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INVESTIGATION ON STUDENTS' PERSONAL KNOWLEDGE MANAGEMENT AND USES OF WEB 2.0 TECHNOLOGIES IN CHINESE HIGHER EDUCATION

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ABSTRACT

Due to the impacts of a frenzied expansion of colleges and universities on Chinese higher education, there has been a gap between scale expansion and education quality improvement. Therefore, increasing attentions have been focused on personal knowledge management (PKM) and its applications in improving college students' learning performance. This study collects the primary data through a sampling technique, aiming to examine how Chinese college students use Web 2.0 technologies for PKM. The author did a preliminary analysis on the survey data and summarized the current situation and deficiencies of college students' practice on PKM with Web 2.0 technologies. The best practices and the lessons are discussed, and several future research directions are outlined.

Keywords

Personal Knowledge Management, Web 2.0, learning, Chinese higher education, globalization

BACKGROUND

In *The World Is Flat*, Friedman classified globalization in three phases (2005). Phase 1 began around 1492 and the primary entities globalizing are countries. The world shrank from size big to size medium. Phase 2 lasted from 1800 till 2000 and the primary entities globalizing are multinational companies. The world shrank from size medium to size small during this era. Phase 3 came around 2000. What distinguishes phase 2 from the other two phases is that the primary entities globalizing involves individuals and small groups. The world shrank from size small to size tiny. Globalization, enabled by dramatic technological changes, has "leveled" the economic playfield. The emerging globalization era has altered how people communicate and collaborate, how companies operate business, how merchandises are sold, how and where job opportunities are created and located. College students must prepare themselves to actively participate in the global economy landscape. How do they harness technology to search information and enhance learning at school? What are the best practices and lessons can be learned so as to improve their competences in the future business world?

This study focuses on college students from China, a strong emerging economy in Global 3.0. It aims to help understand Chinese college students' perceptions of Web 2.0 technologies and their practices of personal knowledge management (PKM). There has been a frenzied expansion of colleges and universities in china since 1999. In 2007, one million out of five million college graduates were unemployed throughout the year after graduation (see more details from the website http://news.xinhuanet.com/employment/2007-03/04/content_5797779.htm). The unprecedented expansion rate results in a huge gap between the labor market and available educational resources. The rise of educated unemployment reflects profound changes in china's labor market, which in turn poses pressures on Chinese college graduates' job hunting. One big concern stems from the fact that many schools have just focused on scale expansion, but neglected quality improvement (see http://www.admissions.cn/news/190880.shtml).

Facing the increasing educated unemployment pressure, students have to take more responsibilities in their own education and career development by acting in a more proactive and efficient way. In order to address market needs, students must have a sustainable learning plan for their own careers. For them to increase their competencies in the job market, the students need to keep abreast with the evolving and dynamic global economy and update their knowledge base continuously in their studies and practices. Personal knowledge management (PKM) is an advanced concept and efficient tool to assist students to carry out their individual career goals and academia interests. The practice of PKM on their own learning and career planning allows college students to update and improve personal knowledge system, increase competitive power, and adapt to the emerging knowledge economy era. Therefore, one of the major objectives of this study is to examine how Chinese college students employ PKM in their learning process.

Previous studies have shown that the use of technology in education has benefits for motivating students, facilitating more active student learning in the classroom, and appealing to multiple intelligences, and different learning styles (Chandra &

Lloyd, 2008; Hazari & Schnorr, 1999; Schrand, 2008). Over the past few years, Web 2.0 has generated the revolution that is changing the World Wide Web, electronic commerce (EC), and the ways of communication and collaboration among people. Different Web 2.0 tools (such as wiki, blog, and social networking websites) enable active collaborations among its users (Driscoll, 2007), therefore, creating a new participatory culture termed "collective intelligence" (Doering et al., 2007). These characteristics of Web 2.0 technologies align with and reinforce the features of PKM in the higher education.

