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# Web-based Teaching Practice System Design for Pre-service Teacher[1]

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**Abstract:** The policy of free education for normal university students issued by the Ministry of Education (MOE) has been implemented in 6 subordinate normal universities since 2007. The implementation of the policy requires pre-service teachers having practical abilities. Traditional education module couldn't solve the problems such as resources shortage, practice activities limited by space and time. However, the web-based teaching practice system could provide good environment for solving these problems. This paper is based on the project of "Application demonstration of innovation teaching practice system based on IPV6" which is supported by the national development and reform commission. We designed the practice system for pre-service teacher. The innovation of this paper is designing a practice system which could fulfill pre-service teachers' demands and offer excellent digital environment to improve the quality of teaching abilities.

**Keywords:** Pre-service teachers, Teaching Practice System, Design

## 1. Background

At present many graduates from normal universities and some teachers after being trained find it difficult to exercise advanced education ideas and methods into practical teaching. This phenomenon would depart teacher education idea from practice; moreover, teachers' professional level would also be greatly affected. So how to enhance teachers' pre-service practical knowledge becomes one of the most important educational goals of normal colleges[1].Web-based teaching practice system for pre-service teacher can effectively overcome the problems such as resources shortage, practice activities limited by space and time which exist in traditional practical model. Training teaching abilities in network environment can also improve the learning quality of practical process. So we designed a teaching practice support system to support pre-teacher education.

## 2. System division and design objectives

In China, teaching practice consists of three parts: virtual field study, microteaching and internship teaching. These three parts are arranged in hierarchical way. Virtual field study is the first step to cultivate pre-service teachers' practical ability. After grasping teaching theory, pre-service teachers are required to watch excellent teaching videos of other teachers or experts, analyze their teaching processes objectively, learn common teaching methods and strategies, try to turn teaching theory into practice in their minds. This will

[1] This paper is based on the project "teacher education innovation system for Pre-service Teacher" which is supported by State Development and Reform Commission （project number：121）

cultivate their practical knowledge. Microteaching is the second step to cultivate pre-service teachers' practical ability. Firstly, they need to teach in virtual teaching environment and their action will be record as videos. And then analyze their own teaching videos, find problems and try to solve problem. This would help students cultivate self-reflection ability and give objective teaching evaluation. Internship teaching is the third step to cultivate practical ability of pre-service teachers. They would get teaching experience in real, complicated environment .At the same time, they can check education theory from books and form their own practical knowledge[2]. The structure of this three-step subsystem is shown in Fig. 1.

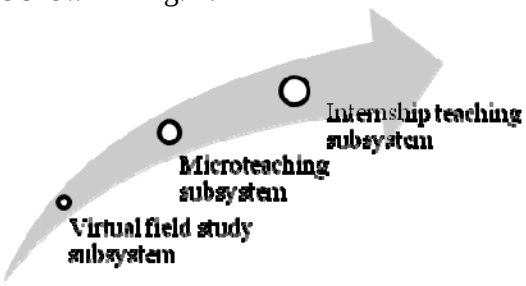


Fig. 1 relation of three subsystems

## 3. System design[3]

### *3.1 operation flows design*

Each subsystem has some different functions and parts of same functions. When designing the system, we couple the same functions. The unique features of each subsystem will be designed and developed independently. In this way, the development costs can be reduced and the system usability can be improved. Users can use the subsystems easily when they are familiar with one of the subsystems. Key operation flows of three subsystems are shown in Fig. 2.

