Research on Construction of Excellent Courses Websites Based on Performance Technology

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Abstract—**Websites serve as the presenting carriers for excellent courses construction. With the deepening of excellent courses construction and research, we have relinquished the pure evaluating display platform, and constructed comprehensive courses websites combined with teaching applications, management and display. The practice has become a tendency for the construction of excellent courses websites. In order to deal with the inadequacies of the construction of current excellent courses websites, this article considers the current status of websites construction and applications, makes use of performance technology, explores and sums up the ways of promoting the performance of excellent courses websites construction in practice, improves the platform for creating excellent courses technically and assumes some possible solutions to specific issues.**

Keywords-excellent courses; performance technology; websites construction

I. Research Background

As an important measure for Teaching Quality and Teaching Reform for Schools of Higher Education organized by the Ministry of Education, the construction of excellent courses has become one of the highlights of teaching reform at schools of higher education in China. With the deepening of excellent courses construction and research, we have relinquished the pure evaluating display platform, and constructed comprehensive courses websites combined with teaching applications, management and display. The practice has become a tendency for the construction of excellent courses websites. Excellent courses websites differ from ordinary courses websites in that the quality and presenting educational significance of the former is far above the latter. On the one hand, the excellent courses websites are constructed as an integrated whole of"Five First-Class","First-Class Teaching Resources"with the joint efforts of First-Class Teachers Team, selection of First-Class Teaching Content, adoption of Firs-Class Teaching Methods, compilation of First-Class textbooks and help of First-Class management. Therefore, such websites are full of quality teaching content and adequate teaching support system. On the other hand, these websites serve as "Windows" of models and generalization of excellent courses, thus being instrumental to some extent in promoting and leading the construction of higher education courses and teaching reforms across the country.

At present, over 10,000 excellent courses have been made available nationwide at provincial and national levels. But such huge course resources haven't produced the necessary useful results compared to the consumption of an enormous amount of manpower, materials in the process of construction. Various problems have arisen out of utilitarianism, technical route limitations, impractical functional design, inadequate flexibility and individuality, all of which restrict and affect the proper construction and application quality of websites.

As far as the government policy is concerned, the Ministry of Education has pointed out the specific two development directions for post-times of excellent courses resources, namely, excellent video public courses and excellent resources sharing.[1] At the level of particular schools in excellent courses construction, the pressing problem for the sustainable development of excellent courses is how to improve the results for websites construction of excellent courses, effectively organize and use website resources and set up sound teaching support service system, make all websites available to all teachers and students, let them find it easy to use websites and feel enjoyable to use.

II. The Significance of Performance Technology for the Construction of Excellent Courses Websites

Performance technology is viewed as a process to select, analyze, design, development, implement and evaluate a project. Its purpose is to exert influence on human behavior and achievements with most economical cost and results.[2] Performance technology is a systematic program or process for solving problems, which can identify opportunities for performance improvement, set performance standards, determine ways to improve performance, analyze input and output, select programs for improvement, ensure the integration of the existing systems, evaluate the effectiveness of performance improvement or ways as well as the status of program implementation. Performance technology is used to emphasize the systematic ways to solve problems and always search for solutions at lowest costs, high results and efficiency on the basis of cost-result comparison.

As a way to analyze and solve human performance problems with systematic thinking, performance technology is full of plentiful practice. By applying performance technology in excellent courses websites construction, we find it quite significant to improve the results of excellent courses websites.

Emphasis is put on systematic analysis of views. Performance technology puts stress on systematic way to solve problems and looks at the ultimate performance as the results of various factors working together, each of which may affect the performance in different ways.

Cost–result ratio is highlighted. The key point for performance technology is put on human behavior results and system value, trying to realize the high value at low cost and promote the joint development of both individuals and system. The purpose of excellent courses is to allow people to share quality teaching resources and quality teaching accomplishments, play a role in setting up models and generalization of quality courses, promote the development of college courses and teaching reform all over the country and eventually improve teaching quality at colleges and universities. If we only pursue forms and short-term review objectives but ignore the consideration of our initial and ultimate purposes for courses construction, excellent courses construction will not be so successful as expected. In the end, we can achieve very little compared to our great efforts.

