

# The systematic strategy of knowledge management in elementary school administration

## — the development of distributed object oriented knowledge bank

<sup>1</sup> CHIEN-HSUN TSENG, <sup>2\*</sup> CHUN-YU CHEN, <sup>3</sup> CHIH-LIAO CHU

<sup>1,3</sup> Department of Industrial and technology Education, National Kaohsiung Normal University

<sup>2\*</sup> Department of Business Administration, Mei-Ho Institute of Technology

23, Ping Kuang Rd., Neipu Hsiang, Pingtung, Taiwan 912

TAIWAN, ROC

<sup>2\*</sup> x3201@mail.meiho.edu.tw

*Abstract:* -This study makes efforts in developing the object-oriented knowledge management system with effective sharing mechanism in elementary school administration. In base of Taiwan's elementary school education, we need to use the systematic strategy of knowledge management, building the index of knowledge bank, knowledge map of human resource, and knowledge base system of professional documents. And we make system evaluation by interview and questionnaire survey in order to let the system be a basis for elementary schools administration knowledge bank.

*Key-Words:* - knowledge management; elementary school administration; object-oriented knowledge bank

### 1. Introduction

In Taiwan, it's necessary to organize the explicit educational administrative knowledge into an easy sharing database for those elementary school administrative staffs. The main ideas of this study are to set up an effective knowledge sharing and communicating media through systematic strategy of knowledge management, and to enhance the ability of elementary school administrative staffs to improve the administrative performance.

The most precious asset of schools is teachers' professional knowledge. The continuous growing and expanding of those assets is the key to ensure the progress of schools. (王如哲, 2000) Even through theories and researches about knowledge management are increasing, just few of them touch in how to acquire, integrate, accumulate, share, transfer, renew, and create knowledge, which can reform the information techniques and organizational culture through the core process reengineering. (曾國鴻, 2003)

The set up of object-oriented knowledge bank is the first step to guide the administrative organizations of elementary schools which lack of knowledge management practicing experiences. It's also the key to manage explicit knowledge efficiently and promote members to share the knowledge. (曾國

鴻, 2003) 。The ways to build the knowledge community and transfer the tacit knowledge are through the use of information technology, giving channels to browsing, saving and sharing. (information of instruction, campus planning, human resource management, engineer purchase and accountant system).

To sum up the above-mentioned points, the study will focus on three purposes:

1. Analyzing the present situation of administration in Taiwan's elementary education and the systematic strategies of knowledge management. ◦

2. Discussing the design direction of elementary school administration object-oriented knowledge bank.

3. Developing the framework object-oriented knowledge bank in elementary school's administration.

### 2. Foundation of Theory

#### 2.1 The meaning of knowledge management and systematic strategy

Knowledge management can be described into

「computerized knowledge」 and 「valued knowledge」. O'Dell (1996) says that knowledge management is to use a systematic method to collect, understand, and use knowledge to create value. Broadbent (1998) thinks that through well information management and the organizational learning, it can enhance the use of organization knowledge. The elementary education organizations need to use systematic ways to computerize the administration management; it would be the beginning of knowledge management.

Snowden(2000) thinks that it's the confirmable, optimal, and aggressive management of intelligent fortune. These intellectual assets include explicit knowledge and tacit knowledge. Byounggu & Heeseok (2002) put forward a developing zone of efficient tactics in knowledge management. For the systematic tactic, explicit knowledge has developed well in business industry, but it has more developing spaces in educational administration.

In the strategies of knowledge management, the basic tactic is to set up the knowledge bank. (尤克強,2001) There are three points of view to set up a knowledge bank: First, giving the structured/based knowledge helps to circulate knowledge but don't make it over structured. Second, the value of knowledge bank is to make the best use of it, not just manage the documents. Third, proper digital technology can help to manage the knowledge bank. In all above, this study will use the core point; try to make every school can use the data bank which connected by information and communication technology, and enhance the knowledge sharing and administration management in both teachers and schools.

