

**Palaver Tree Online: A Scalable, Constructionist  
Community of Oral History  
Dissertation Proposal**

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## **Abstract**

The central claim of my dissertation is as follows: Through building Palaver Tree Online, an online community that supports rich interaction between children and elders, I can improve children's knowledge of and interest in history. In addition, Palaver Tree Online can reduce the amount of effort required of teachers to implement oral history projects in the classroom.

I began this research by doing two years of pilot work, looking at how existing technologies (e-mail and mailing lists) support doing online oral history. The first study served as a proof of concept. I found that elders are willing and able to share their stories online, and kids enjoy having their questions answered by real people. The second study was larger scale and more in-depth, with an experimental/comparison class design, interviews, and attitudinal surveys. While statistical analyses of the surveys found little change in attitudes, interviews uncovered significant changes in student thinking for the experimental class as opposed to the comparison class. I used the lessons learned from this pilot work to design and implement Palaver Tree Online, a software system that makes doing online oral history go more smoothly. In the coming year I will release Palaver Tree on the Internet and study several classrooms using the software in-depth to assess its educational effectiveness.

## **1 Introduction**

*Since Kwasi was a child and his father and grandfather and, yes, great-great-grandfather Kwasi and all his village lived collective communication in the cool shade of the sacred boabab or mango trees in their villages. Beneath the palaver tree misunderstandings were resolved and critical community issues were discussed under the direction of the village elders. Villagers explained points of view and together, through group consensus, reached a final decision. But the palaver tree stood for more than group discussions and problem solving: it was the place of the festivals, the harvest celebrations and where the traveling storyteller would set up his camp in the evening to spin the tales of a place & time far off and free from the worries of rural farming. – Michael Land (Land 1992)*

Oral history has a rich tradition of providing a view of history through the eyes of real people. Projects like Foxfire (Wigginton 1985) have shown that oral history work can make history especially tangible for students and provide opportunities for deep learning by engaging them with real people whose life stories are history. Kids engaged in oral history projects are able to explore parts of history they find personally important and, instead of reading dry text in a book (Loewen 1995), hear stories told by real people who lived through the events.

Historians constantly wrestle with the “objectivity question” (Novick 1988) – working to present history with as little personal bias as possible. In my work, students play the role of historians, hearing many different accounts of events from online elders<sup>1</sup>. Students then decide for themselves what the stories they mean to them and, with the help of elders and teachers, what the true meaning of history is.

Although face-to-face oral history has significant learning potential, there is a significant cost as well. Teachers are already overwhelmed with work and organizing oral history projects requires additional effort. From organizing classroom visits by historians and elders, to taking students on field trips, to training students to do interviews and use that interview data in projects, oral history projects are a difficult undertaking for all involved. In fact, my early work shows that even exceptionally talented teachers in history-rich neighborhoods have difficulty doing such projects (Ellis, Bruckman et al. 1999).

### **Palaver Tree Online**

My goal is to build a scalable, constructionist online community of oral history, a place where elders can share stories they find personally meaningful and a place where kids can learn history from people who have actually lived it. The community will value elders’ life stories and provide a place where these stories can be captured before they are lost. Students will create artifacts from elder interviews that share these untold stories with the world. Teachers will be able to integrate oral history into their classrooms with less effort.

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<sup>1</sup> I use the term elder instead of senior citizen because (1) some of my participants are a bit younger than those typically considered seniors and (2) most of the older folks prefer the term.

I call this community Palaver Tree Online. Merriam-Webster (Merriam-Webster 1998) defines “palaver” as “a long parley usually between persons of different cultures or levels of sophistication.” A Palaver Tree, then, is a tree for talking. In West Africa, such a tree serves as the center of a village. It is a place where elders come to share their stories. It is a place where members of the community come to have their disputes settled and elders set the record straight.

Palaver Tree Online will provide a *community* (Wellman and Gulia 1999) in that it will bring together a diverse group of people with common interests working towards a common goal. I am designing a *scalable* solution that will allow many teachers to implement online oral history projects in their classrooms. Finally, Palaver Tree will provide a *constructionist* (Papert 1991) environment where students learn by constructing personally meaningful artifacts and getting feedback from the community on their work.