Attention is paid to the results and evaluation after program execution. Performance technology emphasizes evaluation, which is regarded as one of the important stages in program execution. By evaluation, results feedback is given to the process of observation and analysis, thus starting a new cycle until the anticipated target is reached. Excellent courses construction should be a dynamic process. Evaluation and feedback is favorable to the spiral ascending of course performance.

III. PERFORMANCE ANALYSIS

On the basis of survey and study, Refer to the HPT performance technology process model, [3] in depth performance analysis is conducted on the construction of excellent course websites. Study includes questionnaires to teachers and students, selective interviews, documentation research, website visit analysis. Survey involves the following items: knowledge of relevant websites, websites construction, satisfaction, websites visit and application, application demand, factors affecting the use of websites, suggestions for the construction and application of excellent courses.

A. Performance Objectives of the System

Based on performance technology, excellent course websites construction aims at guiding the systematic construction with performance technology methods so that an excellent course website is set up with features which are humane, individualized, well-applied, highly efficient. The characteristics for such websites include:

(1) Fully demonstrate the up-to-date ideas and remarkable results in course construction;

(2) Need to have quality teaching content;

(3) Be able to play the role of generalizing;

(4) Fully display self-study and individuality;

(5) Abundant learning resources and adequate utility;

(6) Get performance support at any moment, for example, tools support and learning help;

(7) Good interaction, forming an interaction for learning, discussing and working together for exchange of views and ideas;

(8) Complete Internet learning function and teaching support services, such as learning tools, test paper database, online testing, online assistance, joint discussion.

(9) Complete evaluation and feedback mechanism

B. The Performance Status of the System

(1) Comparatively up-to-date ideas, adequate teaching content, valuable reference for course construction.

(2) Considerable teaching resources are provided but problems are with quality. The main part of the resources consists of courseware, transcripts, videos; resources differ in quality, mostly descriptive but not systematic or detailed; some multi-media resources are clear with pictures or even not in normal use. The survey of our school websites shows 55.4% of satisfaction by students who don't think our existing resources are adequate for your learning needs.

(3) The number of people visiting excellent course websites is increasing bit by bit but not really high on the whole. By the national statistics, a total of 24446 courses collected at national, provincial, school and OCW levels as at May 2011 were visited by 11,615,023 people/times, [4]averaging 500 people/times visiting the websites for each course.

(4) Website visits and course availability are not adequate. Some excellent course websites have dead links, others require pass word or don't work normal as a whole for visits. In May 2011, the statistics for monitoring status on the National Excellent Course websites show 40% of the excellent course websites were visited by less than 80% at undergraduate levels. And 25% of the websites were unable to be accessed. At vocational and polytechnic levels, 24% of the excellent course websites were visited by less than 80%. And 5% of the websites were unable to be accessed. [4]

(5) There is a lack of dynamic management and almost no update. Once the website is reviewed, then it is "done once for all" like a completed project, which remains unchanged in content for years. By statistics, websites for 24446 courses have been updated with new items of 4742, 4865 and 2236 in March, April and May, 2011 respectively. Obviously, little has been done for update. [4][5]

(6) Exchange platforms are in low use and there is a lack of interaction among websites. Management for exchange platforms is not in place or invalid. Only 8116 items interacted among websites for 24446 courses in the month of May 2011. [4]

C. Analysis of Performance Difference and Causes

Performance technology will affect human behaviors in two kinds of factors: internal and external. Human-related factors are called internal, referring to people's knowledge, skills and ability; factors beyond human power are called external,

referring to tangible resources and intangible environment. Performance technology is focused on the improvement of external factors.

(1) Publicity is inadequate. By survey, we found over 60% of students don't think publicity is adequate for excellent courses. Typically, excellent courses are offering a face or display project for a school. Little publicity is done among teachers and students, who don't even know about such a thing as excellent courses construction at their own school. Let alone use the websites actively.