This study examines how Chinese college students use Web 2.0 technologies for PKM and identifies existing problems in PKM applications. Some recommendations for more efficient management of personal knowledge with Web 2.0 technologies are proposed and discussed.

PERSONAL KNOWLEDGE MANAGEMENT

Knowledge management has been described by Davenport and Prusak as a systematic attempt to create, gather, distribute, and use knowledge (Davenport & Prusak, 1998). It has been put into practice in enterprises for more than 15 years and become fundamental to future success in current knowledge society. The flourishing development of knowledge management in enterprises promotes the development of personal knowledge management (PKM). The term was initially geared toward UCLA MBA students (Frand & Hixon, 1999). According to Professor Paul A. Dorsey of Millikin, University:

> *Personal Knowledge Management is best viewed as based on a set of problem solving skills that have both a logical or conceptual as well as physical or hands-on component* (PETTENATI et al., 2007).

A more detailed description of PKM was discussed by Frand and Hixon from Anderson School:

> *PKM is a conceptual framework to organize and integrate information that we, as individuals, feel is important so that it becomes part of our personal knowledge base. It provides a strategy for transforming what might be random pieces of information into something that can be systematically applied and that expands our personal knowledge(Frand & Hixon, 1999)* .

The more successful students usually know how to decide on and seek out relevant information and experiences, therefore, are more likely adept at managing their own personal knowledge (Pauleen, 2009).

DATA COLLECTION

The goal of this study is to gain a better understanding of current status of PKM practices adopted by college students with Web 2.0 tools, analyze major inadequacies of PKM practices, and give some recommendations for more efficient management of personal knowledge with Web 2.0 technologies.

This study employs the sampling methodology. "Sampling is the process of selecting units (such as people and organizations) from a population of interests so that by studying the sample you can fairly generalize your results to the population from which the units were chosen" (Trochim, 2001, p. 41). The questionnaire was administered in group settings to undergraduate students in a university located in Tianjin—one of the biggest cities in Northern China. The population of interest was randomly selected full-time college students.

A total of 200 students were surveyed for this research. Previous literature suggests that it is important to have a local person to coordinate an international research (Harzing et al., 2002; House et al., 2004). "Local collaborators can collect the data on-site and return the responses in one batch, thereby facilitating the data transmission. Also, they provide additional credibility to the research project in the local context which may help to increase response rates" (Harpaz, 2003). Therefore, a local individual who agreed to coordinate the collection of the surveys helped administer the survey process for this study. Participation was voluntary and each individual consented to participate in the study. The study's goals, objectives, and the importance of the students' participation were explained in a cover letter included with the questionnaire.

SURVEY PROCESS AND DATA ANALYSIS

152 completed surveys were received to a response rate 76%. Previous social research literature suggests that 50 percent response rate is considered adequate for analysis and reporting; while a response rate of 70 percent is very good (Babbie, 2008). The published research corroborates that this study has achieved a relatively high response rate.

First, the survey collects the data on the extent of easiness to access to the Internet. 70% of the students strongly agree that it is easy to access to the Internet without any inconvenience. 25% of the students agree that it is convenient to access to the Internet. Only 5% of the students disagree or strongly disagree with the easiness to access to the Internet. Figure 1 illustrates the distribution. In addition, 60% of the students consider the Web as an important learning tool.

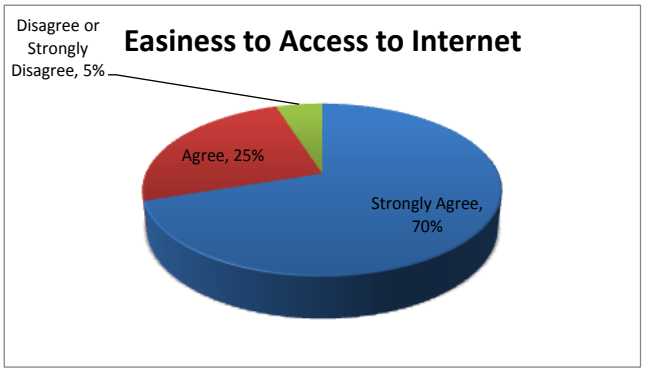

Figure 1. Survey Result: Easiness to Access to Internet

Second, the survey collects the data on how students perceive of the PKM. More than 80% of the students think it is important to understand and master the PKM for their undergraduate education and future professional careers. When asked to point out any important source for them to gather information and supplement their classroom learning, 70% of the students chose the Web as the most import tools for learning.