I feel that this software will have a number of educational benefits. First and foremost, students typically miss the point of history. Many history courses tend to focus on memorization of names and dates of people and places that seem far away from students’ everyday lives. Textbooks seldom focus on the important human struggles at the core of every historical story (Loewen 1995).

I feel that Palaver Tree can help make the truths of these historical struggles clearer for students. One of the primary goals of my software is to provide an education on the nature of history itself. If students go away from the project realizing that (1) historians and heroes are real people just like you and me, and that (2) the outcomes of historical events (like World War II) were hardly assured at the time, I would see this work as a success. Essentially, I would like to get students more excited, interested, and engaged with history.

A second goal is the learning of historical content. I hope students will, through the use of my software, gain additional insight into historical events that they are studying as part of the standard curriculum.

Finally, I hope students learn the importance of elders and their stories. To this date, my only memory of my grandfather was of a strong handshake. Whenever I saw him, he would shake my hand very firmly to make sure I had a firm handshake when I grew up. A month after his

funeral, however, I got a copy of the United Negro College Fund (UNCF) magazine in the mail and his picture was on the cover. As a child, nobody told me that my grandfather was the original president of the UNCF!

I felt like I missed out on a very important part of my heritage because I was unable to hear my grandfather's stories about his experience as an agent for social change. Thus, an important part of this work for me is helping children understand that elders are great resources, and have many important stories to share.

## **Participants**

Palaver Tree Online has three primary user types: elders, kids, and teachers. Each of these groups has necessary contributions to the community as well as potential gains from participating. Elders, for instance, contribute their life stories through interviews with kids. In return, they can hear and comment on the life stories of other elders, and have an eager audience in kids as well.

Kids will learn history by first reading background text from the standard curriculum, interacting with elders online, and finally combining stories they hear from elders with their own art and text to build historical artifacts. These artifacts (called PalaverStories) show what students have learned from interacting with the elders and contribute to the historical tapestry constructed by all members of the community.

Teachers gain an additional, perhaps more engaging, and certainly more interactive, way of teaching history. I am aiming to reduce teacher effort for doing such projects while providing a rich set of tools to make the process go more smoothly. Teachers contribute to the community by providing in-classroom and online scaffolding for kids – helping kids formulate good questions and build meaningful PalaverStories.

## **2 Motivation**

The primary motivation for this work is making oral history projects feasible in more classrooms. Oral history is difficult to integrate into the classroom for a number of reasons. First and foremost, it is extremely time consuming. Designing a curriculum, recruiting elders,

scheduling field trips and interviews, and managing the classroom during a special project are all time intensive.

### **Wonderful Teacher, Too Much Work**

When I first began work on this project, I started by looking around for local projects that were doing similar work. What I found was Sweet Auburn. Sweet Auburn (<http://www.sweetauburn.com/>) is a richly historical community just a few miles South of Georgia Tech. It is home to the Martin Luther King, Jr. birth home, his burial site, and the Ebenezer Baptist Church where he preached. The neighborhood is also home to The Royal Peacock (a famous concert venue) and WERD (the first black-owned radio station in the country), among many other historical sites.

Also within this community is a middle school and within that middle school an exceptionally talented and dedicated teacher named Andrea<sup>2</sup> who, a few years ago did a project called “Neighborhood Celebration.” In this project, she took her kids on field trips to explore the neighborhood’s historical sites, and had neighborhood elders and historians come to her class to share their stories. As a centerpiece for the project, kids built a scale model of their neighborhood. Local architects came to the classroom and laid the elevations. The students used satellite reconnaissance photos to place local buildings in the proper places and used those buildings to tell the rich history of their community.

This was very ambitious, and a lot of work. In an interview, Andrea stated: “It was way too much work for me at the time and I didn’t have nearly the teaching load then that I do now.” If such a project is hard even for a great teacher to do in a richly historical neighborhood, how can it be made possible for an average teacher in an average neighborhood?

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<sup>2</sup> All names in this paper have been changed.

## **Difficult Elements**

Before I get into the specifics of how computing technology might improve this difficult situation, let's first take a closer look at the elements that make it and other oral history projects difficult:

*Special projects are hard.* Teachers are overwhelmed with work. Many times, it is hard enough to get the required material covered, let alone doing special projects. If teachers are to integrate special projects into the curriculum, they have to offer both substantial benefits to students and be reasonably easy to implement.