(2) The drawback of the Internet Technology Environment. The restriction of the Internet equipment and technology has resulted in slow presenting pace of teaching video and coursewares, and sometimes consumes too much time. Not enough multi-media computers in classrooms are available to students who want to access to information and conduct self-study with the help of websites. The instability of the Internet is another factor that directly affects our teaching and learning process.

(3) Utilitarianism in course construction. Currently quite a portion of our excellent course construction is oriented to deal with the review work, thus causing the serious separation of excellent course construction and actual subject teaching needs. Moreover, the purpose of utilitarian construction leads to little update of website resources and lack of subsequent management and maintenance after the completion of review. It is quite common that a website is once put in use and then never updated again.

(4) Resources are not plentiful enough, not adequately shared. Quality needs improvement. The majority of website resources lack their uniqueness. Enormous quantities of resources are not helpful for reference or practicality. Resources are not really open or shared by people. Quite often, resources websites are "blocked" between regions and schools.

(5) Incomplete website functions are unable to offer substantial support for the Internet learning. Teachers and students find it hard to get functions as needed on the excellent course websites. In essence, the learning based on the excellent courses is a way of long-distance learning, which can be viewed as an extension of classroom learning. Long-distance learning has its own demand for support services, such as resources, environment, exchange and tools. Obviously, not much is considered in the current excellent courses and self-study function support is incomplete at websites.

D. Intervention Tactics Design

To construct high performance websites, we believe that our efforts need to strengthen from three perspectives. First in operational management mechanism, we need to be right in thinking, clear in purpose, powerful in publicity and monitoring. Second in content, share the display of first-class teaching accomplishments with advanced teaching ideas as their core, construct the quality teaching resources centered on digital teaching content. Third in website functions, create a digital learning environment for the purpose of supporting teaching and application for teachers and students.

(1) Complete a development management system and operating support mechanism, ensure a sustainable development of courses.

People at colleges must realize the importance of constructing excellent courses. The purpose is not for a reviewing process but for the great significance of improving teaching levels and teaching effects. A sound system is to be set up for support and guarantee of healthy and orderly development of the Internet courses, perfection of a complete management operation mechanism in such areas as applications, review, initiation, development, production, quality certification, acceptance and generalization of course websites.

(2) Strengthen the pooling of excellent course teaching accomplishments and put examples and generalization in practice.

The pooling of excellent course teaching accomplishments refers to the collection of information resources such as advanced course ideas, teaching methods, teaching experience, teaching management tactics and various teaching perceptions arisen from the process of excellent course construction. All these resources represent the internal determining factors in the "Five First-Class" excellent courses, symbolizing the quality of excellent courses in advanced nature, uniqueness and innovation. Meanwhile, these resources are significant carriers for examples and generalization of excellent courses.

The excellent courses websites are required to display the results achieved as well as how they are formed and what they are based on. On the websites, excellent courses should not be simply a big pile of "pure products"(multi-media coursewares, teaching videos, etc.), but also be included with the theories needed for these products. These theoretical bases include such things as the selecting principles for the teaching content, the specific arrangements for teaching details, teaching design tactics, the purposes set for exercises and questions, basic tactics for teaching, teaching experience and feelings.

(3) Establish a three-dimensional resource web system integrated with teaching, management and evaluation, enhance teaching functions of the websites.

The construction of excellent course resources is not simple combination of resources, but an effective teaching design and integration. The planning and design of a dimensional resource system is integrated with teaching and learning, independent study and cooperative learning, provision of resources and problem solving, theoretical study and practice, supervisory management of the whole process, learning evaluation of the whole process.

Besides, in response to different teaching content, we arrange a variety of teaching methods and learning activities to accommodate classroom teaching, group discussions, self-study, project-based study, problem-based study. With the advantage of the web, design problems, assign tasks and set situations, create dimensional learning atmosphere at the web, demonstrate advanced teaching ideas and ways of teaching reform. The final goal is to help to optimize learning and enhance the teaching functions with the excellent course websites.

(4) Optimize the website patterns and enhance dynamic interactive functions.

