Computer-mediated history learning: spanning three centuries project

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Abstract

This article demonstrates how learners used a project-based approach to engage in authentic historical inquiry. The Spanning Three Centuries Project (STC) was predicated upon the premise that education should encourage students' disposition toward thoughtfulness and reflection. The project encouraged learners’ writing with technology as a way of learning one’s own culture, through investigation of societal issues, in history, politics, and sociology, with the aim of inspiring creative historical inquiry, and self-reflection. A number of themes were drawn from this data. The STC project promotes disciplined inquiry and enhances learners’ historical thinking. It nurtures learners’ sense of authorship and enhances their information literacy. The study showed that learners found the experience generally positive. Students, in general, have taken to the project enthusiastically and report that they benefited from this contact and exposure with centenarians. Connecting history to personal experience made them feel the past was real. They particularly enjoyed the use of multimedia technology in supporting projects in the study of history. From this study, it could be concluded that the project-based STC project has the potential to empower students to use multimedia technology in support of social studies projects. The STC project provided an opportunity to develop learners’ historical knowledge and thinking skills, as well as their interest in studying history.

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1. Introduction

Using oral history as a teaching method is a prevalent and effective approach to teaching in countries such as United States and Canada (Altenbaugh, 1997; Bennett & Forney, 1997; K’Meyer, 1998; Lanman, 1996; Penyak & Duray, 1999; Siler, 1996; Teets & Starnes, 1996; Weinberg, 1996; Wieder, 1988). It is used in the elementary and secondary school classroom as a way for students to capture the unrecorded history and lives of people, while at the same time it becomes a valuable part of preserving history and culture. For example, projects such as Foxfire (Wigginton, 1985, 1989) and Palaver Tree Online (Ellis & Bruckman, 2001) have shown that oral history work provides students with opportunities for deep learning because they are engaged with elders telling historical stories relevant to their experience. Ellis, Bruckman, and Satterwhite (1999) found that having online interviews with the elders helped kids gain a greater understanding of the meaning of history.

Given that oral history has been receiving a great deal of attention among researchers and practitioners, and is found to be a rewarding and stimulating experience for students of different ages (Crocco, 1998; Olmedo, 1993; McBride & McKiddy, 1989; Sitton, 1983); it is worth inquiring why it is seldom practised in Taiwan’s schools. Dewey (1933) believed that projects could be designed so that practical activities would “inevitably result not only in students’ amassing information of practical and scientific importance … but also (what is more significant) in their becoming versed in methods of experimental inquiry and proof” (p. 217). To this end, the Spanning Three Centuries project (STC)\(^1\) was launched; in which students completed oral history projects centered on interviews of community elders, as a vehicle for historical inquiry. The investigations in Taiwan’s school system, from K5–11, were fieldtested to engage students in authentic historical inquiry and to explore the challenges and opportunities that students faced in the project.

By leveraging the power of information technology, the STC project calls for the learners’ instrumental use of Web technology to achieve specific oral history goals. The stated goals of the project were to engage students in authentic historical inquiry and integrate technology into history instruction. Students collected and compiled historical information through preplanned interviews with elders having firsthand knowledge of an historical event, and then built Websites related to a historical topic. The STC project, instead of simply encouraging memorization of information, attempts to equip students with the tools to examine the human experience; by playing the role of historians, hearing different accounts of events from elders, and creating historical arguments and narratives.

The STC project also seeks to explore a niche for infusing STSS (Social Science, Technology and Society) into the teaching of historical thinking (Heath, 1988) to echo the use of STS (Science, Technology and Society) in social education. The project promotes learners’ writing with technology as a way of learning one’s own culture with the aim of inspiring creative inquiry into past history and into oneself. The

\(^1\) “Spanning Three Centuries” refers to a person born in the late nineteenth century, lived through the twentieth century, and is still alive at the time of the study (twenty-first century).
purpose of the STC project is to combine the study of geography, economics, political science, and history with technology to help students make connections among facts and ideas needed for responsible citizenship in today’s world. As Schlene (1992) asserted, “Through using computer simulations, video cassette recordings and recorders, and computer software packages, the ways to teach history have grown almost beyond imagining … Tapping into the same mania that children seem to have for playing Nintendo and PacMan, teachers today can implement the same technology to interest their students in history” (p. 27). It is hoped that the thoughtful and creative use of computer technology in conducting historical inquiries will contribute to learners’ historical knowledge, thinking skills, and interest in learning history. With this background in mind, the study looked at learners’ perceptions and learning as they conducted the STC project using advanced technological tools. The study contributed to an understanding of how STS can be incorporated into the history curriculum by extending an extra activity based on an SSTSS issue. Implications for the implementation of oral history projects will be discussed.

