The Annotation Type of Video Case System Built for Pre-Service Teachers in Teaching Skills Training

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Abstract. The training program of teaching skills is one of the key elements for pre-service teachers who cultivated in school. Due to the advantages of vivid, image video case are admired greatly by teaching classes teachers, and then, there are many video cases support systems for pre-service teachers emerged. However, they have some common problems which are not conducive to training pre-service teachers’ teaching skills, including listing integrated instructional videos and a small amount of video review. Base on this situation, the author built a training case system for pre-service teachers, which can add annotations on fragments, search, evaluate, and share the content as a whole, by using the advanced network and informational technologies, the aim is to help pre-service teachers expand the time and space on training teaching skills, and improve the research efficiency and effects on training.

1. Introduction

Teaching skills is the most representative and most important part of the training of normal students. The level of teaching skills is directly related to the overall quality of normal students. It is an extremely important part in the cultivation of normal students to improve the quality and the essential task of the normal students. At present, the normal method of normal skill training is trainee and practice, but the number of trainees and practice is small, the time is short, can not meet the needs of teacher training, so many normal universities collect excellent teachers’ classroom teaching video cases, Analyzing the Teaching Behavior of Excellent Teachers. China Higher Education Society Teachers Education Branch in the Ministry of Education Teachers Division, Basic Education Division, with the support of the National 11 provinces and municipalities Department of Education Teachers Department to carry out "the first excellent classroom video case evaluation" activities, through research, exploration, While training the way to develop a 555 video cases; Beijing Normal University, Northeast Normal University and other six directly under the Ministry of Education Normal University institutions have also developed a large number of students for the use of video training case resources; Southwest University building teachers Education resources in primary and secondary schools excellent teaching case database, and upload to the network to share, so as to normal teaching students to create a convenient training and training conditions. On the one hand, it alleviated the contradiction between the practice and the noviciate, on the other hand also enriched the resources of the normal skills training. However, Complete classroom record video in the use of the process is still difficult to retrieve the location, little interaction and other issues.

2. Research on Video Case System

At present, the video case system mainly provides full classroom record of uploading, on-demand and management functions, in the teaching skills training in normal school, teachers in the classroom video on demand case, guide students to observe, or allow students to observe their own after school,
students can only complete video on demand, leading students to quickly lose the watch interest of the moment fast-paced, lengthy video. Although the progress of the play can be controlled, but for the unknown teaching behavior is not complete before viewing is not accurate positioning to the time you want to watch, the students will waste time in the search, may also miss some of the key teaching behavior, Can not meet the demand of the teaching and learning of the normal school students, so it can develop the video case system which is more powerful than the uploading, on-demand and management functions, realize the collection and upload of excellent teachers' video case resources, mark and retrieve the video cases, Has become an urgent need to study the subject.

Video case system research has attracted the attention of many researchers in recent years. Liu Ruizhi proposed using Moodle platform as learning management system of video case learning and network learning, encouraging students to establish personal network log, record, exchange and share learning experience. And through self-evaluation, to promote the development of teaching skills of normal students. Yang Ying constructs the online support platform theory model based on the video case. The platform takes the normal students as the core, and carries on the study preparation, observation analysis, exchange and discussion, reflection evaluation and practice exercises from the simple to the complex video case resources and activities[1]. However, these video cases are basically the complete on-demand for each lesson, a key fragment, often need to drag the video playback scroll bar to find play, so as to form a list of forms, which seriously affect the normal students to observe learning The efficiency and the effect, is unfavorable to the normal student carries on the practice reflection. [2]

Li Ying proposed "collect video case - observe the classroom - teaching behavior observation and analysis - teaching skills learning and research - discussion and reflection - practice and improve" strategy for video case teaching. The paper design the support system is a video case, function is more complete, including video on demand, video retrieval and video slice, post a comment, and other functions, this study has a very good reference, but the system is C/S mode, unable to realize network sharing, and does not support video section of keywords retrieval.