*Curriculum design.* In general, special projects require new curricula. This is certainly true of oral history projects in the classroom. Students need to learn the skills necessary to do meaningful oral history interviews, actually perform the interviews, and make use of those interviews in an end artifact. At the same time, the teacher needs to be covering the curricular goals prescribed by the school system.

*Recruiting elders.* Once a curriculum is designed, the next step in a standard classroom oral history project is to recruit elders to be interviewed. Depending on the topic being covered, finding local elders who have stories to share on that topic may be difficult. Even in a neighborhood full of Civil Rights history like Sweet Auburn, my pilot work showed finding and recruiting elders to be a time-consuming task.

*Field trip scheduling.* Planning field trips takes time and effort. Teachers need to pick an appropriate time in the year, plan the trip, have the trip approved by the administration, send home permission slips, find chaperones, and then actually go on the trip.

*Interview scheduling.* Planning interviews and planning field trips are difficult in many of the same ways. When doing interviews, though, teachers have the additional burden of coordinating their interviewing schedule with that of the interviewee. Generally, historical sites are open regular hours and most days, but when dealing with people, the planning picture becomes much more problematic – coordinating schedules is difficult.

*Classroom management.* Teachers need to train students to do original oral history research and manage them in the case of classroom visits by interviewees and historians. In addition, teachers must instruct students on how to use the interview data they collect in building an artifact to show what they learned from the project.

### **How Can Computing Technology Help?**

I believe computing technology can help by addressing many of these issues. At a high level, I believe it can help in two ways:

1. Connections with elders worldwide. Palaver Tree will enable kids to hear stories from elders in their neighborhood, from around the country, and even around the globe. Kids will learn history from people who actually lived it and, I hope, feel a personal connection with it.
2. Reducing teacher effort. Teachers are overwhelmed with work. Palaver Tree will reduce teacher effort by enabling them to do oral history projects without requiring extensive field trips or interview planning. By involving elders, I am providing another source of information beyond the teacher, thus, as with the CoVis Mentor Database (O'Neill and Gomez 1998), the teacher will need to answer fewer student questions.

I do not intend this work as a replacement for face-to-face communication with elders or field trips. Clearly, face-to-face communication should be used in addition to online tools wherever possible. However, I do see this work as a realistic way to integrate oral history into a typical classroom – a classroom where the difficulty of doing face-to-face oral history projects generally means that they will not happen at all.

This is not to say that computing technology will solve all the problems of doing oral history projects in the classroom. Classroom management issues are difficult when doing anything out of the ordinary, be it a visitor from the outside or using computers. In addition, computing technology cannot replace good teaching. Good teachers are needed to carry this out and to provide the necessary scaffolding for kids to have meaningful interactions with elders and create quality PalaverStories.

### **3 Definitions**

I am designing a scalable, constructionist online community of history. Before looking at the community as a whole, let us begin by taking each component separately.

#### **Oral History**

In Palaver Tree, the primary source for historical information is people. In particular I am interested in helping kids explore the stories of “regular people,” not historians or well known historical figures. Oral history is the recording of living history – the histories of real people who lived through historical events. The Oral History Cataloging Manual defines oral history as follows: “The process of deliberately eliciting and preserving, usually in audio or audio and visual recording media, a person's spoken recollections of events and experiences based on first-hand knowledge” (Matters 1995).

#### **Constructionism**

The transmission model is the idea that as the teacher speaks, students absorb and understand at the same level as the teacher. Piaget brought forth the idea of Constructivism (Piaget 1972), which argues that the transmission model ignores context and the very fundamental role it plays in how we learn. As we listen to a teacher, we construct our own understanding of the material based on our own context, that is, based on our understanding of the world.

Papert takes Piaget’s ideas and pushes them further. Papert’s Constructionism (Papert 1991) is the idea that not only do we learn by constructing knowledge structures, we also learn especially well when building personally meaningful physical artifacts that express our new understanding. In creating these physical artifacts, students reflect on what they have learned. Since the artifacts have personal meaning, there is a motivation for their work. Having an outward expression of what has been learned also provides a way for teachers and other students to give feedback – allowing them to discuss and synchronize their mental models. The community element is also an important motivational factor for students, as they are creating for an audience.

## **Online Community**

As mentioned above, community is an important component of constructionism. A constructionist environment that operates online, then, should have an online community component. Howard Rheingold defines what I call online communities (and what he calls virtual communities) as “social aggregations that emerge from the [Internet] when enough people carry on...public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (Rheingold 1993).