2. Methodology

2.1. Project description

The STC project offered students the opportunity to become researchers of history while using technology to broaden their understanding of events, periods, and themes by offering them the perspectives of those who lived them. The Project was organized into five stages:

1. “Context,” students were introduced to the background information, related history, economics, and politics, of a time in Taiwan and regional Kaohsiung’s history.
2. “Voyages,” students conducted research into the lives of centenarians and worked in teams to find out how to conduct interviews to discover the complexities of centenarians lives at that time in history. Students were offered a 1-day workshop to familiarize them with the use of technology (video camera, camcorder, homepage tools, digital camera).
3. “Encounters,” students launched “live” face-to-face contact with centenarians, and
4. “Research,” group learners investigated the in-depth interview data with centenarians, integrating ideas and making interdisciplinary connections by linking to the context of regional or national history. Thereby crossing three centuries—the Ching Dynasty, the time under Japan’s reign, the stable democracy in Taiwan, and current perspectives of Taiwan’s historical development. Learners’ built and published their own Websites based on the results of their investigation.
5. “Review,” peer-review and self-review processes where learners shared their opinions of the other group’s presentations.
2.2. Participants

The participants were recruited from elementary, junior, and senior high schools in the city of Kaohsiung, Taiwan. Five students formed a group from the same school to establish an independent study project. One or two teachers from each school were chosen to take part in this project. Altogether, 120 participants in 24 groups were involved in the project from the fifth to eleventh grades (11–16 years).

2.3. Procedures

Each group was equipped with a multimedia-ready computer, digital camera, video camera, color scanner, printer. All groups received training courses on computer literacy, explicit research and communication skills, and Taiwan’s regional history. They were expected to conduct research into the assigned topic. Groups could collect primary data through the design and use of interviews, questionnaires, and information from other resources. They were required to use this technology in collecting, analyzing, applying and presenting data. One or two teachers worked in each group, providing instruction and guidance to students in the cognitive and technical skills necessary for project design. Teachers assisted groups and individuals as they learned specific skills and developed their projects. In the first four sessions, the project and its general objective were discussed with each class. Each group was familiarized with the computer and software, as described earlier. Then, students were introduced to guidelines for working in cooperative groups and engaged in discussion, role-playing, group-building activities, and self-evaluation designed to reinforce cooperation.

Each group was required to publish their work on the Website at National Sun Yat-sen University’s Cyber University (see Fig. 1). Group members constructed an electronic project on the Web. Furthermore, in order to generate lively interactions in which students could apply their knowledge and express their opinions about Taiwanese culture, group projects were showcased on the Website and presented at the conference. This activity allowed learners to share their fresh insights and knowledge about their perspective on Taiwanese culture. It also expanded the reading process by providing new perspectives on the themes from other readers.

Finally, the survey regarding learners’ perceptions of the project and teamwork was administered after the project. Interviews with each school were conducted to understand the difficulties encountered in the process and the information used as a reference to improve the activity in the next step.

2.4. Data analysis

During data collection procedures, all subjects were assured that the questions asked in this study were not evaluative and that their responses were only for academic purposes and would be kept confidential. After data collection, the qualitative method was chosen to contribute to the field’s knowledge base (i.e. oral history, technology integration into curriculum, historical inquiry, perspective-taking, and
Fig. 1. The homepage of spanning three centuries project.
teaching and learning of history). The following data sources were employed: interviews with students and teachers, group electronic projects on the Web, students’ reflection on the project as well as the researcher’s observation of their presentation in the conferences and design activity. The qualitative analysis provided the opportunity to uncover a number of themes drawn from the data. They were identified and discussed in the following discussion section.

3. Discussion

3.1. STC project promotes disciplined inquiry

An oral history project such as this has a multitude of instructional goals for students. As the main purpose of this project was to conduct an interview with a centenarian, essential to successful inquiry was figuring out how broad questions could be tackled in manageable ways. Students learned to create and administer interview instruments. They piloted the interview instrument by designing a list of questions. They learned interviewing skills by proposing intelligent, thought-provoking questions. They prepared various questions and follow-up questions of the “what” variety, and probing questions of the “how” and “why” type.

For example, group member’s brainstormed possible and interesting topics associated with centenarians and discussed the direction the interview was going in. In order to have a better understanding of the person being interviewed, groups searched the range of sources pertinent to a historical investigation of a topic. They searched Web resources, consulted teachers, reviewed stories in local newspaper archives, and checked the library for resources. One senior high school group learned that their interviewee has been their former principal. They contacted the school administration to see what records were available, and found out whether old school newsletters or magazines still existed. One junior high school visited historical museums, a Confucian temple, and looked through scrapbooks and photographs that might have been kept during a particular time period. Groups generated a list of questions that included background information, food, living style, leisure time, poverty, welfare, medicine, housing, education, child development, etc.

