

A Study of Teachers Knowledge Management Strategies in Elementary and Secondary Schools

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Abstract : - 21 Century is a knowledge-based economy time. Knowledge is the key factors and the value of business competition. Use knowledge management positively can promote the competitiveness of individuals or organizations. The most valuable intellectual asset of schools is teacher's professional knowledge, and the continuous growing and expanding of those assets is also the key to ensure the progress of schools. This article is to discuss ways for teachers in elementary and secondary schools to manage knowledge and there are thirteen strategies of teachers' knowledge management were presented.

Key- Words: - knowledge management; teachers' strategies; elementary and secondary school organization

1 Introduction

In this century, knowledge has become the most important resource in education. When facing knowledge-based economy century, schools have to adjust itself in order to meet challenges from educational reform. Through effective knowledge management, schools can improve its organization learning and fast renovation; moreover, teacher would improve their professional developments continuously. In the trend of global technical knowledge, technology continues renew, information accumulates day by day; and the speed of reform has accelerated. As a result, the professional knowledge of teachers must keep pace with it. Therefore, schools should have a complete policy and strategies of knowledge management in order to reach the educational goals made by themselves.

At the view of Taiwan's government, the Executive Yuan passed a policy at year 2000 in order to build a new society which can get with knowledge management, knowledge-based economy and popular shared knowledge. The policy named 「The execution of knowledge-based economy development」, high 36.4 billion NT. And the chief of Executive Yuan also announced that year 2001 was the first year to carry out the knowledge-based economy policy.

The most valuable intellectual asset of schools is teacher's professional knowledge. The continuous growing and expanding of those assets is also the

key to make sure the progress of schools. (王如哲, 2000) Even through theories about knowledge management are increasing, just few of them touch in how to acquire, integrate, accumulate, share, transfer, renew, and create knowledge, which can through the core process reengineering to the use of information techniques and the innovatory organizational culture. (曾國鴻, 2003)

This article is to discuss ways for teachers in elementary and secondary schools to manage knowledge.

2 The connotation of knowledge management

What is knowledge management? Broadbent (1998) set forth that knowledge management is about enhancing the use of organizational knowledge through sound practice of information management and organizational learning to make good use of organizational knowledge. Snowden (2000) thinks that is the affirmation, optimum, and initiative management of intellectual assets. These intellectual assets include explicit knowledge and tacit knowledge. O' Dell (1996) points more further out that knowledge management is to collect, realize, and use knowledge to create value through systematized ways.

Nonaka and Takeuchi (1995) divide knowledge into explicit knowledge and tacit knowledge. 1.

Explicit knowledge is the obvious and objective knowledge found in manuals, documentation files, and other accessible sources. 2. Tacit knowledge is the subjective, and essential knowledge that we can't use words or sentences to express, such as the personal experience knowledge. So knowledge starts on personal level and diffuse gradually from person to groups, organizations. At that time, different levels among individuals, groups, and organizations proceed to receive common knowledge, connect systematic knowledge, externalize the conceptual knowledge, internalize the operating knowledge and then becoming different spiral levels, also can create new spiral continually and circulate knowledge by spiral activities. At the same time, we can continually create new knowledge and the whole will become an integrate activity of knowledge innovation. The meanings and functions of knowledge are as follows.

circumstances	theoretical
● analogical knowledge practical	—

(from: Nonaka & Takeuchi, 1995a)

So tacit knowledge and explicit knowledge interact the creation of knowledge and internalize to wisdom. (includes difference levels of the Spiral of Knowledge) The contents were explained as follows:

(1) Socialization (resonant knowledge) — The expanding of common knowledge such as: language, signal, the common quality of professional knowledge, the meaning of sharing, and to realize the meaning of individual field.

(2) Externalization (conceptual knowledge) — conceptual knowledge combines with the deal with personal connections and the blending of existed space such as technological environment.

(3) Combination (systematized knowledge) — systematized knowledge depends on the recognition of personal responsibility, learning attitude , the shock and coordination of culture and so on.

