

Research on the construction of teacher knowledge management support system based on WEB

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Received 01 October 2013, www.cmnt.lv

Abstract

With the development of information technology and Internet, the emergence of WEB2.0 has been applied extensively, has penetrated progressively into the field of education, and has brought new hope for the knowledge management. The 21st century is an era of knowledge-economy, the university is a knowledge-concentrated organization, knowledge is the core resource and asset of creating value, the university teachers are important carriers on knowledge of research, communication, innovation. This paper builds teacher knowledge management system based on WEB2.0 and analyzes the environment of the teacher knowledge management system.

Keywords: knowledge management, teacher knowledge management, WEB 2.0, management support system

1 Introduction

The 21st century is an era of knowledge-economy. In such an age, knowledge has become the core element, and knowledge is also the key factor for the organization to advance its outstanding quality and rival superiority. The university is a knowledge-concentrated organization; knowledge is the core resource and asset of creating value. The university teachers are important carriers on knowledge of research, communication, innovation [1]. The application and research of the knowledge management on teacher will be of great important and meaning not only for the development of the teacher's profession and quality and also for the promotion of the institution's efficiency and rival ability. In the 21st century, knowledge plays an important role in the economy. Therefore, Knowledge has become the core resources that can give universities sustainable competitive advantage. With the realization that knowledge is a core resource, universities should commence knowledge management to enhance their own performance [2]. Knowledge sharing and innovation are the core concept of knowledge management, which just meets the demands of Universities. University teachers possess a large number of knowledge which is the base of the knowledge innovation. Therefore, the paper will explore the application of knowledge management in university teachers.

With the development of information technology and Internet, the emergence of WEB2.0 has been applied extensively, has penetrated progressively into the field of education, and has brought new hope for the knowledge management.

Generally speaking, the researches on knowledge management and WEB2.0 are still in the preliminary stage to be launched at home and abroad. [3] Therefore, combining the essential characteristics and applications of technologies of WEB2.0, this paper builds teacher knowledge management system based on WEB2.0. The system will be of great significance for instructing the practice of knowledge management in education.

The main work of this article is summarized as follows:

1) Based on elaborating clear objectives, content, methods and ideas, this paper summarizes the document about knowledge management, knowledge management system, WEB2.0, in order to foreshadow on the back of analysis.

2) Analyzes the concept of teacher knowledge management, build the model of teacher knowledge management system and analyzes process of teacher knowledge.

(3) Build teacher knowledge management system based on WEB2.0 and design the functions of various components, introduces the key techniques.

4) Carries out a prototype system development and teacher knowledge management system based on WEB2.0, analyzes the development environment and run environment.

5) Analyzes the environment of the teacher knowledge management system. In the end, summarizes the results of research and innovation, and gives the conclusion. At the same time points out the need for further research.

2 Knowledge management

Knowledge has become the core competitiveness.

"The way of collection, management and usage of information determine your success or failure." - Bill Gates.

With the coming of the era of Knowledge-based Economy, knowledge has become the core competitiveness. [4] The popularity of computer and the rapid development of web communication technology, making the Internet become the largest resource database ever the human history. However facing the huge amount of information, how to get knowledge, how to manage the increasing information and make best use of them has becoming an increasingly concerned issue. Personal knowledge management is a concept and strategy knowledge management in the individual applications. It aimed at integrating personal

information resources, accumulating personal knowledge, promoting the efficiency of the use of knowledge. Carrying out personal knowledge management is not only the requirement of knowledge economy, information explosion etc, but also the inevitable requirement of changing the way of learning, improving information literacy and practicing lifetime studying.

Compared with knowledge management, personal knowledge management is a new concept, and the theoretical system is not so perfect. Through the collection of related literature and combing the related points in personal knowledge management, the thesis give a summary of PKM connotation, future development, practical applications etc, and completely elaborating the related theories of PKM. [5] At the same time, thesis combining the target of PKM, analyzing the existing PKM tools and the supported software, summarizing its pros and cons, giving out the character of the supported system based on the web, designing its function modules and having finished some of them.