A constructionist online community provides a place where students all create artifacts that reflect their understandings for a worldwide audience. Teachers and other students may explore artifacts created by other students, comment on artifacts, and leverage the artifacts of others for new projects. One such community is MOOSE Crossing (Bruckman 1998).

## **Scalability**

Only recently has Internet technology become ubiquitous enough to make the creation of large online communities possible. However, communities (online or otherwise) do not start big. Moving from a small starting group to a large community membership involves a great deal of change and requires thoughtful management.

Different systems afford different levels of scalability. For instance, the One Sky, Many Voices (OSMV) work has scaled from one classroom to over 240 sites, with more than 10,100 students and 45 scientists (Lee and Songer 1999). The CoVis Mentor Database (CVMD), on the other hand, scaled to three classrooms (O'Neill and Gomez 1998). Scalability in these cases is largely a result of resources. OSMV simply has a larger staff than CVMD.

However, there are design considerations in designing for scalability as well. For instance, while both systems are partially web based, OSMV uses a discussion forum-based approach and CVMD relies mostly on e-mail. It is more difficult to have a conversation involving more than two parties using e-mail, as it becomes unclear who is replying to whom. Web forums are a much smoother medium for group discussion, especially as the number of participants grows.

In addition, both projects require the participation of an increased number of adult “topic experts” as they scale. Managing the recruitment and participation of multiple user types becomes more difficult as communities scale.

### **Putting It All Together**

Palaver Tree Online is designed to be a scalable, constructionist online community of oral history. It aims to create an *online community* through meaningful and persistent shared discourse and online student stories. The system is *oral history*-based in that students interview elders about their lives.

A recent online discussion among members of the Oral History Association (OHA) questioned whether electronic media (in particular e-mail) could be considered oral history. Merriam-Webster defines “oral” as: “of, given through, or involving the mouth.” Thus, a literal interpretation requires oral history be spoken history. One OHA member suggested that e-mail could still be considered a primary source, but was more comparable to a memoir than to oral history.

I largely agree with this argument as it applies to e-mail. However, there are a breadth of communication modalities available online. I believe that online chat is more naturally equated with oral discourse than with memoirs. Thus, I find oral history to be a more fitting term for the stories elders tell within Palaver Tree.

The pedagogical foundation for this work is *constructionism*. Palaver Tree provides tools for kids to create historical artifacts (PalaverStories) that are shared in the community; and commented on by other students, teachers, and elders. PalaverStories provide an outward expression of what each child has learned.

Finally, Palaver Tree is designed to be *scalable*, and it is this scalability consideration that moved me to target the classroom. I plan to have teachers and elders aid in the management of the community as it scales. Elders will help primarily by telling stories (providing material for kids) and critiquing kids’ interpretation of their stories (supporting the teacher). Teachers will help primarily be managing their classes – directing them through the appropriate activities in

my interaction model, both online and offline (see “An Interaction Model for Online Oral History”).

## **4 Related Work**

A number of related projects have influenced the design and implementation of Palaver Tree Online.

### **One Sky, Many Voices**

One Sky, Many Voices (OSMV) (Songer 1996) is a large-scale online education project that aims to make students familiar with scientific practice by involving them in it directly. OSMV involves kids in hands-on experiments, sharing data with remote classrooms, and asking questions of experts. In order to assure a large degree of interaction between kids in classes around the globe, all participating classrooms are asked to implement the OSMV curriculum at the same time.

OSMV features three main components: Networked CD-ROM, web-based Message Board, and Written Curriculum. The CD-ROM enables kids to view real-time weather data, including temperature and satellite maps from around the world. The Message Board is a place where kids discuss their findings with other classrooms and experts – this is where the majority of online collaboration happens. Finally, there is a plethora of curriculum materials, which provide teachers with everything from planning materials to classroom handouts to hands-on activities.

One of the major points I have in common with OSMV is organizing large-scale educational activities among non-located groups of kids and adults. In 1999, OSMV worked in 240 schools with 10,100 students, and 45 scientists. With this kind of kid-adult ratio (more than 200:1), and with over 82% of the total messages posted by kids, the emphasis is clearly on students sharing data with other students online (Lee and Songer 1998). This contrasts with my work, where communication with adults is fundamental to the ongoing success of the project – the goal of my work is to have kids research the life stories of elders.