(4) Internalization (operating knowledge) — operating knowledge verifies the value of knowledge and forms individual knowledge through personal internal need, learning motivation simulation, analogical experience learning, critical .introspection, and etc. As follows picture: (Nonaka & Takeuchi, 1995a)

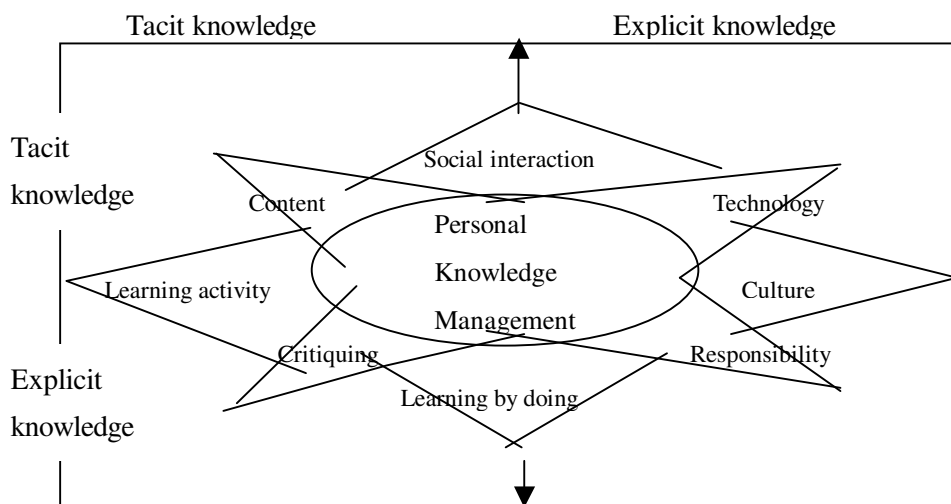


Fig 1. The meanings and functions of knowledge

(from Nonaka Ikujiro & Hirotaka Takeuchi, 1995b; Ellen M. Knapp,

Nonaka and Takeuchi (1995) integrate and discriminate other scholars' studies of explicit knowledge and tacit knowledge. The difference between explicit knowledge and tacit knowledge are as follows:

Table1: The difference between explicit knowledge and tacit knowledge

Tacit knowledge	Explicit knowledge
● experienced knowledge —	● rational knowledge — mental
● substantial knowledge — at the present	● continuous knowledge — not meanwhile
	● digital knowledge —

As far, knowledge management has become the important device to push knowledge-based economy development. So, making an effective knowledge management becomes the key to keep competition advantages. O' Dell and Grayson (1998) said that knowledge management is a conscious process of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance. The process includes the knowledge's creating, collecting, identifying,

adapting, organizing, and using. Besides, Sveiby (1999) emphasized that knowledge management can't neglect in all organizations or individuals. To sum up, the progresses of knowledge management are: acquire, share, apply, and create. And a good knowledge management is important to both organizations and individuals.

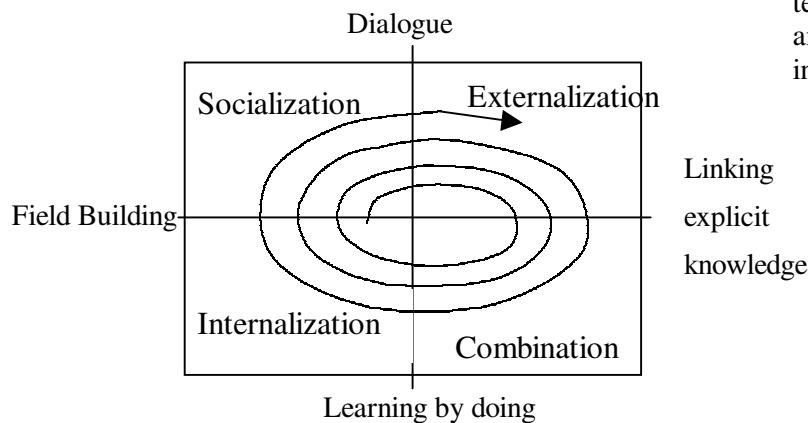


Fig 2. Spiral of Knowledge (from: Nonaka & Takeuchi, 1995a)

3 Strategies of teacher's knowledge management in elementary and secondary schools

Teachers often face complicated, uncertain situations when they are doing instructions or classroom management; they have to make specialized judgments and decisions by their professional knowledge. So, in order to do their job best, teachers have to keep learning. (吳清山, 黃旭鈞, 2002) Therefore, knowledge can be renewed by learning. At the same time, learning can not only help people to update the knowledge but also can give a motivation to create new information by others' opinion. So learning is the best strategy for teachers to gain knowledge.