Learners also harnessed their listening skills through an interactive and empathetic mode of interviewing. They learned to express that understanding in ways acceptable to the elderly. They learned to actively listen to what was said, and ask for elaboration by listening for how they felt about a particular event or circumstance. In addition, they learned to practise the Taiwanese language and some learners who were poor at Taiwanese brushed up on their native language since most centenarians cannot speak Mandarin. After conducting the historical investigations, learners learned to transcribe and proofread interview excerpts from the recordings, as well as summarize and synthesize the results to insure spelling accuracy, historical accuracy, and Web formatting. As transcribing was not simply a question of writing down everything that the interviewee said, an interpretation of what was said had to be provided. Groups learned to analyze the interview data to find out the
interviewees perspectives toward history by reading closely for context and meaning. They learned to set information in context by offering the background of the interview setting, attaching notes or transcription excerpts, reflecting on why one quote was more relevant to a theme than another, or supplementing with some research materials related to the topic.

Finishing an oral history project of this magnitude can be overwhelming so it was imperative that the groups kept on task and on schedule. It was observed that the subjects involved in the STC project exercised and coordinated several higher level aspects of problem solving such as designing, implementing, and completing an activity. Learners gained organizational skills pertaining to their use of time, strategy, schedule, and information. Group members drew a time schedule for their project. By establishing a theme, groups provided a clear framework for their projects. They worked together to refine their specific topic, based on the project theme, and designed their preliminary interview questions together. They practised interviewing and collaborated during the interpretation process. They adopted problem-solving strategies in constructing and refining their project. Learners were aware of their strategy and perspectives, and continually refined and modified these to adapt to the fluctuating situation. For example, as they found out that their pre-designed question bank did not relate to certain centenarian experiences, they made decisions to discard those that did not apply. They capitalized on some interesting pieces of information that came up in the course of conversation by redirecting the questioning to the interviewee’s daily life. As one group pointed out:

...The subject of our interview was clothing at first. Then, we changed our direction to focus on Chinese medicine. But in the interview, the granny’s experience didn’t help much with the discussion of Chinese Medicine. Thus, we switched more than half of our questions to the focus on small changes in daily life.

From this oral historical project, the learners kept in mind that the participants to be interviewed were typically 85 years of age or older. They were careful to model primary sources to generate interview questions to gain perspectives of how they felt about a particular event or circumstance during their time. During the interview, learners found that their pre-designed questions, even though well-designed and prepared, might still elicit unanticipated, unexpected, and unintended outcomes or situations. For example, learners remarked that to their surprise, they did not expect the lack of information obtained from interviews due to the subject being hard of hearing, inarticulate, ignorant, naive or oblivious. They sometimes had to rely on the memory of the son or daughter in-law to answer the questions. They complained that their interviewee was too limited for further examination of cultural and historical comparisons. They were rather disappointed and frustrated by the lack, or narrow range, of resources available to them. For example, a handful of learners remarked that

It’s very hard to come up with questions, and we didn’t use many in the interview, either. I wish we could have interviewed more elders or made more visits to make up for the limited information we obtained.
We’ve made up questions for the elder and rehearsed the interview in advance. When we arrived at the elder’s place, we found it delightful that the granny was talkative. Although we knew the granny was hard of hearing, we didn’t know how bad her hearing was. Therefore, we thought we had enough questions for the granny beforehand. In the interview, the problem of bad hearing did cause some differentials in the expected results. Our questions were answered most by the granny’s son. Hence, there were few questions that were thoroughly discussed and probed. Not to mention comparing the different cultures through history.

The previous episodes show that groups encountered different levels of challenge, such as those involving their fluency of Taiwanese and the ability to communicate. More often than not learners had a conceptual idea about the project and well-prepared interview questions, but they were upset about the information acquired from the interview processes. Given this, some learners turned to their relatives for more guidance while some groups had several other interviews on the phone or searched for more data on the Internet or in library collections. With this, learners become cognizant of the importance of the selection of participants for an effective oral history project. They suggested that future researchers might expand the pool of centenarians, include more visits to the elders, or decrease the age of elders to over fifty so they could design more sophisticated and encompassing projects.

3.2. STC project provides students many opportunities to gain historical understanding with high school outperforming that of primary school students

The STC project enhanced student understanding of a relatively recent historical period in Taiwan. Through this oral history project, students were involved directly in a method of historical inquiry, which included the organization and presentation of data acquired directly from another person through interview techniques and historical timeline development.