## 2.2 The development of knowledge warehouse and object-oriented database

From figure2-1 the process of knowledge management, it use the concept of knowledge warehouse to select, classify, and save the knowledge. The concept of knowledge warehouse can execute the progress of combining the explicit knowledge in the process of creating knowledge (Nonaka, 2000). The members can use knowledge warehouse to understand the activities of personal knowledge and group knowledge. Yang ho bin (2003) gives us a framework of setting up a knowledge warehouse as Figure2-2.

In the point of knowledge warehouse, it develops the trend of distributed object-oriented knowledge bank system. The properties of it are easy to integrate the need of regional schools, and to

provide a flexible knowledge base mode. The administration matters of Taiwan's elementary schools have much in common; it won't have any difference by its scale and area. Through one combined distribution and staff display, it can save different data collection (of different schools) on the Internet. Besides, it suits for the characteristic of distributed information, reaching the goal of sharing information and it also conform to the economic benefits.

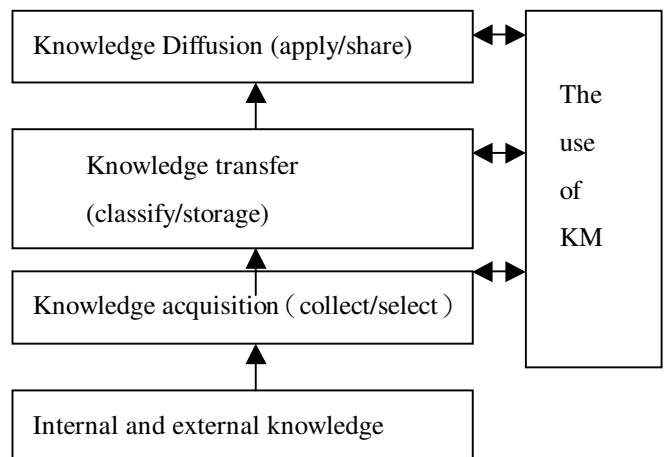


Figure2-1 Knowledge manage process

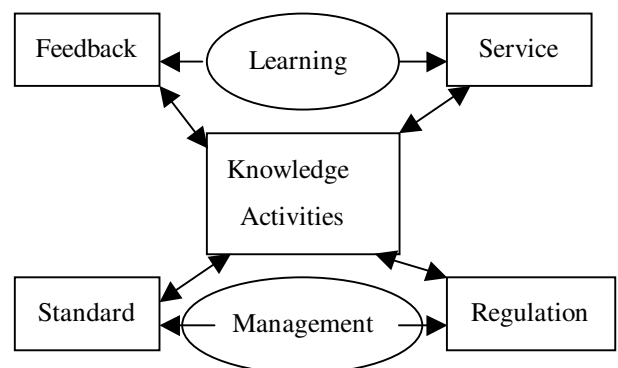


Figure2-2 The framework of setting up a knowledge warehouse

## 3. System design of Object-Oriented Knowledge bank

### 3.1 The present situation of Taiwan's elementary schools administrative matters and the need of knowledge bank.

The executives in Taiwan's elementary schools are serving by teachers. Besides being administrative matters, they also have to teach students. The leader of every division doesn't take any professional training of administration. The staff of director rank

will have training activities for several weeks, but the context is very extensively and theoretical. So, the professional trainings are not enough and lack of the experiences of apprenticeship is the common problem.

The basic need of elementary educational administration knowledge bank is using the handbooks, standard operation process, and the information of finishing the coming working. From views of the administrative matters in elementary schools, such as teaching activities, purchasing, campus planning, and students counseling, the main direction of setting knowledge bank up is to analyze the main direction, classify the index of experienced people.