## CoVis Mentor Database

Like OSMV, Kevin O'Neill's CoVis Mentor Database (CVMD) (O'Neill 1998) aims to improve science learning by having adults assist students with science projects. In this case, however, the relationships are more structured. In fact, the software provides only for communication between students and the adult their group is working with. In CVMD, students working in groups formulate specific questions about a science project being done in the classroom and send those questions to science professionals recruited from USENET and elsewhere.

The primary differences between CVMD and Palaver Tree are in application domain, the provided software tools, and community building. Where CVMD looks at supporting science projects, my focus is on exploring history. This change in domain is not trivial. In the case of CVMD, scientists are asked to explain scientific phenomena, which are reasonably well understood. History is much more subject to interpretation and personal recollection. While evidence for historical facts can be collected, evidence for scientific facts are directly observable and such facts are provable through experimentation. Historical "fact" is neither.

In addition to the task domain difference, the work discussed here has a much stronger focus on software infrastructure – support for online, sustainable community. In addition, my software will allow students to create online graphical artifacts. A key problem in the CVMD work was the "low visibility" of the science projects students were working on. Mentors only knew as much about science projects students were working on as students could convey in e-mail. There was a distinct sense on the part of mentors of "very much working in a black box" (O'Neill and Gomez 1998). In addition, it took a great deal of work for students to convey both the context for problems they had in doing their work, along with the specific details of their current focus.

In my work, I will provide a more robust interaction medium, where kids work online, making their current work and progress distinctly visible to adult commentators. In addition, working online may prove to be a motivating factor, as kids are creating not just for their classmates but for a larger audience on the Internet.

## **Knowledge Forum**

Instead of designing for multiple user populations (students and scientists), Knowledge Forum (KF), formerly CSILE (Scaramalia and Bereiter 1994), creates a knowledge building environment to help students better work with and support each other. While KF focuses generally on supporting science learning, some users have extended its use to domains such as history and the social sciences (Hewitt and Scardamalia 1996), and mentoring (O'Neill and Scardamalia 2000). A central aim of KF is to provide a software system that aids teachers and students in moving from teacher-led classrooms to a community of learners, where students spend more time learning from each other than from the teacher.

KF consists of a client application and server software. Discussion in KF takes the form of text, graphics, discussions, and links between them – all of which are publicly viewable by the whole class. One of the key design decisions in this work the elimination of the “separate folders” paradigm. Much software designed for the classroom (and elsewhere, for that matter) collects all the work done by each participant into a folder. KF, on the other hand, has no concept of folders, opting instead to present every contribution of a child alongside work by their peers. The designers argue that “requiring students to work on the same objects and in the same screen regions provides affordances for shared cognitions.” In order to help users make sense of this mass of information, KF offers a Knowledge Map facility, which provides a symbolic overview of the discussion space.

Discussion space is central in KF. Each discussion starts with a question posted by a student. Followups to the question are classified by the poster as a possible answer to the question, an additional question, etc. Images and bits of text can be linked to discourse, and each type of object has its own symbolic representation at the top level Knowledge Map.

Much like OSMV, the foundation of KF's community of learners ideal lies in its analogous relationship to communities of scientists. In the sciences, knowledge is not constructed individually. Instead, scientists work as a community, building from each other's results.

Perhaps this “community of kids emulating professional community” ideal is the largest lesson I can take from both OSMV and KF. My work also focuses on the creation of a community of

learners, but one exploring oral history. Thus, I am working to support students as learners through both interaction with one-another and interaction with elders.

Finally, teachers in KF serve as facilitators helping students use appropriate discourse strategies, focusing their discussions, and aiding them in finding the appropriate resources to do meaningful projects. Palaver Tree places teachers in a similar role.

## **5 Pilot Work**

Before beginning software development, I chose to first look at the strengths and weaknesses of existing technology in supporting kid-elder discourse. To date, I have done two pilot studies exploring the use of existing technology to support students and elders sharing stories online.

### **World War II Pilot Study**

At the end of the 1997-1998 school year, I did an informal small-scale pilot study, with kids exploring World War II (WWII) history. This pilot study took place in the aforementioned Atlanta middle school, in Andrea's 8<sup>th</sup> grade classroom. Fourteen students participated along with two elders in this week-long project.