Our data suggests that the students in the project had ample opportunities to attend to issues and topics of historical thinking, to develop meaning with regard to their interviewee, to deliberate with each other, and to create inquiry-based projects by using a variety of historical sources. Many students expressed that they benefited from:

- a particular perspective on the learning of history that the oral history project experiences had encouraged them to develop;
- a storehouse of ideas and materials related to the local history;
- walking through history by way of documents etc., coming face-to-face with the messy world of historical interpretation added to their knowledge of local history;
- the foundations of collaborative efforts with other students on various history projects;
- building knowledge of their heritage and cultures of people around their hometown; and
- gaining insights into their own lives and contemporary events.
For students that participated in this project, it appeared that a heightened sense of professional competence at various levels emerged. Although some students did not state that explicitly, it could be inferred from their demeanor, their design activity, and from the tone of the interviews in which the students appeared confident and enthusiastic about their ability to understand history.

A number of students’ remarks serve as good examples of the historical thinking developed when they tackled subjects:

- I feel as if I know so much more about history now
- I really think I get more interested in this way of studying history because I am more involved in the ways I have learned to think about history, and the people of the past...
- From this project, I have learned that history is not simply a series of isolated events from the pages of a textbook, but rather it is composed of collective life experiences and memories of actual events that have directly affected the lives of their friends, acquaintances, and relatives.

The study showed that children could and do engage in historical inquiry in a variety of ways. In this project, students were challenged to explore the past, to be gripped and fascinated by it, and ultimately to synthesize the product of their research into a coherent structure that represents authentic historical narrative. From this project, learners learned to conduct original research (interviews), compose well-structured introductions and conclusions, give credit for using their sources, codify massive amounts of interview data and synthesize information, design a report that continually addresses the central question posed, and give creative and coherent final presentations.

It was observed that the students of primary school constructed relatively elaborate accounts regarding the centenarians. They made efforts to integrate, adapt, and transform their information collected from writings about other people’s histories. They had some sense of past and present and so developed a sense of linear order of events. They wrote a brief chronological narrative or outline of the interviewee’s life by documenting the most attractive years of their lives. For example, one group introduced the grandmother’s life in three periods. Their Website reads: “The blossom is the nickname of the granny, for she likes to dress up beautifully every day. Well, it’s never too old to be beautiful!” Some groups created centenarian basic files (name, nickname, favorite foods, unforgettable memory, etc.), or a digital album with audio-visual, or written commentary.

The study showed that students in high school, as opposed to those in elementary, seemed to have a deep sense of date-oriented or period-oriented time as they attempted in their presentation to place events or movements in a historical period or context, thereby providing a type of marking or anchoring. For example, in order to better capture the interviewee perspective, most high school group members strived to integrate, recount and analyze in the context of time and place, the social, political, scientific, technological, economic and cultural forces that influenced the interviewee’s history. They searched for more geographical information about the
area in which the interviewee lived and the big events which occurred in their lifetime. They designed a historical chronology to compare with the centenarian’s life chronology to provide the audience adequate background knowledge of the historical topic and time period.

3.3. STC project fosters learners’ empathy and perspective

The oral history project also fosters learners’ empathy by encouraging them to see the world through the eyes of elders. Learners gained an appreciation of what the world was like and how it was perceived by people in the past. The study showed how firsthand experiences enable history to come alive for students as they gain a sense of participation in history.

Through this historical inquiry to document citizens’ participation and memories concerning a specific event or time, students appreciated and understood people who were different from them; furthermore, it transformed the way they see the world. By examining and appreciating the struggles of people in the past, students began to see the relationship of the past to the present. Thus, historical inquiry encouraged their reflection on themselves and others, and further prompted them to think about the conditions necessary for a fairer and more just society. For example, the learners reported that they had developed the feelings associated with their homeland such as caring for the elders as cherished treasures.

... we asked questions ... about life under the reign of Japan, and the White Terror, etc. People at that time ... had to work for Japan from day to night. Now what makes me happy is that the granny’s child and grandchild are all filial to her. The granny is very healthy as well. We could easily feel the family love and joy at granny’s place. From this interview, we’ve learned lots of things that we couldn’t learn from the textbooks. And we’ve experienced the impressions and feelings of the granny’s precious experience as well. These are the priceless treasures in our lives.

The evolution of history and the achievement of technology bring ... improved medical facilities that prolong human beings’ lives. We need to place more value on the welfare of the old and their spiritual activities after retirement. Through interviewing one-hundred-year-olds, various aspects of old people’s lives can be uncovered. This can alert the public’s concern for the old and those that are helpless and also remind everyone that most people undergo the experience of being old, so it is important to adjust oneself psychologically to this condition.