A primary design of the personal knowledge management system is given, which consists of 3 modules as: Information Search and Retrieval, access control, knowledge-sharing and exchange. Of which the functional modules are designed, data structure of main tables in database are described, hardware environment and software platform for implementation of the system are given, extension of the system in the future is also discussed in this paper.

Discussing PKM in theoretical and practice, thesis aimed at showing people the significance of PKM, and hoping the design and development of the PKM system can give future researchers useful reference and enlightenment. There is an example: Online education resources which are shown in Figure 1.



FIGURE 1 an example: Online education resources

Knowledge Processing Management.

With the rapid development of ICT(Information and Communications Technology) and computer technology, mankind are roundly entering the era of knowledge economy and information society, and E-learning gradually become a significant resort to obtain information and knowledge for people in information society. On account of the reform of instructional model which were caused by E-

education, teachers are required to employ some effective technique to manage their knowledge and intelligence in the brains and to instruct their students in the best method.

As a branch of the knowledge management, personal knowledge management is a kind of management thought that take man as the center, take information as the foundation, enhance personal competition ability and innovate knowledge as goal and figure knowledge as a resource which could be developed. Teacher, as a man of disseminating knowledge, adopts the thought and the technique of personal knowledge management to raise his professional ability is an inevitable trend.

The paper elaborated the substance of knowledge and the features, principles, and measures of knowledge management, and design and develops a personal knowledge management for teacher after analyzing the advantage and disadvantage of already existing personal knowledge management tools against the characteristics of teacher's personal knowledge. The full paper is divided into five parts. Firstly, presents the basic theory of knowledge management and analyses the distinction between personal knowledge management and knowledge management in organization. Secondly, carries on analysis to the features of teacher's personal knowledge, draws the specific needs of personal knowledge management, analyses the function of the user's role, preliminarily design the subsystems of the module with Ration Rose UML modeling, describes usecase of the system and subsystems. Finally, compares the current mainstream software architecture, addresses the system's basic structure and finished detailed design of the database in this system. Knowledge management architecture is shown in Figure 2.

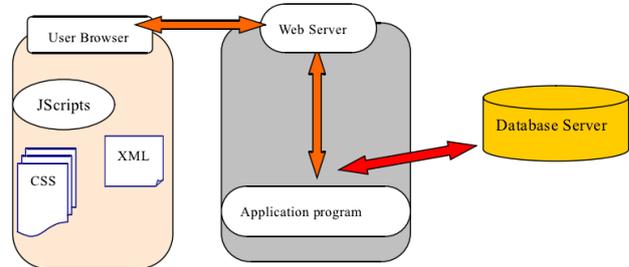


FIGURE 2 Knowledge management architecture

3 Design and development of WEB based on knowledge management for teacher

With the development of IT and network technology, Human society has entered the knowledge-based economy era and knowledge has already become the core of social development. The accumulation, utilization, innovation of knowledge already become the base of social development, therefore the Knowledge Management arrives at the moment. As we know school is a knowledge-intensive organization, where the most important part is the teachers' knowledge management. Development of education reform and information society brings up new challenges for teacher so the KM is necessary for teachers to promote their capabilities in knowledge society. The application and research of KM on teachers will be of great importance and meaning no matter for the teachers' profession, or for the promotion of the school's efficiency and competition ability.

This thesis focuses on the theory studies of teachers' KM systemically, the design and development of teachers' KM system. There are six main parts in this thesis. This thesis mainly used the literature research and systems science and other research methods. First of all, there is a more detailed exposition theory of the connotation of knowledge management, theoretical framework, the cortical foundation and the tools of knowledge management. Secondly, the meaning of teachers' knowledge and classification were defined on this basis, than budded a teachers' knowledge management model, explored the process of knowledge management, pointed to the core of teachers' knowledge management and try to build the knowledge map. Finally, we design in the practical aspects of teachers' knowledge management system design and development. Build teachers' knowledge management model, the system's location and functional analysis, design teachers' knowledge management system, including user management, personal knowledge management, and organizational knowledge management and retrieval module is designed to develop teachers' knowledge management systems. The second part

definitude knowledge and knowledge management, connotation, theoretical framework, the core theory and knowledge management tools were introduced, in particular, gave a detailed exposition on the connotation of the theoretical framework of knowledge management and the core theory, as a basis for later study. The third part introduced the teachers' knowledge management is the focus of the present theory. Defined connotation and classification of teachers' knowledge, to build teachers' knowledge management model of teachers in the process of knowledge management, analysis the core of teachers' knowledge management, and try to carry out the construction of the knowledge map. The fourth part introduced on the basis of previous theoretical studies, designed teachers' knowledge management system. Anglicised the overall design of the main function modules according to the system location and function, budded the structure and process model of the system, and elaborated on the structure and the realization of the function of each module. The relationship between table structures is as shown in Figure 3.