### 3.2 Foundation of the system design

Byounggu & Heeseok (2002) put forward the develop zone of efficient knowledge management tactics. Wilf Greenwood says that 3C of the 6C in the knowledge management are: 1. Create from group: to create personal skills and knowledge. 2. Clarify: to confirm the context of acquired information. 3. Classify: to classify all kinds of information. To sum up the above-mentioned needs, theories and the systematic tactics from Yu Chi Chang, there are four indicators in the developing basic.

- ( 1 ) Confirming the users of knowledge bank.
- ( 2 ) What's the form and quantity of based knowledge?
- ( 3 ) What's the quality and value of based knowledge?
- ( 4 ) What's the efficient storage and communicate media of object-oriented designing?

Therefore, there are many important qualities of using object-oriented method such as: Encapsulation · Inheritance and Polymorphism etc. By the object categories, Generalization, Specialization, Aggregation and Association, are the four important keys to set up the distributed object-oriented knowledge bank system of elementary school administration.

### 3.3 Structures and functions of the system

「 Easy for searching 」 · 「 standard works 」 · 「 object package 」 are the functions of knowledge bank. The structure is in figure 3-1

Knowledge bank introduction : It includes the using ways and system structures for freshman to use as a tool.

- ◆ Knowledge map : Its principal mission is to offer the users for the indication, and make

more convenient for user to search and find the information of human resources and information skills.

- ◆ Document database : It use the concept of object-oriented to package the professional knowledge and skills. At the same time, users can get the based knowledge such as working procedure, the records of experienced staffs, relative sheets/documents, and evaluation indicators.
- ◆ Q&A : It aims at the questions and answers which elementary school administrative matters might encountered.

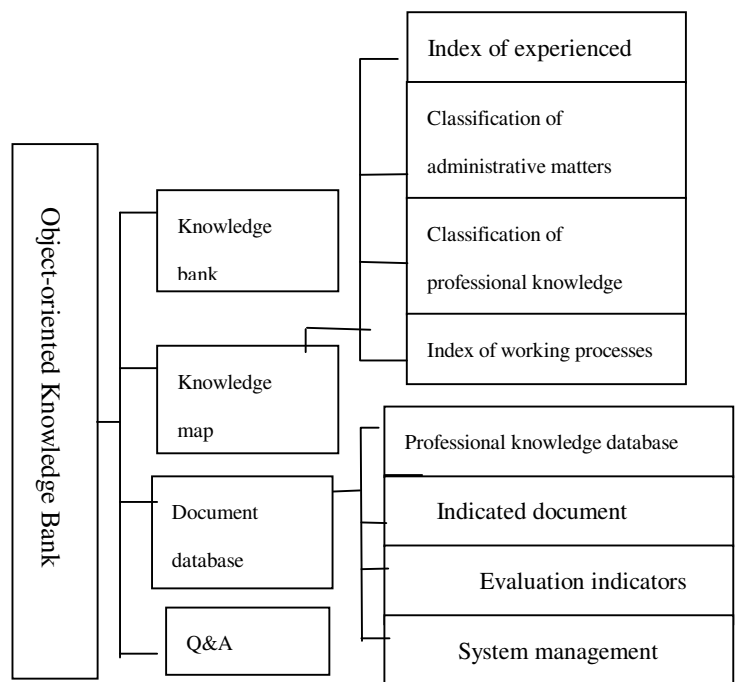


Figure 3-1 Structures of the system

## 4. Research Design

The structure of this study is figure4-1. The research methods include literature analysis, focus group and questionnaire survey. In order to make sure the contexts of professional elementary schools administrative documents, we use literature analysis method to analyze the bibliography. And we select four directors and five managers who have five years' administrative work experiences to take participation in focus group discussion. After setting up the knowledge bank, we'll choose two directors and two managers in the group to have a semi-structured interview. This purpose is to make a deep understanding and the fitness of knowledge bank.

At last, we'll make a questionnaire based on the

form, quantity, quality and the user interface. After analyzing the reliability and validity of the questionnaire, we'll draw 20 schools and 60 administrative staffs by stratified random sampling to collect their opinions.

