Information Needs and Information Seeking Behaviors of Elementary and Middle School Social Studies and Cultural Heritage Teachers in Taiwan

Shan-Ju Lin Chang

Professor

Department of Library and Information Science,

National Taiwan University

Taipei , Taiwan , ROC

Employing both qualitative and quantitative approaches, this study seeks to systematically analyze the information needs, seeking, and use behaviors of elementary and middle school social studies and cultural heritage teachers in Taiwan, and to relate the findings to digital library system design. In-depth interviews and questionnaire surveys were used for data collection. Data was analyzed qualitatively and statistically in order to answer a number of questions regarding: the information needs for teaching social studies courses, information seeking and collecting behaviors, difficulties encountered while searching for information for teaching, factors influencing information needs and seeking behaviors, and teacher expectations of educational websites covering related subjects. Our results suggest practical applications and implications for education policy makers and library system designers.

Research Background and Purposes

Social Studies in Taiwan, covering the history, geography and culture of local communities, has only recently become an established curriculum in the primary and secondary schools of the nation. The intended curriculum places an emphasis on cultural heritage, covering the history, geography and cultural legacies of Taiwan and its local communities. However, due to historical and political reasons (), teachers in Taiwan often do not have previous knowledge or learning experiences in the subject matter. Though the Taiwan Ministry of Education (TMOE) provides textbook and curriculum standards for other

courses, it only provides course development guidelines for the social studies and cultural heritage classroom. However, the TMOE does not provide or suggest standard textbooks or teaching materials.   As a result, developing courses, creating materials, designing classroom activities, and teaching the social studies curriculum are a particular challenge for teachers.

The government of Taiwan invests large amounts of money and educational resources in setting up and maintaining digital libraries and museums on the World Wide Web in order to support both K through 12 education and life long learning for the general public. Presumably, teachers whose duties include teaching Taiwan-related courses, such as the aforementioned social studies and cultural heritage of Taiwan, are one of the major user groups of these digital resources.

Given these circumstances, those who create and maintain these digital resources would benefit to the answers to a number of information related questions such as: how do teachers of social studies and cultural heritage fulfill their teaching role? What information do they need to accomplish their tasks? How do they search for and find the information they need? And, how can digital libraries and websites containing social, historical, and cultural content help them achieve their teaching goals?   In our research, we systematically study the information need, seeking, and use behaviors of elementary and middle school teachers teaching cultural heritage and social studies in Taiwan and explore possible applications of our findings to the design of digital library systems.

Literature Review

This study is related to two topics in the literature. The first deals with questions about a curriculum in cultural heritage. The other explores information needs, seeking and use, especially as it relates to web design principles

Most studies in the literature that examine the teaching of social studies and the cultural heritage of Taiwan discuss the definition of, scope of, and content associated with teaching local heritage. Although teaching local heritage is agreed to be important, there seems to be no consensus on how to define the concepts of "the local", or "local heritage". For example, some researchers contend that a sense of locality is mostly drawn from a subjective identification of specific spaces and the phenomena, activities, and values that are found within those spaces. However others contend that the idea of "the local" comes not from the natural environment alone, but also from the relationships between the people found in a space, and the relationships between those same people and the space itself. Furthermore, because the identity of Taiwan has been a controversial issue, complicated by political, historical, and cultural issues, the goals and missions of these studies are usually consistent in current political, social, and educational contexts.

Teaching materials for a curriculum in the social studies and cultural heritage of Taiwan create other issues that are discussed extensively in this literature. Huang (1995) identifies the following problems with, or weakness of teaching materials provided by domestic publishers on the subject: 1. Most materials deal with general information rather than specific topics; 2. More are about traditional cultures than based on specific research results; 3. Some are good for the general public but not good for primary or secondary students; 4. Most contain only written material, with little non-textual materials; 5. More materials deal with studies of culture and heritage at the county level, fewer look at other levels of Taiwanese society; 6. Most materials are based on administrative divisions of land, few examine culture and heritage in terms of natural divisions of the land; 7. Most are complied from adults' points of view, few materials take into account the psychological aspects of children or adolescence; 8. Most describes the content by texts or with pictures, few present the content by comics that can be attractive to children or adolescence.

