of learning, and help students to form personalized effective learning methods. And the role of students have converted from passive receiver to active learner, that students should become knowledge inquirers and main body of meaning construction<sup>[4]</sup>. That is to say "students" minds are no longer containers to be filled, but flames to be kindled.

### **Characteristics of Biotechnological Pharmaceuticals<sup>[5]</sup>**

Biotechnological Pharmaceuticals is a novel field that uses various kinds of biological technologies to develop and produce drugs. Besides utilizing the traditional microorganism fermentation and tissue extraction, it has become the latest method for new drug development using biotechnologies including Fermentation Engineering, Enzyme Engineering, Cell Engineering and Gene Engineering etc. And with following characteristics, Biotechnological Pharmaceuticals is suitable for webucation.

### **1. Multidisciplinary cross**

Biotechnological Pharmaceutics is a multidisciplinary course merged a series of curriculums including Molecular Biology, Genetics, Gene Engineering, Cell Engineering, Enzyme Engineering and Fermentation Engineering, which would guide the novel drug development using the latest research products based on the basic biological technologies and theories<sup>[2]</sup>. But, Pharmaceutics is a newly constructed subject in our university. The set of relative courses is far from satisfaction, which only containing Pharmacogenomics and Pharmaceutical Molecular Biology. It is urgent to supplement Biotechnological Pharmaceutics related theoretical knowledge in daily teaching process, which demand the teachers to elaborate the biotechnology correlative theories while emphasize the pharmacy relevant contents. So, this traditional teaching method may confuse the students, and together with the weakness of basic knowledge, students' interests would disappear soon. By Web-based teaching platform, students can obtain the needed basic knowledge and review the learnt knowledge, which would heighten the interests in learning and reduce the difficulties.

### **2. Broad knowledge, comprehensive content, new technology and high updated speed**

Biotechnological Pharmaceutics is a rapidly developing field. In order to teach students about subject frontier knowledge, it is necessary that continuously renovate the teaching contents<sup>[2]</sup>. In education process, on the basis of Biotechnological Pharmaceutics published by Higher Education Press, we timely added new knowledge by reviewing the recently published literatures. For instance, we have supplied many new subjects such as Transgenic animal Pharmacy, Halobios Pharmacy, Human Functional Genomics, Metabonomics and Pharmacogenomics. Through the addition of latest knowledge in webucation, students would comprehend the frontier in Biotechnological Pharmaceutics, which would increase students' cognition on the importance of this course, expand the students' knowledge and cultivate the innovation ability of students.

## **Construction of Biotechnological Pharmaceutics Web-based teaching platform**

### **1. Plentiful preparation of courseware and materials for Web-based teaching platform construction.**

Preparation of high-quality courseware and materials is the prerequisite and foundation for construction of a perfect Web-based teaching platform. So, it is needed to purchase some excellent multimedia courseware for Biotechnological Pharmaceutics, and on the other hand, it is requisite to build homegrown courseware combined with the teaching practice. And the chief course instructors should be responsible for designing and developing of the Web-based teaching platform. In addition, a well constructed teaching echelon and counseling team is needed for webucation. We should encourage and support the postgraduate students to work on undergraduate course teaching.

### **2. Classified training for the Biotechnological Pharmaceutical teachers**

Through ideological mobilization, we should help the teachers to establish the modern educational concept, increase the awareness and positively study the modern educational methods. On the other side, it is needed to organize the motivated teachers to undergo special trainings, which would teach the educators how to make related teaching courseware and how to utilize the Web-based teaching platform.

### **3. Reasonable arrangement of online courses**

We should take full advantage of the existed Internet and computer resources, which would provide plenty of hardware facilities for students to join the Web-based teaching platform.

### **4. Establishment of a webucation evaluation system**

Through the evaluation system, both the teachers and students could effectively monitor and evaluate what they obtained. And educators could realize how much the students learned.

### 5. Expansion of the source of Web-based teaching platform

In modern society, the students' study spaces and time have changed a lot. And the webucation platform is a multidimensional education method. What's more, the VOD system of electronic resources is not only a challenge to traditional teaching methods, but also a demand for information era.

### CONCLUSIONS

It is a fundamental conception of higher education in 21st century that providing independent and individual education for students. The Web-based teaching platform provides a relatively intact supporting environment for webucation. By exploration of Web-based teaching platform on Biotechnological Pharmaceuticals, we hope to spread this kind of web-based teaching mode among universities and disciplines, which would adapt the development of the society and cultivate more comprehensive high-level talents.

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