The class was studying the play, "The Diary of Anne Frank," as part of their standard curriculum. I found two WWII veterans online and willing to share their stories. The class was broken into two groups and each group brainstormed questions based on their readings. Questions ranged from "How old were you in World War II?" to "Were you scared?" to "Did you help free any concentration camps?"

Elders each took the time to write an average of one paragraph per question, detailing their experiences in the war, and explaining the difficulties and joys of the time. One example follows:

Students: Did you know anyone in the concentration camp? How did it make you feel?

Veteran 1: I lost 27 relatives in the Holocaust, a grandfather, many uncles, aunts, and cousins. They were sent to Auschwitz, sometime in June 1944. In 1935, when I was

10 years old, I visited these relatives with my parents and sister in Czechoslovakia (now Ukraine). All these years later I had a remembrance of these relatives. Needless to say our family felt the tragic effects of this news for these many years later.

In addition to text, one veteran provided numerous artifacts of his experience. He e-mailed photos of himself in combat situations, newspaper and magazine articles that helped illustrate his stories, and even a political cartoon.

Andrea spent a day in class reviewing the answers the elders had provided with her students. Students were excited to have actual veterans answer their questions and had an extensive discussion about them.

Through this pilot, I began to understand the feasibility of the online oral history concept and the potential benefit to both kids and elders. I also found that it serves a real need for the elders participating – the need to pass down their stories and lessons learned to kids. One elder commented: “Incidentally, today is my 73rd Birthday and I feel great knowing I'm doing this for the newer generation!!!” It seems clear that the Internet can play a critical role in connecting students with elders who have stories to tell.

With this project as example, Andrea and I developed an interaction model that supports kid-elder dialog. This model provides a way for teachers to create a program that combines history, language arts, and technology while firmly grounding it in the existing curriculum:

1. Background – students read literature as part of the standard curriculum
2. Brainstorming – kids brainstorm questions based on their reading & send them to elders
3. Elders Reply – elders respond with answers, stories, photos, cartoons
4. Going Deeper – students ask deeper questions based on the replies (repeat from step 3 as needed)
5. Projects – students build projects based on their interaction with elders

In this initial pilot, I planned to have the students send multiple messages and create artifacts to show what they learned. I was unable to attain these goals due to time constraints. Thus, an additional lesson I learned from this pilot work is that time constraints are a very real issue when working in the classroom. Leaving extra time at the end of projects is required in order to assure the project reaches completion.

Students did not build artifacts in this initial pilot study, but this gave me a starting point for my second pilot.

### **Civil Rights Pilot Study**

In the 1998-1999 schoolyear, I continued my work within the same inner city Atlanta middle school. I chose to do an expanded version of the prior project exploring the history of the Civil Rights years. This time, I teamed with a 6<sup>th</sup> grade teacher named Michelle. Her class had 24 students, and they exchanged messages with 10 elders.

#### **Initial Work**

Work for this pilot study began in September 1998. My initial focus was on having kids interact with neighborhood elders online and through one face-to-face visit. Teachers are overwhelmed with work, so allowing students access to the stories of their neighborhood without requiring teachers to handle the logistics of multiple class visits appeared the correct direction. To this end, I made contact with a nearby housing project for the elderly and set up a computer center there. I solicited participation from over 20 elders in residence and began training them to use e-mail.

Over time, patterns emerged in the elders' behavior. First and foremost, they are retired and simply operate at a different pace than perhaps younger folks are accustomed. Meetings take time to arrange, phone calls may take a week to return, and training sessions are sometimes difficult to coordinate. Also, several of the elders I was working with got sick and could not participate. In short, planning with the elders requires a great deal of flexibility and understanding.

After a month of training, five of the original 20 elders seemed like they would be available for the entire program. Since then, two of them became too sick to participate and one became unreliable, so I was left with two local elders.

I looked at several other local venues, but decided instead to recruit the remaining elders from the Internet. Since this pilot was focused around civil rights, I sent a posting to a mailing list called “Black Geeks Online” (<http://www.blackgeeks.net/>) and, within seven days, I received e-mail from more than 100 older African-Americans who were ready to share their stories. Over 70 of those respondents filled out my profile form and are now included in my growing database of online elders.