Class activities for courses in the social and cultural studies of Taiwan are often encouraged by schools, but such activities have not yet been successfully developed or used because of the lack of teachers' expertise, and the fact that it is time consuming to collect and compile the appropriate materials because of the scatter of relevant data and information. Nevertheless, teachers are encouraged by national education policies to adopt technology into their teaching practices. However, little is known about what teachers look for in these situations, or how teachers go about finding the teaching materials they need, especially materials drawn from the Internet, for the purpose of course preparation and self training in the subject.

Research literature on information needs suggests that the concept of information need is embedded in the user, the user's information environment, and information use (Devadason & Lingam, 1997). Wilson (1997), in an extensive multidisciplinary literature review, contends that information seeking is contextually bound, and is mediated by personal factors, environmental factors and source characteristics. Nicholas (1995) proposes that the analysis of information needs should include the subjects one is interested in, the function of information, the nature of information type, the intellectual level required to understand the materials, the viewpoint adopted by the author who provides the information, the quantity, quality, and dates of information, the speed of delivery of information (i.e., how it can be provided), and the place where information is produced, as well as its processing and packaging (i.e., the level of value-added materials and the media format of the information).

Although information needs and seeking literature generally examines the sources and channels used by a specific group (Case, 2002), Some researchers go further proposing a model for understanding the process of information seeking. Leckie, Pettigrew & Sylvain

(1996) proposed a model of information seeking behavior for professionals, such as teachers, that suggests that work roles and tasks drive the needs for information in the workplace. Information needs then lead the person to seek out information. Their information seeking processes are then influenced by two major factors: the person's awareness of information, and the characteristics of the sources of information.

From these sorts of studies, it can be concluded that it is important to understand what schools teachers may encounter in their information environment and task situations in order to develop teaching resources for them, especially materials and information intended for distribution as Web-based Internet resources and digital libraries (Borgman, 2003). This research investigates teachers in their community of practice, examining what and how they do to find information and develop materials, the resources they need, the difficulties they encounter while seeking information, and the information channels they use to teach courses related to the cultural heritage of Taiwan.

Research Questions

The research questions asked in this study include: what information/materials do teachers need for teaching the cultural heritage of Taiwan? How do they seek and collect the information they need? What difficulties do they encounter while seeking such information? What factors influence their needs for information and their seeking behaviors? What are their expectations for a useful educational website on the subject?

Research Methods

This study employs multiple methods, both qualitative and quantitative. In-depth interview and questionnaire surveys of cultural heritage teachers in elementary and middle schools were conducted for data collection. Methods in content analysis and descriptive statistical analysis were then applied to the data for qualitative and quantitative analysis respectively.

The interview explored the questions of four aspects in teaching studies of Taiwan communities and cultural heritage, including what a teacher needed to do in preparation for the course before teaching and how she accomplished the tasks, what sources or channels she turned to, and what teaching aids or materials the teacher used during teaching. Specific questions regarding the experience of Internet use was also explored, including the difficulties or barriers the teacher encountered. The results of interview analysis formed the basis for designing survey questionnaire to be conducted at the later stage. 30 teachers from both elementary and middle schools were interviewed through the snow balling method. The length of interview was 90 minutes in average.

A survey questionnaire was administrated through two workshops held by the Office of Promotion of Digital Libraries/Museums Projects from Taiwan National Science Council. 139 of survey questionnaire respondents were collected and analyzed for descriptive purpose using standard statistical analysis software.

Subjects Background

Among the thirty subjects interviewed, thirteen teachers were from twelve middle schools and seventeen teachers were from elementary schools. Teaching experience ranged from two years to thirty-eight years, with an average of fifteen years. 14 of the interviewees had experience in writing or compiling teaching materials for local education courses.

Of the questionnaire respondents, 32% were middle school teachers and 59% taught at elementary schools. 9% were not teachers but the staff members. The gender ratio was 83% female to 17% male. About 54% of the respondents had more than ten years of teaching experience. Respondents fell into the following age groups: 20 to 29 years old (34%), 30-39 years old (44%), and 40-49 years old (22%). In terms of subjects taught, 57% of respondents from elementary school were subject specific teachers, and 43% were homeroom teachers. The majority of respondents (75%) from middle schools were responsible for teaching Mandarin Chinese, and 11% teach in history, geography, music, computers, or citizenship, and another 14% teach other subjects.