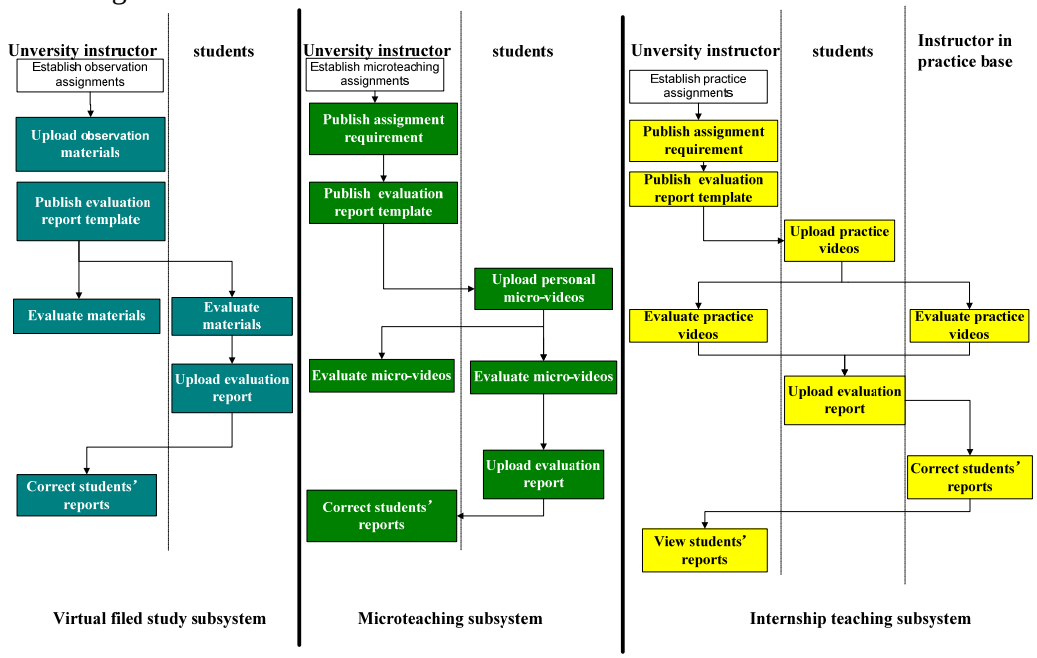


Fig. 2 Key operation flows

### *3.2 Function module design*[4]

Each subsystem includes two main function modules: teaching module and teaching tools. The design is shown in Fig. 3.

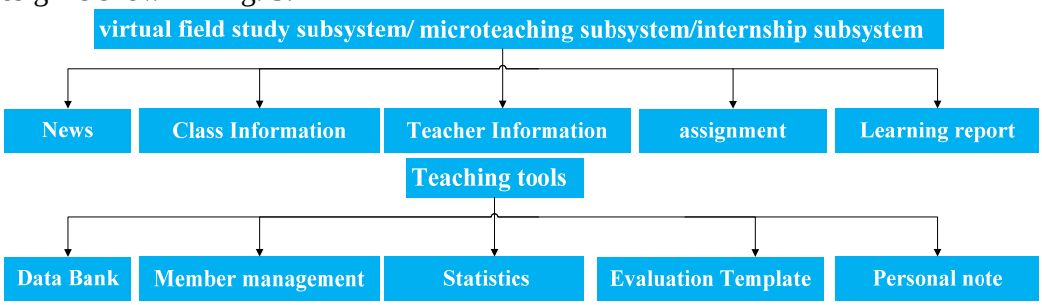


Fig. 3 Function modules

## 4. Development environment

The architecture of practice system for pre-service teachers is B/S. we use java as the development language and use SSH (Spring + Hibernate + Struts2) and JDK6.0 as the technology architecture. The system database is Oracle 10i. The system server is based on Linux/Windows 2000 Server operating system, and the middleware software is Tomcat 6.0 or above version which provide web services.

## 5. Summary

After being published, the system will be able to support 5 million users. 2,000 users can visit the platform at the same time.1, 000 users can play video at the same time. The number of courses is expected to reach 300 or above, and the number of observation course 450 per time. The number of data is expected to reach 6 TB or above. The system has already achieved Secure Single Sign-on and the resource and data can be shared and exchanged with other systems. Our next research will focus on the key technologies including copyright protection of resource, video broadcast, and system interface. Meanwhile, we will try to achieve the goal of covering the National Normal University and secondary school, supporting normal students, educational masters and teachers studying online. We will try our best to promote the reform and innovation of teacher training model in China

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