In the aspect of application, Soochow University Bao Jiasheng et , proposed the introduction of video case library to the cultivation of normal students in Mathematics. They cut the video into different pieces, and then serve with the case problem and case evaluation component video case library. Case fragment of the video case library describes a complete classroom event, which contains the relevant case issues. Case fragments using hyperlinks and case problems, case evaluation of interrelated, convenient to observe the case, the timely access to relevant resources. The disadvantage is not support the network environment, individuals and groups of online case learning activities, the lack of interaction. [3]

Video slicing, video cutting and other claims have been proposed very early, with the development of the Internet and information technology, video annotation came into being, It allows users to add text in the video clip, and allows users can quickly locate the interested content through video annotation, reduce the user to find, browse video clips of the time, thus improving the efficiency and effectiveness of video viewing. Therefore, combining the classroom teaching, we can construct a video case study and training system which can carry out case-on-demand, tagging and retrieval, sharing, improving the quality of teaching skills of normal school students, facilitating the practice reflection of normal students, is a very meaningful research content.

3. The Design of Annotation Video Case System
Previous video case support system only supports the entire video browsing and commenting, and can not directly deal with the video content, the feelings of the normal students browsing the video can not share with others, what’s more, the impressive video clips need re-browsing by them. Review, and comments are targeted poor, which are frequently the whole video summary and evaluation. In addition, if the normal students are interested in teaching skills, they need to drag the video playback scroll bar to find and play.

Based on this, the video case support system should have the function of case tagging and case retrieval, the case tagging is conductive to afford a keyword for retrieving and to establish the index, the retrieval of keywords extracted from the fragment.
Case tagging is to divide the case into a fragment of interest, and can comment on the content of the fragment. By case labeling technology, normal students can comment on the case fragments, share their feelings, and the system will retain the annotation of the user in the case. On the one hand, the annotation is offered for other users to view, on the other hand will be retained in the "My Note" and also be reviewed and reflected in the future, the equivalent of usually doing the notes in reading the literature.

Case tag retrieval is to enable normal students to quickly find their own keywords through the video clips needed forming a thematic list, thus to save time of searching the video. The normal students through viewing the advantages and disadvantages of fragment cases, learn from the beneficial ingredients, teaching skills Training, self-design on the basis of cases, self-innovation, so as to improve teaching skills.

4. The Significance of Constructing a Marked Video Case System

(1) To achieve the dynamic generation of the marked index, making the Training material expanded.

The marked video case system provides the function of video annotation, so normal students can mark videos that are of interest or value to them in watching video. By watching the video playback interface next to the label list, you can quickly find your own needs. You can reduce the time it takes to find videos in the past. This approach changed the previous complete video display and a small amount of video comments in the form. Learners annotated, and according to the need to extract video clips, review and repeat the meaningful training video. This will not only shorten the learning and follow the time, and at the same time each involved in the process of labeling, is a dynamically generated learning process. In a certain sense, it will expand the teaching skills training materials for the new members to join the study to facilitate the formation of "video notes" and "video bookmarks". This will attract more learning members to join, enhance their participation in teaching skills training initiative.

(2) Fast retrieval of case fragments to provide realistic learning support for teaching skills training of normal students.

The marked video case system provides a case tagging search function. Normal students through keywords can quickly retrieve the interest of the fragments and formed the thematic list that provide realistic learning support for teaching skills training of normal students. Which can help to improve the efficiency and effectiveness of the teaching and learning of the normal students.

(3) For the students to provide a new training model.

Marked video case system not only has the online case to observe, but also a self-practice under the line of mixed training model, so as to provide a new training model for normal students.

5. The Construction of the Annotation Type of Video Case System

5.1. System Development Tools

System development is based on IIS7.0 (Windows server 2007), Internet Explorer 8.0 or above, Web / Server mode, using Visual Studio 2008, Macromedia flash 8 as the main development tools, c# and ActionScript2.0 as the main development language, Database select Microsoft SQL Server 2005 [4].

5.2. The Basic Module of System

The Annotation Type of Video Case System applies the current advanced video marking technology to the video case, the system basic module is shown in Figure 1, the users can be administrators, teachers or students to enter the system, according to the landing status, the system will give different authorization. After the successful landing, system will be administrators, teachers, and students to complete the system functions. [5]
Figure 1. Marked the normal teaching and learning skills training case system

The existence of administrators is benefit to teachers and students to have a better learning activities in the learning environment. The administrator’s main mission is user management (user batch import, rights distribution), video case management (video management, marked management) and providing technical support. With the guidance of teachers, Administrators can review, classification the video cases which are uploaded by students, and also can give some advice to these unqualified cases and improve them. In addition, uploading, marking and retrieving video cases need a certain information literacy, according to those teachers who teach normal teaching skills in the traditional teaching method, the operation of the system is difficult for them, those teachers may need administrators’ technical guidance and help.

