Design and Implementation of Teaching Activities Support Module base on ActionScript+XML

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Abstract—**Computer-aided teaching software is the core of the digitized classroom teaching environment under the guidance of the constructivist learning theory and teaching theory. It provide the necessary support tools for learning situational creation, collaboration, communication, session, and the construction of meaning. This paper use the technology of ActionScript 3.0 and XML, develop a series of functions such as classroom teaching event record, teaching process management, teaching task and learners' information management, Learners' awareness tools, recording and evaluation of learners' learning behaviors.**

Keywords-Computer-aided teaching; teaching activities; ActionScript 3.0

I. INTRODUCTION

Teaching activities constitute the most basic unit of classroom teaching process, it is also the aggregates of teacher and student behavior. The teachers' behavior is part of the teaching activities of the entity, it can impact determines the quality of teaching. But teaching effectiveness of teachers must be reflected through the students' learning activities. Therefore, learner's learning behavior must be the center of teaching behavior analysis. This paper divided the different behavior of the teaching activities into religious activities and school-based activities use the ActionScript3.0 and XML technology to implement the all of the functions. Then start from the behavior of teachers and students in the analysis of teaching activities, Summarize the information support environment and tools needed in the teaching activities.

II. DESIGN AND IMPLEMENTATION OF ACTIVITIES SUPPORT MODULE BASED ON TEACHING

The activities of teaching mainly act by the teachers' behaviors are manifest by teaching task allocation, presentation of teaching content, explain of teaching questions, questions quest, evaluation of learners, allocation and management of time, performance management, etc. The questions quest and evaluation of students need to fully understand the students' learning circumstances.

2.1 Task Management and learners' information management

Constructivist learning theory emphasizes learning in the real task contexts, emphasis on collaborative exchanges between learners. Therefore, the grouping of the learning task and learners become teachers' common teaching behavior, and use computer-aided teaching software can make the grouping more objective and scientific, and dynamic tracking management. The foundation and core of the teaching is understand the students, it is also a premise of evaluate the students comprehensively. Use the information technology tools to record and analysis the students the basic information and learning information, it is conducive to teachers to arrange teaching activities for purpose.

To develop the functions of task management and learner information management, it needs to build the tasks and learner information model. The functions of ActionScript can make native support for the XML technology; therefore we can make a detail description of the task information and learner information with the functions of XML. For example, the functions of learner task management can be implement by writing the task name, task statement, task involved personnel, task resources and condition, task completion to the XML file. The learner information is composed of: names, learner task involved, performance and questions answer, etc. Here is the basic information model of learners built using XML file:

```
<?xml version="1.0" encoding="utf-8" ?>
<studentlist>
<student>
 <name>lianshen cao</name>
 <calling>0</calling>
 <homework>0</homework>
 <answer>0</answer>
 <total>60</total>
.....
 </student>
</studentlist>
```

Flash ActionScript 3.0 support for XML object, and can use "." @ "to access, modify, create, and delete XML objects and their properties directly, use the inputText or dynamicText of Flash can modify and track the task visually.

The another advantage of use XML file to store learning task management and learner information is to separate the software program from the content, so the user can modify, edit and initialize the XML file directly, moreover, the XML file has become the standard tool of data process and data transmit. It is free, flexible, and easy to expand and be able to read by all kinds of tools, so is the data is easy to transfer and management.

2.2 Design and Implementation of named, grouping and questions Module

Design and Implementation of named, grouping and questions Module are the common teaching behavior in classroom. The functions can be realized by make the learner random or selected by certain condition base on the foundation of learners' information module, then record the selection and the learners' reaction to learner information, the functions of question is program as follow:

```
var studentRepeat:Array = new Array();
inname_txt.text = "Please input the search name"
var myXml:XML = new XML();
xml_url = "studentphoto.xml";
function xmlLoaded(event:Event):void
{ myXml =new XML(myLoader.data);
   studentTotal=myXml.student.length();
   name_txt.text=myXml.student[studentindex].name;}
function
searchclickHandler(event:MouseEvent):void{..... }}
search_btn.addEventListener
(MouseEvent.CLICK,searchclickHandler);
function answerclickHandler(event:MouseEvent):void{
      …} //Record the students who had asked questions,
and delete thems
      studentRepeat.push(num);
      studentindex = num;
      name_txt.text=myXml.student[num].name; }
```

The interface and function is show as fig.1：

Fig.1 question function of computer-aided teaching software

The process of call name and ask questions is achieved by random or select corresponding learners to answer questions by certain condition. Then record the state of answer by the learners and the number of questions, provide the basis for a comprehensive evaluation of learners.