Even though there are great resources in the local community, harnessing those resources requires a large amount of effort. The power of the Internet lies in its ability to bring kids and elders with real historical stories to tell together easily.

Finally, I spent a large amount of time working with the teacher to help develop the curriculum and chose to cover portions of the “Justice for All” unit in their textbook: “Elements of Literature” (Probst, Anderson et al. 1997). Students were given the assignment to create an artifact exploring a particular topic having to do with the civil rights era. Some examples are racism, Martin Luther King, Jr., civil rights, and the Black Panthers. Artifact suggestions included a report, a letter, and a poster.

### **Methodology**

Through this experiment, I aimed to understand the impact of online child-elder discourse. Can kids and elders have meaningful discourse online? What is the educational impact of such discourse? In what ways does existing technology help and/or hinder the discussion?

I used an experimental/comparison class design. Michelle was teaching two 6<sup>th</sup> grade Language Arts classes. Both classes spent 30 minutes of class learning the same material through a standard lesson. For the remaining 20 minutes, the experimental class worked on exchanging e-mail with elders while the comparison class continued their in-class work or did research in the library (see Table 1).

<b>PORTION OF CLASS</b>	<b>EXPERIMENTAL</b>	<b>COMPARISON</b>
<b>First 30 minutes of class</b>	Standard lesson	Standard lesson
<b>Final 20 minutes of class</b>	E-mail work	Library research

Table 1: Time usage in a 50-minute class period.

I administered an attitudinal inventory to both classes prior to the study and after it was completed. The inventories asked students to rate 93 statements about history, language arts, elders, technology, and art on a 5-point Likert scale. I interviewed 5 students in each class before and after the project to further assess their feelings towards history and elders. I also observed many of the classes.

### **The Study**

The pilot study took place during the final three weeks of April 1999. I selected 10 elders from my database, with ages ranging from 49 to 90 (average age of 60). Students operated in groups of two (10 groups total) due to the limited time in each class and the limited number of computers (3 total). Each kid got their own e-mail account and each group was assigned an elder. Each two-kid group, their elder, and a researcher were placed on a mailing list and all discourse was sent to the mailing list to assure all participants got copies of each message sent. A similar model was used in the CoVis Mentor Database (O'Neill and Gomez 1998).

In the first week, I gave a whole-class introduction to Yahoo Mail (<http://mail.yahoo.com/>), our e-mail provider. For the remaining time, I aided the students in sending e-mail, and printed copies of responses for them. All other instruction was left to the teacher.

In order to allow as many students as possible to use the computers, I had each group work together and write their questions on paper. When time came for them to use the computer, one of the group members would come over to the computer and send the message. When responses arrived, I printed them out and gave them to the students. Similar strategies were used in technology-poor classrooms participating in Kids as Global Scientists (Kam and Songer 1998).

The project was fraught with interruptions. Due to these delays, I hoped to extend the project. However, for administrative reasons, an extension was not possible.

When Michelle used e-mail in class, she would start by discussing the background literature. Then, she would use text from e-mail messages to illustrate her points. For example, the students were reading a story called “The Gold Cadillac” in their textbook (Probst, Anderson et al. 1997). Set in the 1950’s, the story tells of a African-American family in the North that bought an expensive car and travelled to the South to visit relatives. They were not greeted warmly by Southern whites. They were harassed in towns along the way, and ultimately pulled over by police and the father interrogated. One of the elders wrote of a similar encounter:

When I was 11 years old in 1959, we took a family trip to New Orleans to see my cousin graduate from Dillard University. On that trip, we were forced to use the colored bathroom and stay at the colored hotels in New Orleans and along the way in Mississippi. As a child, I noticed the inferiority of the accommodations. My brother and I started to complain loudly. My mother had to tell us to shut up because we would have gotten in trouble. We didn't know any better because that wasn't our reality.

Michelle used this story to show that even though they are reading fictional stories in class, real people lived through very similar experiences.

All in all, it took the elders an average of 2.39 days to respond, with a minimum of a few hours and a maximum of seven days. One elder never responded, but I recruited another to take his place. Quick e-mail turnaround is important – if one wants kids to have one e-mail exchange per week, elders need to respond within three days. This gives kids two days to think about the response and formulate follow-up questions. Six of the groups sent two messages to their elder while the remaining four sent one.