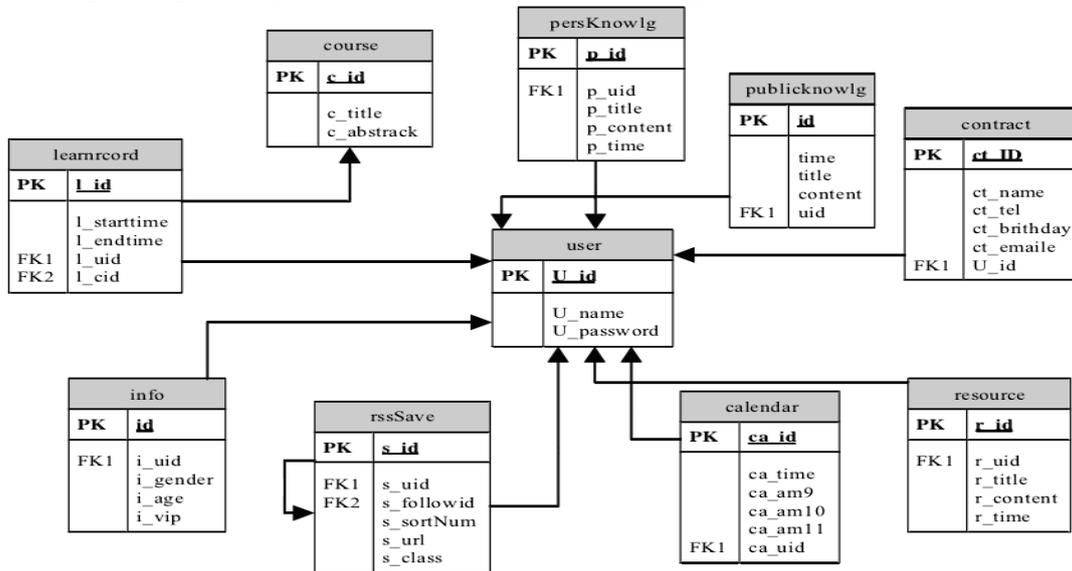


FIGURE 3 Table structure

4 Part of codes

The Specific Procedures are as follows.

```

public class dbproxy
{
    private string _strconn, _sqlcommand;
    private SqlConnection myConnection;
    private SqlDataReader myReader;
    private DataView myDataView;
    public dbproxy(string sqlCommand)
    {
        sqlcommand=sqlCommand;
        strconn=ConfigurationSettings.AppSettings ["SQLConn"];
    }
    Public SqlDataReader ExcuteReader(string Ref,string Value)
    myConnection=new SqlConnection(_strconn);

```

```

    SqlCommand cmd=new SqlCommand(_
sqlcommand,myConnection);
    myConnection.OpenQ;
    cmd.CommandType=CommandType.StoredProcedure;
    cmd.Parameters.Add(Ref, Value);
    myReader=cmd.ExecuteReader(CommandBehavior.CloseC
onnection);
    return myReader;
}
public SqlDataReader ExcuteReader(string[] Ref,string[]
Value)
    myConnection=new SqlConnection(_strconn);
    SqlCommand cmd=new SqlCommand(_
sqlcommand,myConnection);
    myConnection.OpenQ;
    cmd.CommandType=CommandType.StoredProcedure;
    for(int i=0;i<Ref.Length;i++)
    {
        cmd.Parameters.Add(Ref[i],Value[i]);

