

Construction and Application of Teaching File Management System in Institutions of Higher Learning Based on OpenKM

Hua Deng
Yunnan Minzu University
650500 China
marryjean@126.com



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ABSTRACT: *In the background of knowledge economy, it is clear that the teaching resources and file management are inclined to digitize. With the sharp increase of the number and variety, it has put more strict requirements on file management. In order to build a modern, standard and effectively-managed archival system, it is imperative to take the view of scientific development based on the present situation. Besides its present weakness, this paper has also shown the necessity, basic needs and developing idea of the new file management system. It gives a brief introduction of the OpenKM. It shows the construction of teaching file management system in practical management by software. In this way, OpenKM has realized the supervisor and integration at all levels. And it has tried its best to meet the needs of all users and maximized the function of teaching files to serve the teaching research.*

Categories and Subject Descriptors

K.6.4 [System Management] information systems;
K.3.1 [Computer Uses in Education] archives management

General Terms:

Management System, Software Application

Keywords: College, Teaching, File Management System, OpenKM

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1. Introduction

Teaching is the central part in the higher education, while the teaching files play a quite important role in college.

From the teaching practice in college and universities, teaching files are materials in various carriers like words, figures & tables, photos and auto-videos with significance, including teaching system, exam papers, course training plan, faculty training and evaluation of teaching quality [1,2]. The teaching files are the teaching management in college and university in miniature, for they are authentic and recording. By collecting, classifying and filing these real files, teaching file management runs through the process of teaching and it makes an important part in management in higher education. Teaching file management enjoys some features. First of all, there are diverse and quantities of teaching resources. Not only some plans and regulations for teaching and reform from the department in charge, but they cover the original records and arrangement of the teaching process from units at all levels and some records and materials from students. Secondly, it is a long period to place all archives on file, generally carried by a term. Besides, it is quite complicated. Thirdly, there are varied forms for teaching archives, such as the classroom learning, teaching after class and off-campus internship, which generate varied forms of original data, like the e-documents, paper documents, photo and CD. These varied data both reflect the reality of teaching activities and show the value of the archives. Dan Chen [3] discovered some problems in teaching archive management and pointed out some related methods for scientific management. By discussing the steps and significance of digitizing teaching archives in colleges, Zhuliang Yi put forward four methods of quality supervision to enhance the electrical teaching files in colleges, which are to encourage the awareness of electrical archives, work out some rules to have a strong