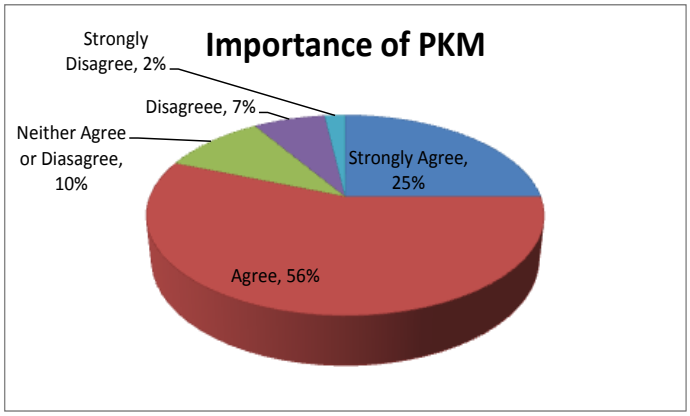

Figure 2. Survey Result: Importance of PKM

The third category of the survey questions were designed to investigate and analyze the current situation of PKM practices in Chinese higher educations. It was suggested in literature that there are seven components of PKM : (1) retrieving information; (2) evaluating/assessing information; (3) organizing information; (4) analyzing information; (5) presenting information; (6) securing information; and (7) collaborating around information (Garner, 2010).

With a view to establishing the relation between PKM skills and learning processes, the author examined Bloom's revised taxonomy of learning objectives and six cognitive domains in the learning taxonomy (Anderson & Krathwohl, 2001). Figure 3 depicts the Bloom's revised taxonomy of learning objectives. This empirical research study proposes to map the seven PKM components to Bloom's taxonomy by grouping PKM skills to three intertwined categories: knowledge acquisition and analysis; knowledge sharing and exchanging; and knowledge application and creation.

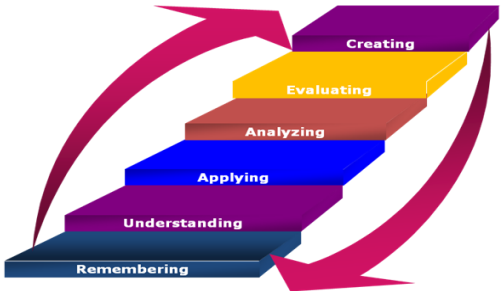

Figure 3. Six Cognitive Domains in Bloom's Taxonomy of Learning Objectives

Knowledge Acquisition and Analysis

65% of the students chose web searching as the major way to acquire knowledge; 20% chose turning to instructors or getting help from their peers; and the remaining 15% of the students chose traditional library (including searching the databases the library subscribes) as the major source acquiring knowledge. However, it is interesting to see that only 40% of the students said that they "kind of" categorized and analyzed the knowledge they gathered from different sources. The majority of the students (i.e., 60%) chose answers as "Never" or "Rarely".

Knowledge Sharing and Exchanging

The majority of the students are willing to share and exchange knowledge with other people (18% are very likely to share; 40% are likely to share.). 42% chose not to share or exchange knowledge. The main reasons for those who do not want to share are summarized as the followings. One student wrote, "There is no appropriate communication platform for me to share knowledge with my peers." Another student wrote, "I feel the problem is not on me. The other students in the class seem not interested in sharing information at all. Why should I bother?" Some students hesitate to reach out since the class meets only once a week and s(he) is not familiar with other people in the class.