Research Results

The major findings of this study are presented in terms of the following aspects: 1. the characteristics and impacts of situated educational environments; 2. the characteristics of the research participants' needs for information; 3. the characteristics of research participants' information seeking and sources used; 4. the factors influencing information seeking behaviors; and 5. research participants' expectations of related educational web resources.

The characteristics and impacts of current educational environments

Our study found that the educational policies of the local government requires schools to provide Taiwan communities and cultural heritage courses without giving clear guidelines in terms of what is to be taught. 68% of the questionnaire respondents indicated the reason they teach such courses was mainly to meet their required teaching hours. Under these circumstances, there are specific issues associated with these teachers:

A. Feeling inadequate in competence: in most cases courses were not taught by teachers specialized in such material, and did not have enough time for course

preparation. Teaching such courses involves much more time than teaching of regular courses.

B. Feeling uncertainty about the goals/contents/results of the course: mostly because such courses comprise a new curriculum.

C. Having a get-by rather than get-ahead attitude toward such courses: in middle schools, under the pressure on students to get into a high school, such cultural heritage courses were not taken seriously by students or teachers because the subject is not listed among those to be tested for high school admission.

Furthermore, in many schools, those who teach related courses are required to create their own teaching materials without knowing what standards to be followed, and might not have any support from the school. Only 28% of the respondents indicated that they had been involved in creating and editing teaching materials on the subject. Thus, for the majority of Taiwan cultural heritage teachers, the needs for finding usable learning materials and useful teaching information become individual endeavor.

The Characteristics of the Teachers' Needs for Information

According to our interviewees, the types of information needed depended on how each school defined the concept and content of education on Taiwan or local cultural heritages. For example, the information sought most often was related to the following six major topics:

A. holiday festivals,

B. regional history and geography,

C. campus and community environments,

D. local dialects,

E. ancient architectures and temples in Taiwan, and,

F. traditional handcrafts.

Needs for relevant information were more intense for those at the institutional level responsible for compiling teaching materials for such courses about Taiwan.

The Characteristics of Subjects' Information Seeking and Sources Used

The teaching materials sought after by the local education teachers

In addition to the textbooks, the most used sources of information for teaching courses about Taiwan are, in order of perceived importance, were as follows: relevant books (75%), Internet resources (51%), teacher handbooks and teaching guides (49%), field studies (34%), and pamphlets of activities and exhibitions (32%). Furthermore, the survey showed that the most useful teaching aids were: videotapes (83%), photos (72%), field visits (53%), and artifacts of animals and plants (38%).

Given the limited time frame for teaching such courses, needs for such materials are influenced by the following five major factors:

A. regional features,

B. convenience,

C. resources availability,

D. composition of the student body, and

E. length of teaching time.

For some teachers, editorial roles in publishing relevant teaching materials were also a source of major challenge. Those who were responsible for compiling teaching materials on local cultural heritages collected information mainly through on-going information gathering in everyday life and field research, accounting for 60% of the respondents. The second most used source of information for publication was books on the subjects, accounting for 47%, and then government publications 40%, whereas Internet resources accounted for 33%。

The study also identified the information channels used to find those teaching materials. Most teachers first turned to interpersonal channels, including senior teachers, colleagues, students, parents of students, and local prestigious people. Secondly, organizational or institutional channels were turned to, such as government agencies or private bodies. Third channel used to acquire teaching materials was through field investigation. Internet also became one of the information channels that school teachers used to seek information needed.

Difficulties of Internet Use

The Internet has become one of the important channels to search for teaching materials. Majority of the teachers used Internet search engines in order to find information on specific topics for teaching that were located on subject-based websites. Teachers in this study also reported that many difficulties were encountered when searching on the Internet. These difficulties include:

A. lack of appropriate contents

    B. problems with hardware or transmission

    C. instability of websites, such as incompleteness or disappeared websites

    D. inadequacy of personal skills and capabilities to make good use of Internet

    E. time pressures, such as lack of time or taking too much time to search on the web

Expectations of Internet resources for Local Education

When asked what about the characteristics of an ideal website containing teaching resources for a curriculum on the studies of Taiwan communities and cultural heritage, interviewees expressed their expectations in terms of contents, organization, and usability. With respect to contents, a useful website must be complete and detailed, with clear classification schemes. Websites should not consist solely of texts but also pictures, audio, activities worksheets, and test sets for student assessment. In terms of organization, the following items should be integrated into a useful website for resources sharing: materials such as teaching guides or outlines, complied teaching materials from colleagues of other schools, and current existing Internet resources on Taiwan.