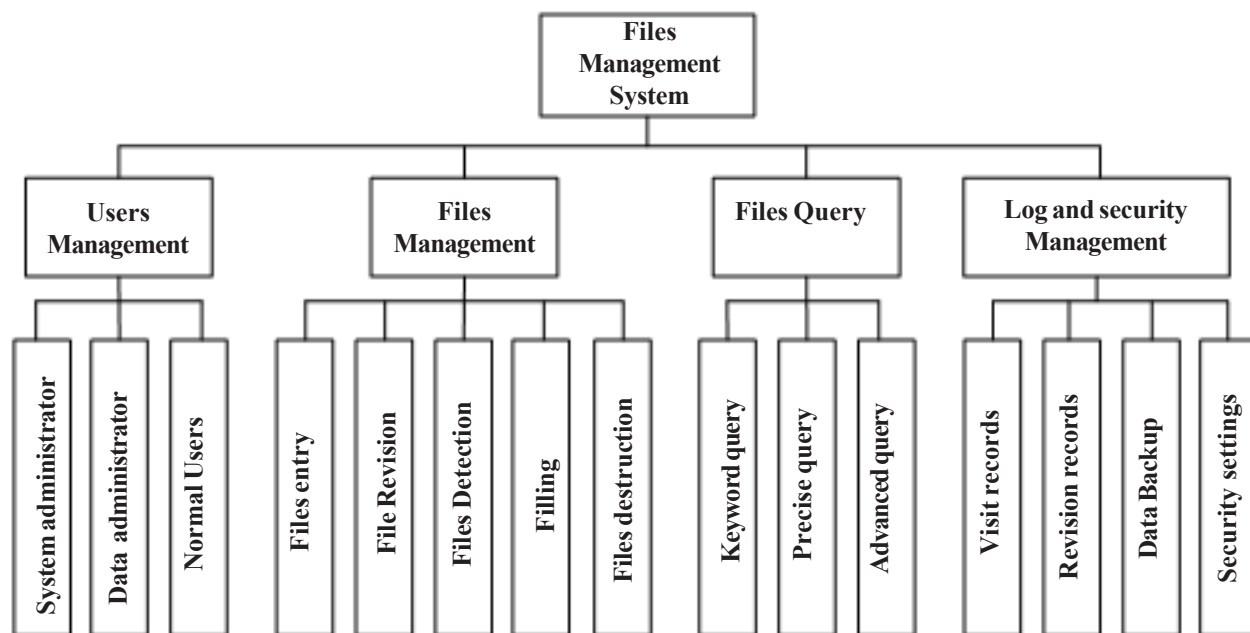


Figure 1. Analysis of file management system

sense of archive law, provide some training to reduce the mistakes in the process, and improve the managing efficiency by developing compatible software.

2. The Present Situation Of Teaching File Management

Nowadays, with the approaching of knowledge economy and development of information society, the outdated file system has fallen behind the time. The status of file management cannot fit its functions yet. It is given full expression by the following aspects.

1) The present teaching file management is quite low in its standard. There are no accurate idea of and no attention on the file management, which causes the teaching archives incomplete and out of order.

2) The application of archives is quite outdated in its service manner. The present file management is unable to provide convenient services for faculties by means of modern digital information or show its service function. What is worse, its stress is limited to the leaders and some institutions. It fails to keep the archive in close contact with the faculties.

Teaching file management is nowadays taken in the form of paper document. For most of files are simply sorted out by hand, it leads to a low work efficiency, lacking in automation and information.

3) For lack of uniform standard and regulations, the E-documents are always scattered anywhere without a systematic arrangement. In this way, the resource cannot be shared in time and the file efficiency is quite low without diversified utilization.

With the development of the information technology, the information management of teaching files can both effectively improve the teaching file management and the teaching management. Nowadays, some new ideas and measures have been raised about the file management [5-7]. OpenKM is a file management system, which can be applied extensively. It is able to organize and share files with others, make some improvements in knowledge arrangement. Besides, it can provide some much more flexible and cost-effective alternative applications, which can be widely taken by enterprises ranging from large to small size. However, at present, it is hardly used in any colleges or universities. This paper, based on the requirement of a systematic, regulated and informative teaching file management, developed a system which is convenient, easily-managed and easily-maintained on the basis of OpenKM. Then it was put on trial in local college. In short, it realizes the digitization and networking of files management. The practice has proved that the OpenKM can serve the research of teaching and education reform, and it has advanced the management of teaching files at the same time.

3. Brief Introduction of OpenKM

OpenKM is an open-source file management system, which applies to managing files with different needs. And it has the following features. At first, OpenKM can search for files simply according to the name, content, key words, etc. Besides, it have other functions like uploading the files, controlling the availability, keeping data in file, providing index service, and controlling the version. Secondly, it is based on J2EE three - tiered architecture. Not only can it be platform and data independent, but it have complete functions, a clear and user-friendly interface. It integrates the Web2.0 and has received quite