The students were also asked to list the way(s) of sharing and exchanging knowledge. 40% of the students reported that they use QQ to communicate among themselves during the semester. QQ is the largest local social networking site, instant messaging and gaming platform in China with over 300 million active users. It was developed and run by Tencent Inc. since February 1999. QQ, as an instant messaging tool, enables a real-time communication and exchanging information between people who know each other. However, it has limitations in converting tacit knowledge to explicit knowledge or facilitating people to acquire tacit knowledge.

On the other hand, Web 2.0 technologies were employed to facilitate creativity, collaboration, and sharing information between users. Some basic categories of Web 2.0 tools include wiki, blogs, social networking websites, etc. They share the common thread: they all emphasize the social networking aspect where a community of users is involved in a common goal. "Interaction and sharing of knowledge is made possible by shared access to knowledge that resides in people, documents and databases, and this access is available in a Web-based environment presented on desktop computers or mobile devices. The environment fosters collaboration and helps build a social connection that goes beyond the formal environment such as a classroom or workplace" (Richardson, 2006). However, only 5% of the students said they had used wiki or blog to share and exchange knowledge.

When examining the survey results, the author noticed that the students lack knowledge and practice of using Web 2.0 tools such as wiki or blogs in knowledge sharing and exchanging. The data shows the fact that most of the students have paid little attention to the importance of four knowledge conversion modes of "Socialization", "Internalization", "Externalization", and "Combination"(Nonaka, 1994).

Knowledge Application and Creation

As Nonaka (1994) pointed out, "…knowledge creation centers on the building of both tacit and explicit knowledge and, more importantly, on the interchange between these two aspects of knowledge through internalization and externalization" (p.20). Knowledge application and creation is the ultimate goal of knowledge management. It also turns to be one of the most challenging PKM activities. When asked whether they ever put knowledge they have learned to practice, 60% of students said they never carried out knowledge gained from the classroom to solve the real-world problem. The fact reflects a gap between academic education of college students and what skills and expertise are needed in the real world. The outdated curricula and to-be-improved education quality in Chinese higher education are highly correlated with the above phenomena. Another possible factor is that the students lack of the knowledge about the Web 2.0 tools and skills to employ those tools to manage personal knowledge.

Web 2.0 Technologies in Chinese Higher Education

Comparing with the mature development of social networking websites in the U.S., the Chinese social media tools are still in their nascent stage. The fine-granularity content service tool such as Twitter has not been adopted as mainstream. One widely used online educational community, Haokanbu.com, allows users including teachers and students to post pictures, share stories and experiences, and collaborate on projects virtually. However, it is mostly used by K-12 educator communities and specifically for users to upload pictures and share stories. On the other hand, Learning Management Systems (LMS) is regarded as a more competent tool for students to share, combine, and integrate knowledge. Moodle (Modular Object-oriented Dynamic Learning Environment), one open source platform, has been popularized in Chinese college and university educations and enterprise training fields.

CONCLUSION

This empirical research demonstrates that the college students have been aware of the importance of the PKM and the Web as a channel to acquire knowledge. However, the data also reflects limitations in terms of knowledge sharing and exchanging, knowledge application and creation, and using Web 2.0 tools to manage personal knowledge among college students in China.

The issues of preparing students to properly master Web 2.0 tools so as to derive the maximum advantages for carrying out PKM has not yet become part of the formal educational activities in China. The author believes that students' attitudes and available technologies are both indispensible factors for students to engage in a personal social network-based lifelong learning experience and knowledge management practice.

The tenet of this study is that the Knowledge Society requires college students to acquire a set of PKM skills to become competent in the Labor market and successful in future careers. Web 2.0 technologies including social networking tools and methods provide a tremendous opportunity and context to lead the learner into a learning and knowledge landscape.

One of the future research directions could be a comparative study between students in U.S. higher education and Chinese higher education. It is interesting to see how college students in the U.S. would respond the same set of survey questions. It would shed light on the differences on learning process between Chinese students and American students and the fundamental reason causing it. Another interesting question is that from the perspective of educators, how we should to facilitate our students harnessing different technologies effectively in their learning as well as in their future career.

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