Teachers are precious wealth in the field of education, they are both the contributor to the video case, but also the guide to video marking, they can upload, mark and highlight teaching video cases which belong to excellent teachers. Through the case of video uploaded by the normal students in the form of video annotations for guidance, to mark the lack of video clips to be modified, and to highlight the highlighted clips video. [6]

Students are the contributors of video cases, the makers of video on demand, the winner of practice reflection. Students can upload the excellent video cases from the teachers’ classroom or their own practice cases, using video annotation technology to mark the start and end time of the interesting or feel valuable video clips. By watching the list of labels next to the video playback interface, you can quickly find the points we need to reduce the amount of time it takes to find videos in the past, thereby enhancing the training efficiency and effectiveness. Through annotation retrieval, input keywords, you can quickly find all the video tag associated with the keywords, and form a list of thematic labels for learning, thereby obtain practical knowledge. To communicate with teachers or students through the interactive space, the problems of teaching from video case to be questioned, the excellent cases to be shared, so as to improve the application of video case system effect. [7]

5.3. The Realization of the Key Link of the System
The current mainstream video sharing sites such as Tudor, Yukon and so on using FLV as a file packaging format and more than 90% of Internet users to install flash plug-in installation. FLV files size is small, fast, video quality is better. In order to facilitate the video processing online, the file format of tagged video case system is also uses FLV file, and to transmit video and audio with Stream.

5.3.1. Video case labeling
Case labeling is to allow students to mark the case, and the case will be divided into some fragments we may be interest it, and we can also comment on the content of the fragment. In the lists of video-on-demand, users select video case of their interest, click and enter into the video player interface, when the normal students to see the targeted case segments, click on "Starting mark " button, the video will stop playing, and then fill in the comments you want to be published, such as the case of teachers’ reading skills, Writing skills, calligraphy skills, teaching design skills, organizing teaching skills, writing skills and so on, then click on “stop mark”, the system will automatically refresh the
5.3.2. Labeling and searching case
Labeling and searching case allows normal students to quickly find the video clips they need to form a thematic list, thus saving the time to find the video. If the "blackboard" as a keyword to input, you can retrieve all the marked content contains "calligraphy" label records, through the search results, and according to the need to click the corresponding label records, thereby enhancing the "blackboard" Teaching skills, by this way realize the targeted teaching skills training. The contents displayed in the "Label Search" contain the information of the case introduction, the marked content, marker and the time of marking. The normal students can fully understand the marked contents and related information by search.

5.3.3. Case fragment on demand
Case on-demand as an important part of the video case training system, allows students to understand the video case including normal time, the school, grade, subject and instructors complete case information, thereby they can quickly find their own needs from the video cases to learn to improve learning efficiency and effectiveness.

In the case playback interface, you can see the following case there is a "video tag list", each label has marked the beginning time, ending time, marker and the marked content. When normal students click on any of the label, after the video buffer is over, the player will automatically jump to the starting time of the label, and click on "play" button, you can browse the contents of the case clips. When the end time of the label is reached, video will automatically stop playing to avoid interference on the normal students, save the learning time of normal school students, so as to better support the teachers' teaching and learning skills.

6. Conclusion
The system effectively solves the problem of the complete teaching video list and a small amount of case comment of the existing normal university students' teaching skills video case system, Be able to provide favorable support for case on demand, case annotation, annotation retrieval and interactive communication, To better meet the needs of research and training of students' teaching skills. However, due to the large capacity of the video, the restrictions of the network bandwidth, the video need to buffer before it can be properly labeled and retrieval. Therefore, to make the success of the teachers and the students enthusiastic participate in the system, and to develop a sustainable and harmonious normal students teaching skills. We must further explore the training system.

7. Acknowledgement
The research results of Zhejiang Provincial Education Department's scientific research project "Research on online deep training path of normal students' teaching skills (y201941543)".

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