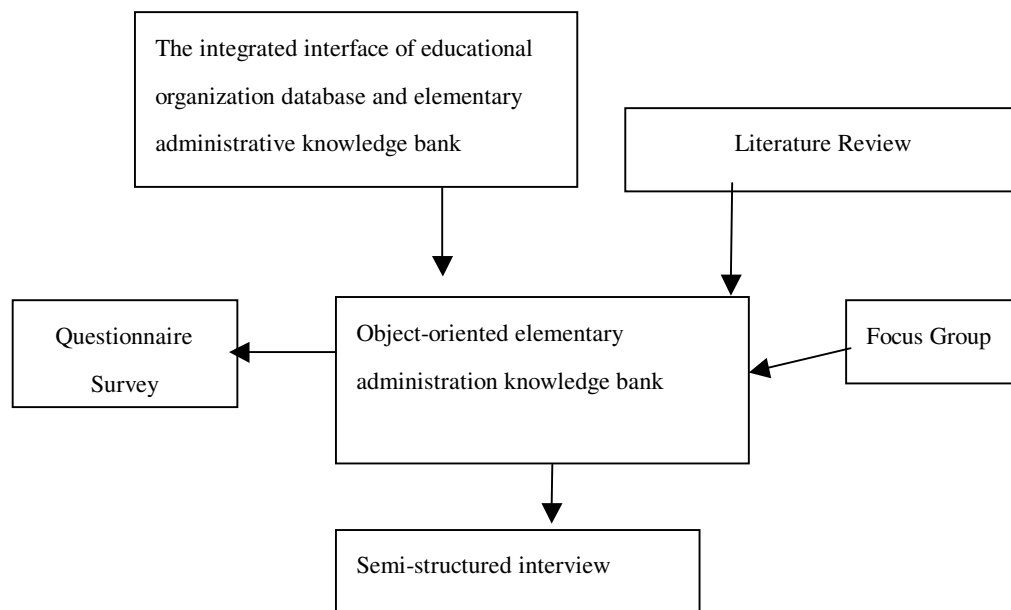


Figure 4-1 Structures of the research

## 5. Conclusion

The purpose of knowledge bank management is to provide an environment for those elementary school administrative staffs to create the future knowledge and as a basic reference for the knowledge community. The set up of the knowledge management bank can integrate the experiences of elementary school administrators, accumulate the knowledge, set a database of consultants, and offer a standard operation process and handbooks to promote and increase the administration efficiency.

This research explains the present situation in Taiwan's elementary school administrative matters and the knowledge management development, and builds a framework of tactical knowledge bank based on theoretical functions. So that can develop the object-oriented knowledge management bank of elementary school's administration. In further study, we will continually evaluate and testify the possibility, benefits and the revised mode of the system, so that we can set up a knowledge bank that can active the knowledge sharing and creating of elementary school administration.

## References:

- 王如哲 (2000)。*知識管理的理論與應用：以教育領域及其革新為例*。台北：五南。
- 曾國鴻 (2003)。*高職教師應用知識管理之研究：電機科*。台北：國科會專題研究計畫。
- 楊炳和 (2003)。*科技管理*。台北：五南。
- 尤克強 (2001)。*知識管理與創新*。台北：天下文化。
- Broadbent, M. (1998). The Phenomenon of Knowledge Management: What does it mean to the information profession? *Information Outlook*, May, 23-36.
- Byounggu & Heeseok (2002). Knowledge management strategy and its link to knowledge creation process. *Expert system with Applications*, 23, 173-187.
- O'Dell, C. (1996). A Current Review of Knowledge Management Best. *Conference on Knowledge Management and the Transfer of Best Practice. Business Intelligence*, London.
- O'Dell, C. & Grayson, C. J. (1998). If Only We Knew What We Know: Identification and Transfer of Internal Best Practices. *California Management Review*, 40(3), 154-174.
- Snowden, D. J. (2000). *Liberating Knowledge. Knowledge Management & Organization Learning Conference*.