From her, we could see the splendor in the ordinary. Time has marked its trail on her face. Like a plum flower’s spirit, she is industrious and strong. Also, she fears not the hardship in her life, just like a plum flower blooms in the cold wind and frost. We should learn and respect her great spirit. She often said, “He who is long-lived finds it easily to be content and is thankful to God.” Her words made us think ‘ Are we content with our lives? Are we thankful to God’?
In this interview, I experienced the precious value of life and the meaning of existence. There are too many things which occur yet quickly fade away in our lives. But when we look back, we find that some of them are indelible and unforgettable. It is a pity that we often focus too much on today, and forget about the substance of yesterday and the preciousness of tomorrow. *With this project, I hope we can remind people of the importance of treasuring our elders, and things that provide indispensable spiritual support in our lives.*

In presenting the personal dimension, oral history connects real human beings to the past. Students came to see that their personal histories were linked to the broader story of the human condition. Moreover, historical study helped students develop a sense of their own identity. Through this historical inquiry, students learned that history is in essence the collective memories of actual events that have directly affected the lives of their friends, acquaintances, and relatives.

*After we made firsthand observations and inquiries, history became more humanized. Yes! History should not only be a chronicle or a textbook. History should be alive and powerful. It should be something that can bring out people’s sympathy and understanding. Every story belongs to every person in this land, for no matter who you are, you are one of ‘us.’ We share the same memories, both delightful and sorrowful. History holds our common roots tightly. History is a connection beyond the restriction of time and it can never be obliterated.*

I am very glad that I had the chance to participate in this project, for it helped me have a better understanding of Taiwan’s history. I deeply honor and respect the spirit of the early Taiwanese as well. Although they had disadvantages, they could still keep their industriousness and stamina and then create the miracle that is Taiwan’s economy. The resolute granny also had a hard time. She lost her son in her early years and her husband in her late years. But she didn’t give up her hope for life. On the contrary, she treasures life more.

### 3.4. STC project promotes information literacy

The project attempted to bridge the learning of history and the use of Internet technology; however, it appeared that most students placed more emphasis on the technology than historical thinking. It seemed that the advanced technological tools such as the digital camera, digital recorder and authoring tools for Web design, elicited learners’ multiple senses and kinds of intelligence, making their learning more accessible, meaningful and entertaining. The innovative technology not only enhanced student engagement and productivity, but also increased their ability to perform complex tasks. These findings seemed to support the notion that technology increases the ability to successfully perform more complex tasks, strengthens motivation, and leads to innovative changes in curriculum design (*Means & Olson, 1994; Mendrinos, 1997*).
Armed with multimedia authoring tools, students became designers, rather than mere consumers of information (Perkins, 1986). They became not only takers, but also “givers” and “creators” of information. As designers, students used multimedia technology to illustrate the results of their investigations by creating, constructing, and transforming the information. They enjoyed incorporating text, graphics, animation, sound, voice, music, still pictures, and motion video into their designs, and they exercised control over their own learning in ways not possible with traditional instructional materials. They were particularly enthralled with the video, audio, and animation components of multimedia, which brought centenarian events to life in a way that text could not, enabling learners to construct richer mental models of events or situations.

As we can see from the groups’ diverse projects on the Web (http://km.nsysu.edu.tw/3c/default1.htm), each group made great efforts to use multimedia in their projects. They developed presentations that integrated text, animation, sound, links, artifacts and illustrations related to the theme. They viewed homepage design as a playground for learning where they could explore information in a playful way. Some learners reported in interviews that they had made personal scholarly discoveries. They experienced the joy of free-form learning and self-guided discovery through the projects. When embarking on lively expeditions through this journey, they sometimes stumbled upon the totally unexpected and unknown, but stimulating and fascinating, bits and pieces of information. They felt that the ability to interact actively with the treasured senior was beneficial. In particular, the technological tools enabled them to move beyond the limitations that paper-based materials inherently presuppose. They enjoyed having multiple ways of learning, the ability to choose their own media, creating links “on-the-fly” to specific information, and a sense of control over learning.

It seemed that the potential for representing ideas through text, pictures, and sound increases the likelihood that students will acquire an understanding of complex information. Students communicated the interconnectedness of concepts by creating links that connected different units of information or different and sometimes conflicting representations of the same information. Furthermore, when working collaboratively to construct multimedia projects, and presenting work to their peers and other audiences, students had opportunities to discuss and defend their ideas, reflect on their positions, clarify misinterpretations, enrich their understanding, and learn to work with others in productive and mutually satisfying ways. One student specifically pointed out the value of science and technology for the project during a conference presentation:

Nowadays, there is an obvious tendency to combine science and technology with daily life. In this project ... we had experienced the convenience brought by science and technology. Is science and technology cold? Of course not! Science and technology communicates our joint happiness and emotions. Science and technology let us share our common results and success. Every step we’ve made in the project and every gain we had from it are proof of the perfect match between science and technology, and history!
Her response nicely summarized an appreciation toward the design of STSS (Social Science, Technology and Society), which infuses the spirit of historical thinking into the teaching project.