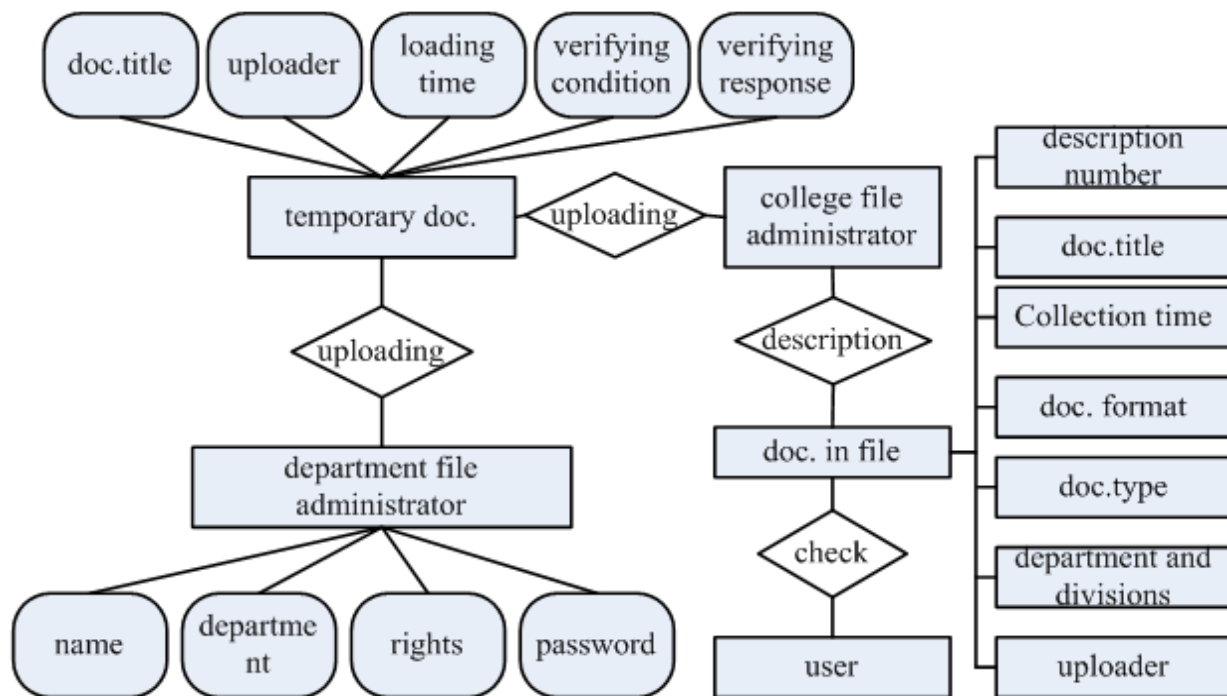


Figure 2. Analysis of system data

good response from all users. Thirdly, OpenKM adopted the modularity and loosely coupled design idea in its development, and it has followed the licensing agreement. Users can make further development according to their own needs. The file management is taken by documenting different groups, such as, dividing departments and staff rooms. Meanwhile, it can share the public files and coursewares with all faculties. All in all, because of its low developing cost, it is worthwhile spreading for use in schools and institutions by personalizing their own teaching file management in OpenKM.

4. The Structure And Functions Of Teaching File Management System

The present file management system has main two modes, the traditional C/S and the latest B/S [8, 9], while the B/S is the renewed form of C/S. Users are able to visit the text, data, pictures, animation, video and audio information on the Internet from WWW browser. B/S not only keeps the balance of the load between the APP server and database server, but realizes the distributed computing. Its strength lies in the simplification of operation and usage for users. Clients can simply download the programs from the web server and then put them into local execution. When meeting any instructions about the data base during downloading, clients just need leave them to the database server for execution, and then it will return to the web server and to the users finally. There is generally a sound campus net in colleges or universities. Therefore, it should be the best choice to apply B/S structure in teaching file management.

4.1 The design objectives and contents of teaching file management system

The general design objective of teaching file management system is to digitize files of teaching kind, share resources together and pursue netted service. The system also seeks to realize some other functions, including documents uploading, examining, warehousing, checking, downloading, printing, and backing up files as a whole. According to its contents, files of teaching kind can be divided into four categories, those of teachers (including teaching task, attendance register, and teaching schedule), those of students (including grades report, answer sheet, and homework), those in laboratory (including project statistics, guide book and lab records), those of research (including project statistics, rewards and paper statistics)

4.2 The design of functions in teaching files management system

The database OpenKM comes with cannot meet some special needs of users in some cases, which leads to the instability of the system. In this paper, MySQL database tools worked for the background. On the basis of the actual needs of higher education, the teaching file management system is mainly divided into four functional modes, Users Management, Files Management, Files Query, Log and Security Management. The detailed analysis is shown in Figure 1.