There are some ways of knowledge management for elementary and secondary school teachers.

- Take part in activities of research and study : Teachers can get the knowledge by participate in all kinds of lectures, symposiums, and research and study activities.
- Interview : By interviewing with the related personages, teachers can gain the knowledge. For example, teachers can inquire the experienced scholars in the academic organizations for the problems of the nine-year integrated curriculum. (Grade 1-9 Curriculum

of Elementary and Junior High School Education)

- Team teaching and growing groups : Teachers can set up the team teaching and growing groups for the problem-oriented issues. (such as: Classroom Management, Teaching materials and methods) Like the Curriculum Development Council, Seminar of instruction, teachers can gain knowledge and experiences and improve their teaching abilities by interacting with group members.
 - Visiting activities : After-school visits and class observations also are the ways to gain knowledge. By this way, it's easier to explain the indescribable part in the tacit knowledge.
 - Study written documents : Elementary school teachers can renew the information by reading journals(such as Su-iu ,National education journals etc)and books (such as Instruction principle, Introduction of information technology)
- Build the teaching resource knowledge database: Set up written documents and digital files can help teachers to explicate the knowledge. As a result, schools can collect and organize teachers' instructional files and put them in the office or library. It will help the inheritance and expansion of teachers' teaching documents and experiences.
- E-learning : Engaging the teaching activities in intranet and Internet. The ways include searching on educational websites, online data bank, schools' internal database, and related websites. By using the network resources which created by Internet and connected database can help teachers to teach in a multilateral and various way.
- Participate in teaching symposium : Through conference of the association, teachers can share teaching experiences of experienced teachers,(expert teachers) hold further educational activities , and invite other teachers to share their achievements and experiences. (鍾瑞國、鄭曜忠, 2001) This is the way to achieve knowledge sharing.
- Make use of apprenticeship : Using apprenticeship system in school, so that the experienced and new teachers can share the

knowledge, and new teachers also can transfer and internalize effectively the organizational culture. Beside, in the sharing process between experienced and new teachers, schools internal knowledge circulation and renovation also can be stimulate. (鍾欣男, 2001) Moreover; advisory teachers can get the latest teaching principles from new/intern teachers, the master and apprentice system is good for both sides.

- Use cooperate team teaching : The teaching experiences and professional literacy are the categories of tacit knowledge. And the best way to pass on them is to interact face to face. Therefore, using coordination or cooperating teaching can promote the extend of teachers' experiences, and the scope of teaching.(鍾瑞國, 鄭曜忠, 2001) So make good use of the above-mentioned instruction tactics can make up for the difference between teachers, and let students have the best learning performance.
- Use information technology : The use of information and communication technology (ICT) can be good for teachers to gain the knowledge they want, and it's also a important source of teaching contexts and materials. Through the connection of information and communication technology, it can foster the management of knowledge sharing between both schools and teachers, such as: a practical resources center/database and a virtual teacher center, even more a forum for dialogue and discussion (王如哲, 2002 ; Centre for Educational Research and Innovation, 2000) , resources bulletin board, and yellow pages. (王如哲,2002 ; Todd, 2001) Those ways are good for teachers to share their knowledge.
- Build strategic alliances with related institutions: Elementary schools can establish cooperative relationship with related institutions of community in order to share experiences and get different knowledge.
- Sharing learning activities: Teachers can share knowledge what they learned with other teachers by learning sharing. They can share learning, and reach the goal to transfer knowledge by ways as follows: subject's teaching conference, special topic seminar, study group, meeting, even chatting and so on.

4 Conclusion

21 Century is a knowledge-based economy time. Knowledge is the key factors and the value of business competition. Differ to labor and capital,

knowledge is an incorporeal and can't be weigh asset. So how to manage knowledge effectively and use it appropriately becomes the important subject in present time.

Use knowledge management positively can promote the competitiveness of individuals or organizations. The most valuable intellectual asset of schools is teacher's professional knowledge, and the continuous growing and expanding of those assets is also the key to ensure the progress of schools.

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