3.5. The STC project operates within individual, social, cultural and historical contexts

The STC project is both a private and a social act. It is individual in the sense that the meaning the individual ascribes to the information is idiosyncratic; it is actively constructed from the base of their prior knowledge and life experiences. It is social in the sense that the individual’s meaning-making is woven into the fabric of social negotiation, which includes the immediate social context of the learning environment, as well as the surrounding cultural, social and historical contexts (Vygotsky, 1978).

3.5.1. Individual and personal context

The study showed that, although there was some natural overlapping on the issues, each group constructed their own representation of the problem. Each looked for specific information and organized that information in ways that served their purpose. They sifted and selected information, linked new information with related information and integrated their own experiences and prior knowledge. Each group formed different and unique interpretations about the observations they had noted, and constructed their unique Website based on those issues which were of interest to them. Their representations of the problem were both qualitatively and quantitatively different.

Some groups perceived the problem area more broadly than others; some pursued a line of thought more deeply and richly than others. Some pursued a full-fledged life history analysis; others limited the interview to an exploration with a particular focus. For example, St. Paul’s High School wrote down the lively and interesting process in dialogue form. Through several discussions, they decided the explicit subject and content of the interviews. In their work, they focused on the development of Medical treatment in Taiwan, while others approached their research from broad issues. Group selection of topics included different aspects of everyday life, family background, childhood experiences, traditions, education, hobbies, challenges in life, and living environment, culture, war, as well as other pertinent information during different stages of Taiwan’s development. Each group presented their introduction and the unique motivation driving their inquiry. Following are some selections documenting their inspirations for the project.

Given their own agendas, groups read, sampled and designed their project with varying degrees of attention. Each piece of material had unique “peaks and valleys of importance” for each subject. Information that held importance or significance for one group may not have even been noticed or appreciated by the others. Continuing with the theme of individual or personal acts, the groups purposefully and idiosyncratically named their projects and gave them a title. They imposed their own organization on a very long body of information and scrutinized the links they
made. They appreciated the choice and arrangement of word play, an important role in determining the flavor of their historical account. For example, some learners described the centenarians as living fossils, a beautiful flower, or a secret old granny, magic old man, or the treasure of Kaohsiung, to trigger readers’ mood and feeling. They paid a great deal of attention to the use of particular or interesting words and phrases in order to convey the meanings adequately or fascinatingly.

3.5.2. Social context

These idiosyncrasies were not entirely private, however. The subjects were well aware of the project’s expectation that, in their final products, they would be communicating and sharing their ideas with others. Thus, they took it as their responsibility to make their points clearly. Several comments from the transcripts indicated that the subjects consciously took account of potential audiences (their teachers, fellow students, etc.). The choices they made were in keeping with their goals as writers, but were also shaped by their sense of the wider community of readers.

Furthermore, the final activity involved the students making a formal presentation to a wide range of audience members that included their peers, the principal, the superintendent, and the faculty. Each group conducted a tour of their projects and explained their rationale for constructing their projects in the manner they did. Students’ success was reflected in their confidence and enthusiasm as they made their presentations. Each group demonstrated some expertise on a specific topic and formed their opinion. Additionally, the audience seemed fascinated with the information, and all students confidently answered a myriad of questions related to the theme of centenarians. The interest and motivation to engage in the project seemed to contribute to the students’ success in this program.

This highly social, sharing activity was very positive in that it allowed each subject to perceive the multiple perspectives that different learners can bring to the task, and to reflect on these alternative possibilities. It shifted the activity of communicating knowledge, from the outside, to the inside of the students’ minds. It became an activity of nurturing their ongoing processes of constructing understanding. The Internet became a cognitive tool that allowed the students to bring their own experiences to bear on their interpretations and understanding of oral history and other highlights. It enabled them to explore the diverse sources of evidence, and to construct and defend a range of issues and ideas and to make plausible interpretations in critical and personal ways.

3.5.3. Cultural and historical context

Not only did these constructive acts take place in the immediate social context of the class, they were intricately bound up in the larger social, cultural and historical network. From their interview protocols, it was evident that their meaning-making and reasoning activities carried varying degrees of cultural and social dimensions which were contingent on their wider beliefs and assumptions. They gained an appreciation of what the world was like and how it was perceived by people in the past. They projected their living world into the material they encountered to help
them construct meaning and engender their understanding. The students appreciated the beliefs, motives, and knowledge constraints of the centenariansarians. Following are reflective accounts from students that suggest a strong relationship between their empathy and perspective toward the interviewee’s lived experience.