Powerful interactive functions must be provided for excellent course websites. Apart from enriching the interactive ways for websites, it is necessary to encourage the use of interactive functions, including conventional interactive ways such as question and anwser, email, message, BBS forum. Moreover, we need to give full play to the interactive features and advantages of Web 2.0, combine the techniques such as Blog, RSS, Wiki and Podcast with excellent course websites, so that learners can gain more independence for study, more participations and higher efficiency in learning.

(5) Enhance support services for learning and ensure smooth and effective learning by learners.

Support services and caring actions including curriculum arrangement, learning instructions, learning materials, FAQ for curriculum, resources use, grading of exercises and feedback, administration of examinations and test results files. Quality faculty members should be assigned to be in charge of teaching missions, technical support, students affairs and consulting. Various services are provided and made available with rules and regulations, timely and valid feedback, records of services rendered.

(6) Make timely update and maintenance of websites and keep it working live.

After the completion of websites, it is vitally important to keep maintenance. The construction team should be assigned the job of maintaining and periodically updating the content of the course resources, giving prompt feedback to the interactive platform, thus keeping the course construction work going on a long-term basis and websites attractive to people.

(7) Strengthen technical support and facilitate preparations and update.

The integral construction of the excellent course websites is to be perfected. Modern educational technology is to be applied reasonably. Give full play to the joint role of management team, subject teachers and technicians in order to provide sound technical support and services. Lower the technical difficulty by using a uniform website construction platform. Train teachers with necessary Internet techniques so that they are able to master the basic skills for website maintenance and update. Ensure to keep websites working properly and share resources smoothly.

IV. IMPROVEMENT ON CREATING PLATFORM FOR EXCELLENT COURSES WEBSITES

We have further upgraded creating platforms on the original excellent course websites developed by ourselves, expecting to provide specific support for the website contraction performance. The platforms are featured with components in core functions, automation for system configuration, individuality for function design, intelligence for resources management, templates for interface design. The signicant feature is their adequate universality, no code, sealing technique, super individuality. What has been upgraded is as follows:

(1) Support course resources database construction

Support various resources models with in-built resource model concepts, determining the display styles and being flexible. Support infinite sub-data construction, facilitating customized resource database construction. Support the analysis of visiting results. Support the broadcast of resources in various forms and styles.

(2) Enhance the Internet Teaching Function

Realize independent study by controlling learning process and recording learning progress. A learning restraint is set. After students finish learning a knowledge point, they must pass a test to ensure their mastery of the knowledge point. The whole testing process is done by system itself. Students are measured with their learning progress based on total knowledge points and learnt knowledge points.

(3) Improve the Testing System on the Internet

Support functions such as compilation of exercises and test papers, testing process control, analysis of testing results. Combine manual testing grading and automatic grading of test papers. Support various types of test papers including multi-media ones. Set automatic grading and timely feedback functions.

(4) Boost the compatibility of media element integration

Support various media elements. Basically, course content and types are not restricted by the platform. Course developers may select proper media forms as needed.

(5) Improve course logic design

Provide a layer tree construction frame for course content so that teachers can design different teaching paths for particular students. Provide easy-to-use interface and logic navigation system, displaying the content of excellent course construction, guiding students to learn independently.

(6) Simplify curriculum page design

Manage all the page elements with SKIN file. Each page is made with stylish page element by quotation. So consistency is achieved in effect and update is done automatically, thus greatly improving page design efficiency. Moreover, plentiful templates are available on the platform, including label templates suitable for technical developers and form content templates mainly for teachers. This simplifies the curriculum design process.

V. CONCLUDING REMARKS

There are some limitations with this research project. This means we have to step up our efforts to solve some outstanding problems. First, our coverage for research is inadequate due to the limited regions and the influence of research environment. Second, there is a need to continue related theoretical research on performance technology, website design, learning environment design and application. Thus we need to explore some design programs that can meet with various applications, detail our research and enhance the operability and adaptability. Finally, our further research focus should be on the fresh features for new development directions of such

excellent courses as video public courses and excellent resource-sharing courses. Meanwhile, we need to keep up with the latest developments and further generalize our current research results.

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