4.2.1 Users Management

It sets up different rights for users in line with actual needs, and it divides all users into system administrator, data administrator, and normal users, among whom the system administrator takes the greatest rights. He can supervise and examine the whole situation, and endue other user's different rights. Data administrator enjoys the right to manipulate all data, or the so-called editing right, such as the uploading, deleting and management of data. However,

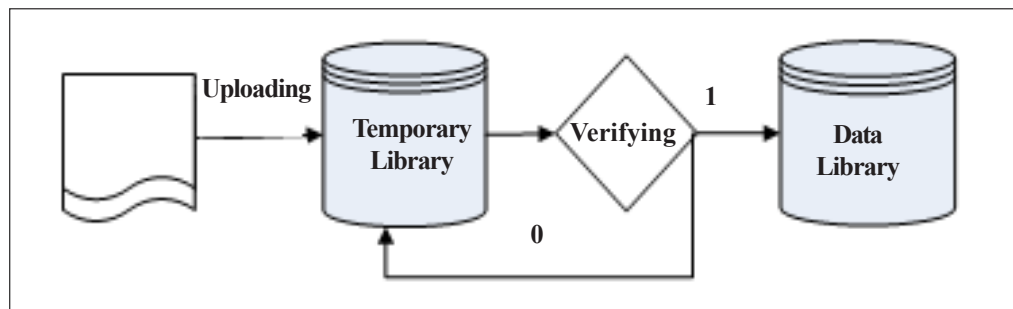


Figure 3. File management

the normal users can only search and look through the data when logging in.

4.2.2 Files Management

Files Management consists of five parts, file entry, revision, deletion, filing and destruction. Files are input by other departments and centers, and they keep available for revision. After filing, the revision and destruction can only be done by the system administrator, while those without filing will be destroyed by the department administrator. The files can be submitted either one by one or in quantities. Besides, e-documents in different formats are also allowed to upload so that all these teaching files can be added, revised, deleted, browsed and downloaded. The background database will record the teaching files operation process of users in the form of log, which make it quite convenient for the system administrator to review.

4.2.3 Files Query

Approved users can inquire about the files. Files query includes keyword query, precise query, and advanced query [10,11]. By typing in some keywords or phrases, and then connecting the query result, it can directly leads back to the list of document storage. Next, users can download and look over the files in need.

4.2.4 Log and security management

This mode mainly meets the need of ensuring security of the system, and keeps a real-time record of the system running, users' visiting, log-inning and revising. These records make it easier for administrator to review. Meanwhile, these modes also have function like data backup, data restoring and security settings.

4.2.5 Design of system database

According to the functional design of all modes in the system, the data analysis is set up in the following Figure 2.

5. Realization Of Teaching File Management System

The system is based on software OpenKW and MySQL is taken for the background database. Taking advantage of the present mature technology, it is able to manage the files and data in an easy and concise way. The key functions come true as follows:

5.1 Managing the Document Library

Documents are divided into two kinds, to be verified and approved. And they are arranged in different catalogs respectively. Once approved, the system will transfer those to be verified into the document library. (Figure 3)

5.2 Regulating the Documents

All documents need to be recorded in a specifies format, such as term plus sub-category plus document (2011-2012-KL-2)

5.3 Ensuring the Safety of System:

System safety problems mainly lie in documentation and database. In system settings, the administrators enjoy different rights from the normal users. The system administrators enjoy the greatest rights, while data administrators rank the second. And the normal users just have right to refer to the related documents. Moreover, the database and sever can be encrypted and the data system can be visited from within by the local area network. Finally, the safety of data and files can be totally ensured by the database backups at fixed time.

6. Conclusion

This paper brought forward the idea and basic requirement of drafting teaching document files, gave a brief introduction of OpenKM. It also undertook some related research and practical testing application. Through spreading for use in actual file management, all functions of the system were inspected and some improvements have been made about the existing problems. It turns out that OpenKM is an outstanding open source platform for knowledge management and sharing. It is equipped with favorable modular structure, which provides abundant functions in aspects like user's management, resource management, version control, user retrieval and customized interface. It is certified that OpenKM has great possibilities for expansion and customization. It can be directly used in the development of college teaching file management system. In a word, it can greatly improve the management of teaching files in college, and enable the files to be handled through the network.

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