The most impressive thing for me was when the granny talked about life during the reign of Japan I couldn’t help but become tearful. Though I couldn’t understand the granny completely, I felt her sorrow and grief. At that time, people worked hard for Japan all day long, but they weren’t rewarded properly. The Japanese were cruel and irrational. Also, they blamed the Taiwanese for everything. Hence, the Taiwanese had a hard time then. She also told us about the cruel and bloody events that happened during the Feb. 28th incident. And because of the Feb. 28th incident, people at that time disagreed with the government. After discovering all these things, we had the same feelings of unfairness and hatred as the people had then.

4. Conclusions

The study examined student’s perceptions and learning as they conducted the STC project using advanced technological tools. The STSS model was used in conjunction with existing history curriculums to explore issues that were socially relevant and personally compelling. From group presentations, it was found that students did not merely learn a set of facts but rather engaged with ideas, they built a rich interpretation from their interviews and had their curiosity piqued. The learners found that these experiences were quite a departure from their education in the traditional history-as-a-set-of-facts approach. In this project, the curriculum was opened up to student exploration and inquiry. Challenges and problems arose that group members felt unprepared to address. Learning how to cope and grapple with those challenges afforded them the opportunity to develop important problem solving skills. Situated as it was in a rich domain-specific, interdisciplinary environment that reflected an ill-structured content domain, the learners were able to bring order to chaos by creating their own intellectual products through purposeful exploration and sustained investigation.

Recognizing technology as having a supporting and catalyzing role in the development of learners’ historical understanding, the STC project provided a link between history and technology. Although time-consuming and resource-intensive, the study demonstrated that integrating technology into a history curriculum is a worthwhile endeavor to undertake. By leveraging the power, and learners’ interest, in information technology, it is believed that computer-mediated history learning can stimulate children’s interest, mindfulness, and motivation in learning history. Research involving history learning constitutes a rich area for deeper exploration. Illuminating and reinforcing the relationship between history and technology should lead to enhanced history teaching practices and more powerful curriculum design.
Given the time restrictions of this study, future studies might experiment with other activities and see how learners deal with a variety of historical content and sources. For example, a teacher could use multiple texts and other activities designed to help students adopt a constructivist learning of history.

As the study showed, researching history instruction within a digital learning environment opens up a broad range of connections and meaning making among learners. The present study is only a stepping stone on the way to examining learners’ actual perceptions and the use of computer technology in the STC project. Although this project was conducted using history instruction, it could be adapted as an activity in a variety of disciplines to maximize the learning dimension, such as social studies, global education, and cultural comparison. Future study might consider various options for establishing oral history in schools such as an elective semester course, a minicourse, an extracurricular history club project, an interdisciplinary course involving a number of curriculum areas, or an interschool collaborative project. The author believes that further research into these powerful networked environments will be conducive to broadening and refining the learning of history.

5. Implications

This study is the first joint effort of our research team. The team includes teachers, students, researchers and the elders who participated in the various activities. For the students, it was also their first attempt at this type of extracurricular activity. The study showed that our computer-mediated oral history project has the potential to empower students when implemented appropriately. Although the positive learning effects on students were quite satisfactory, there are still some issues that need to be further addressed and reflected upon.

5.1. Students’ different mental maturity has to be considered in the design of oral history projects

During the project, it was observed students’ struggle with how to focus on the purpose of the interviews, and to grasp the political, cultural, historical, and economic background of the time period when the elders lived. These problems especially were conspicuous for students in primary school. As we can see they approached their knowledge building with less of a sense of synthesis and integration than high school students. However, compared with the successful learners, some learners had difficulty in synthesizing data into patterns. The capability to access and collect information rapidly did not ensure a clear and persuasive presentation. Nor was it clear that this capability propelled learners to engage in research-based learning by using connections in their construction of meaning, and in testing, validating, and evaluating hypotheses. This suggests that young learners may need more scaffolding and guidance to ensure their learning outcome is in accordance with the original target objectives of educators.
5.2. Scaffolding and encouraging historical thinking over information literacy

The STC project had students from K5–11 build artifacts reflecting their historical understanding from their oral historical interviews with elders. They were also required to publish their electronic projects on the Web and incorporate text, graphics, animation, audio, or motion video into their designs. This had the dual advantage of having students use technology as a cognitive tool and it allowed them to share what they learned with a larger audience in a learning community.