The principle of call name and ask questions is select an object from learners range, similarly the principle of grouping is select the multiple data from the data element base on certain condition. Example, according to the numbers, groups of 4 or groups of 5 or grouping by merit condition of learner achievement.

2.3 Design and implementation of time allocation and management module

Time allocation and management is a basic skill on classroom teaching. The use of information technology tools can provide intuitive time prompt and management for teachers, such as the time of students answer questions, task progress, etc. Then analysis and process the reaction time of students, as the basis of evaluation of questions and students.

ActionScript 3.0 provide the Timer object, it can process all kinds of times management, timing, countdown, remind and repeat treatment. For example, record the time of students answer questions as follow:

```
var mytimers:Timer = new Timer(1000);
mytimers.addEventListener(TimerEvent.TIMER,myt);
mytimers.start();
function myt(event:TimerEvent):void{
      var t:Date = new Date();
      switch (t.getDay()) {....}
s=s+1
if(s>59){
      m=m+1; s=0;
      if(m>59){
            h=h+1; m=0}
   }   timestart="The time of answer questions：
"+h+"Hours"+m+"Minute"+s+"Second";
```

2.4 Design and implementation of instructional events record and teaching process management

The functions of teaching events recording is realized by the store functions of ActionScript, it can store the key information of teaching process to the independent file, make it easy to query after. The recording of teaching process is to record the annotation in the process of using teaching software by the teachers, the annotation can be recorded by ActionScript Graphics object and Bitmap, BitmapData and BitmapSaver object or image format,the implementation code as follow:

```
var bitmapSaver:BitmapSaver;
function exportHandler(evt:MouseEvent):void {
      this.addChild(bitmapSaver);
      bitmapSaver.addEventListener(BitmapSaver.BUTT
ON_CLICKED, closeWindow); }
function closeWindow(evt:Event):void {
      this.removeChild(bitmapSaver);
      bitmapSaver.removeEventListener(BitmapSaver.B
UTTON_CLICKED, closeWindow); }
```

Ⅲ. DESIGN AND IMPLEMENTATION OF ACTIVITIES SUPPORT MODULE BASED ON LEARNING

The learning activities embody by learner behavior as the main, mainly in the activities such as learning content selection, learning notes, exercise, question, submit. In which questions about the problem and submit homework usually based learning activities in the network environment.

3.1 learning progress store and learning task collect management module

The outstanding of computer-aided teaching software is learners can select learning resources and progress autonomous by the needs and achievements of themselves. We can achieve nonlinear organization of learning resources easily with multimedia technology and network hyperlink. The relationship between the resources can also be fully

demonstrated by the network node. The basic information which record the learning process of learners is the foundation of implementing this function, such as learning progress, operating habits, the difficult and easy program of select content. We can use the SharedObject of FLASH to record and store learners' learning progress and other related information. For example, to implement the functions of record the position of the learner move the operate object, the code as follow:

```
Var mySO:SharedObject =
SharedObject.getLocal("republicofcode");
    logo_mc.x = mySO.data.my_x;
    logo_mc.y = mySO.data.my_y;
    if (!mySO.data.my_y) {…}
    logo_mc.addEventListener
(MouseEvent.MOUSE_DOWN, onDown);
    function onDown (e:MouseEvent):void {
    …
    mySO.flush ();}
```

The functions of selection and collection of learning content by the learner, the click number certain content and other operated information also can be stored by the SharedObject.

3.2 Design and implement of learning note module

Learning note is an effective learning and knowledge management tool. Placed notes in the computer-aided teaching software, it can help learners record the questions, feeling and summary in the learning process. The implementation of learning note is the same as the instructional events recording module, it can also use text file to record.

IV. CONCLUSIONS

We can use FileReference object of Flash to realize file read and store, in the same network environment, with the technology of WEB server we can also achieve the functions of upload and download files, that is the functions of homework submit.

The key technologies of building teaching activities support module in the computer-aided teaching software module mainly include information description, information store, and information reading. Information description is use the ActionScript and XML technology to make a structural description of the content and related information. The method of read and store information file, addition to the method mentioned above.

Design computer-aided teaching software with teaching activities support perspective, get rid of the limitations of the transmission of teaching information and knowledge content processing, it is easy to build teaching system software functions from a more macro teaching system level of teachers, teaching content, learners. It provides support for teachers' teaching task, activities organization, students' construction of meaning and learning content organization and process.

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