```

```

}
myReader=cmd.ExecuteReader(CommandBehavior.CloseC
onnection);
return myReader;
public DataView ExcteData(string Table)
{
    DataSet myDataSet=new DataSet();
    myConnection=new SqlConnection(_ strconn);
    SqlCommand cmd=new SqlCommand(_
sqlcommand,myConnection);
    myConnection.OpenQ;
    cmd.CommandType= CommandType.StoredProcedure;
    SqlDataAdapter myAdapter=new SqlDataAdapter(cmd);
    myAdapter.Fill(myDataSet,Table);
    myDataView=new DataView(myDataSet.Tables[Table]);
    myConnection.CloseQ;
    return myDataView;
}
public DataView ExcteData(string Table,string Ref,string
Value)
{
    DataSet myDataSet=new DataSet();
    myConnection=new SqlConnection(_ strconn);
    SqlCommand cmd=new SqlCommand(_
sqlcommand,myConnection);
    myConnection.OpenQ;
    cmd.CommandType= CommandType.StoredProcedure;
    cmd.Parameters.Add(Ref,Value);
    SqlDataAdapter myAdapter=new SqlDataAdapter(cmd);
    myAdapter.Fill(myDataSet,Table);
    myDataView=new DataView(myDataSet.Tables[Table]);
    myConnection.CloseQ;
    return myDataView;
}
public DataView ExcteData(string Table,string[]
Ref,string[] Value)

```

Management Architecture.

6W1H [6], it is shown in Figure 4. Lucene Indexing Mechanism Frame is shown in Figure 5.

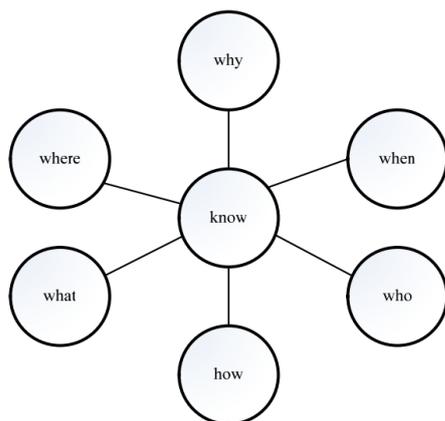


FIGURE 4 6W1H

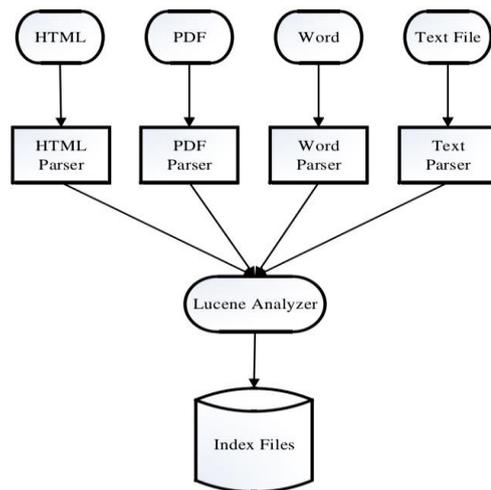


FIGURE 5 Lucene indexing mechanism frame

4 Conclusion

In this paper, we use several research methods, including literature method, system science method, object-oriented software design method, and we do the following jobs:

1) The literature analysis of teachers' professional development. We researched the conception of teachers' professional development, the theory ground, the implement forms; we summarized the research condition of at home and abroad, and analyze the future condition of teachers' professional development.

2) The research of Web2.0. We have researched the conception of Web2.0, functional characteristics, theoretical foundation, and the importance of Web2.0 in this system. At last, we analyze the core pattern for system.

3) The Web2.0-Based teachers' professional development support system designs studies. On the base of analysis for the teachers' professional development support system, we made the target, and made the development process. On the force of system design, we focus on the environment of collaborative learning environment, resource library construction as the back-supporting. We will take the learning to an integrated environment with multimedia Web2.0. And under the guidance of the target, we design of the system of each module, for example Blog, BBS and so on.

4) Applications Development. Based on the integrated research, apply the ASP and ACCESS database technology, we designed and developed based on Web2.0 for teachers' professional development support system. The study of innovations is that, proposed to build a collaborative learning environment and organization formation and development of knowledge-based line of teaches' professional development ideas, meet the requirements of teachers' professional development.

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