However, it appeared that most students placed more emphasis on the technology than historical thinking. It may be that the timeline for the project, only 2 months, encouraged students to divert more of their energy toward technology learning. It may be that operating high-tech equipment such as a digital cam recorder, and building Websites were new and intriguing to them, so they were eager to take advantage of it in their interviews and surveys. It may be that some students, with less background knowledge in basic history and information literacy, needed more scaffolding to develop their historical thinking. Therefore, it is emphasized that future designs of computer-mediated oral history projects should deliberately have historical inquiry take precedence over simple technological learning. The project should enhance students’ mindfulness and motivation in learning history by designing appropriate handouts, assignments and assessments to maximize connecting history with computer learning environments. Furthermore, the teacher needs to be sensitive to the role that background knowledge plays and be careful to provide coaching and scaffolding for their historical thinking. For example, teachers should provide elementary learners with essential assistance and guidance within their zones of proximal development (ZPD). As learners’ progress and their ZPDs grow, the teacher might provide progressively greater freedom to explore, and move to more open-ended questions and hints. The interventions can gradually remove or fade away as learner’s mastery of the skills increase.

5.3. Recruiting qualified interview subjects

The project placed emphasis on learners’ developing skills in historiographical inquiry by conducting an oral history project with the elderly. The study showed that learners conducted their interviews with a great deal of care and a sense of responsibility. They designed well-prepared questions for the interviews and expected to gain valuable information about the elder’s perspectives on local history. However, the results did not turn out well for some groups as they lamented they did not acquire much information related to the theme of the project.

As the project was to have learners conduct oral history by experiencing history firsthand as historians do, and see history viewed through the eyes and memories of people spanning three centuries, the selection of participants was a critical component for an effective oral history project. However, the accessibility to centenarians nearby, good health status, willingness to participate, fruitful experiences as well as their knowledge of the topic and accuracy of their memory were all critical to the successful implementation of the project. The study found that the level of recollection
and historical accuracy was dramatically affected by the age of the participants being interviewed. Some groups regretted that their oral historical gathering was constrained by the centenarian’s inability (physically and intellectually) to communicate their thoughts and to express them clearly and fluently.

For example, some subjects might be willing, but have difficulty articulating their thoughts, whereas others might have limited knowledge or awareness regarding their insights and life experiences. With this, future designs might expand the pool of potential participants, and take the dynamics of participants’ age, capabilities, and knowledge of historical topics or periods being investigated into consideration (Yow, 1994). The qualifications of the subjects should be a critical aspect in the selection. It must be understood that their own knowledge acquisition as well as their ability and willingness to communicate their thoughts will constrain the data being collected. Therefore, the interview subjects must possess extensive amounts of relevant knowledge of historical information. Furthermore, the subjects should be verbally expressive and relatively introspective. They should be interested in gaining some insight into their own reasoning processes, and be able to express these insights, whether good or bad.

5.4. Designing online communities to support learners in communicative and collaborative activities

The study intended to have learners interview centenarians spanning three centuries and three generations of Taiwan’s history. However, because it was difficult to locate centenarians who were nearby, healthy and willing to participate as subjects, we lowered the elder’s age range of 75–109. Furthermore, organizing the project took teachers a lot of time and effort and some were overwhelmed with the additional workload in addition to their regular teaching responsibilities. They remarked that oral history projects for elementary students in particular require a great deal of effort to run. Training students in interviewing techniques, finding people to be interviewed, scheduling interviews, analyzing results and publishing on the Web are all time consuming. Given the difficulty of conducting oral history, future designs might integrate an online interview design such as Ellis and Bruckman’s Palaver Tree Online project (2001). By leveraging the power of information technology, we can integrate computer-mediated communication into history learning activities. We can conduct oral history projects online by building learning communities and having learners interview elders, historians, or other potential subjects through asynchronous and synchronous conferencing.

An online oral history project would also achieve the following value-added functions in developing learners’ historical thinking, such as communication, cultures, connections, comparisons, and communities. For example, communication is at the heart of any oral history project. The tools and resources available with Web technology offer prime opportunities for conducting interviews (e.g. the asynchronous mode as e-mail, news groups, threaded discussion groups, and the synchronous mode as Internet relay chat (IRC), multi-user domains (MUDs), and video conferencing, etc.). History and culture are inextricable and interdependent;
understanding the culture of the target historical event enhances understanding of historical perspectives. Connections refer to bridges to other disciplines and the acquisition of information. With a huge, amazing, world-wide system of voluntarily interconnected networks with literally millions of documents, resources, databases and a variety of mechanisms for communicating, an online oral history project is sure to expand learners’ ideas of textbook reading and functional writing across disciplines.

Comparative thinking improves with the development of insight about multiple perspectives of historical interpretation through the different perspectives of interviewee, the textbook, expert historian, and peer groups. Finally, establishing learning communities enables students to gain a sense of participation in their history making as the Web provides an effective forum for dialogue on issues that enhance or challenge the community. It is believed that through reading how experts and researchers’ engage in online discussions on particular themes, learners are provided with an authentic opportunity for an appreciation of the uncertainty and challenges faced in constantly evaluating how to improve their understanding of history.

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References


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