According to the questionnaire survey on what to expect in terms of contents on an ideal website, 79% of respondents said that a useful website must provide supplemental materials based on course textbooks. 58% considered student worksheets important to have. 42% expected to see similar teaching materials of the curriculum from individual schools. 37% would like to learn about news on other websites of the relevant subjects. 34% expected to see photos and pictures.

According to the questionnaire survey on what to expect in terms of the functions of a useful website for such curriculum, 67% would like to see DIY audio-visual aids, software downloads, and the ability to print resources. 64% consider it important to have a teaching materials design system.   58% expected to have search capabilities, and 58% would like to have interactive functions such as "question and answer."

With respect to information display, most respondents of this study (67%) desire that website content be displayed mainly by subject or by geographic region (42%), or by a table of contents in textbooks (17%). Another 17% of the respondents also expect to see information organized in chronological order.

Implication and Conclusion

This study suggests that the information literacy of school teachers is an important issue that needs to be addressed at an educational policy level. School teachers are hampered in seeking out information on topics in the social studies and cultural heritage of Taiwan by issues of time, their lack of expertise on the subject, and the information literacy skills that would allow them to search the Internet effectively. Thus it would be useful for government agencies to assist teachers with different knowledge backgrounds and search skills to acquire information literacy skills.

For a website to be useful to teachers educating students about the history, geography and cultures of Taiwan, website designers need to take into account the community of practice, as well as the educational environments and situations in which such teachers find themselves. These findings suggest that a useful website or digital library for such a community of teachers should provide contents related to course textbooks that are currently in use, and in multiple formats, especially including pictures or images. Websites could also facilitate teaching if content was organized by subject and by geographical region, and if student worksheets or a showcase of how to apply the website content in teaching was provided. To fully utilize information technology, a useful website or digital library should also provide interactive mechanisms and tools that would enable the user themselves to create teaching materials.

The findings of this study also suggest a modification of the model proposed by Leckie et al. (1996) in which the information environment, such as organizational policies, and individual characteristics, such as the level of education and domain knowledge, should be taken into account to fully understand the information seeking processes of professionals.

References

Borgman, C. L. (2003). Designing digital libraries for usability.   In A. P. Bishop, N. A. Van House, & B. P. Buttenfield (Eds.) Digital library use: Social practice in design and evaluation. Cambridge, MA: The MIT Press.

Case, D. O. (2002). Looking for information: A survey of research on information seeking, needs, and behavior. New York: Academic Press. (ISBN: 0-12-150381-x)

Devadason, F. J. & Lingam, P. P. (1997). A Methodology for the identification of information needs of users, IFLA Journal 23(1): 41-51.

Huang, C. J. (1995). Multidimensional approach to social studies curriculum design. Taipei, Taiwan: National Taiwan Normal University Book House.

Nicholas, D. (1996).   Assessing information needs: Tools and techniques. London: Aslib.

Edelson, D. C., & Gordin, D.N.   (1996).   Adapting Digital Libraries for Learners: Accessibility vs. Availability. Available at:D-Lib Magazine, Sept.96.
http://www.dlib.org/dlib/september96/nwu/09edelson.htm

Gay, G., & Hembrooke, H. (2004). Activity-centered design: An ecological approach to designing. Cambridge, MA: The MIT Press.

Pettigrew, K. E., Fidel, R., & Bruce, H. (2001). Conceptual frameworks in information behavior. Annual Review of Information Science & Technology, Vol., 35 (pp. 43-78). M. E. Williams (Ed). Medford, NJ: ASIST and Information Today.

Leckie, G.J., Pettigrew, K.E., Sylvain, C. (1996). Modeling the information seeking of professionals: A general model derived from research on engineers, health care professionals, and lawyers.   Library Quarterly 66 (2), 161-193.

Wilson T.D. (1997). Information behaviour: An interdisciplinary perspective. Information Processing & Management, 33(4), 551-572.

Acknowledgement.