## **Results**

In the e-mail exchanges, kids posed questions quite similar to those found in the World War II pilot study. Questions ranged from the personal (“What kind of food did you eat?”), to civil rights related (“Have you ever been involved in a civil rights protest?”), to unclear (“Did you use to go to bloody Sundays?”). Elders never balked at any of the questions. When questions were unclear, they asked for clarification: “I do not understand your 3rd question. Send it again after

you edit it,” said one. I classified the types of questions students asked into seven categories (see Table 2).

<b>QUESTION TOPIC</b>	<b>PERCENTAGE OF TOTAL QUESTIONS</b>
Civil rights	31%
Racism	28%
Personal	18%
Segregation	8%
Slavery	8%
Black Panthers	5%
Unclear	2%

Table 2: Percentage of questions students asked, by question topic.

When writing follow-up questions, students always took into account what was said in the elder’s response. In addition, many elders would leave openings for kids to push further on a topic. For example, one elder responded with “I have met...Malcolm X, whom I do not consider a civil rights leader.” The kid followed up with the obvious question: “Why don’t you consider Malcolm X a civil rights leader?” Michelle scaffolded follow-up questions by giving numerous examples before students got started and giving one-on-one help while they were writing.

Elders’ answering styles varied greatly. Some would reply with just a sentence and others wrote much more (the longest message was 11 pages), but the average was a short paragraph for each answer.

Kids created artifacts on a variety of topics, from racism to slavery to specific figures from the civil rights movement. The majority of the projects in both classes were posters. I found no discernable difference in quality between the artifacts created by students in the experimental and comparison classes. Grades showed students performing similarly to how they had in the past.

Interviews revealed some of the impact of interacting with elders. Katherine received the longest reply of all the students. “I sent 3 questions,” she said in a post-interview, “and she sent back like

7 pages of stuff and I was like whoa! ... I was surprised. I thought she knew some stuff, but not a lot of stuff.” Katherine also identified a change in her attitude with respect to race relations:

I learned that even though [whites] did that stuff, you still can't be mad at them because they aren't doing it today even though there are some places we can go and some we can't. Like in Atworth, we can't go up there because at night they'll be mean to you and stuff...at first I was judging white people, I didn't like them -- I just kinda stand them. But then when I seen it from [the elder's] point of view, then I take things slowly and I can't judge a book by its cover.

Another student, Terra, did her project on racism. In her interview, she spoke about her e-mail interaction: “We used the computer, which was e-mail project. [sic] We asked a question about racism and we used what he thought racism was about in our project.” When asked about the answers she got back, she responded “It was great!” The e-mail responses may well have started her thinking, but their impact on her poster itself was not clear.

Other interviews with students in the experimental group revealed a variety of reasons for not finding e-mail helpful. Reasons included not returning the permission slip, being out of class and not getting their printout, and changing their topic.

Statistical analyses of attitudinal inventories found no significant difference between pre and post attitudes for either the experimental or comparison class.

### **Discussion**

Students were excited to interact with elders online. I found this in my interviews and through observation. Kids repeatedly asked me in class if they had gotten a response from their elder yet, and smiles glowed on their faces when they read through their replies. It is clear to me that those who participated gained something from the experience.

Most students did not use the e-mail in their end project. I believe this indicates a difficulty in working with a new resource type. One student said she wanted to hear “more than what happened to them. Stuff they saw or read or something like that.” This student and others did not seem to understand that the stories their elders told them are just as valid a form of history as

what they read in books. This is understandable considering this is the first time they have been asked to do original oral history work and make use of the data in a project.

It is my intuition that the kids I was working with may have been too young to effectively integrate multiple resources. Michelle suggested that this might be the case as students at this age (11-12) generally do projects the night before and based on whatever materials they can find most easily. To address this issue, I will use a slightly older group of students in my future work.

A number of students were unclear about the meaning of the elders' stories. The majority of the students indicated that they felt elders could not help them with their projects because they were only telling stories about themselves. One student in particular was doing her project on Rosa Parks and said that the elder she was conversing with did not help her with her project because she did not know Rosa Parks personally. However, the elder shared vivid stories about her experience in the bus boycotts and how Rosa Parks was a hero to her. I need to do something to help students understand that the stories they hear from elders are just as valid history as the stories they read in textbooks.

Finally, there was limited time to do the project and limited computing resources – students only had time for two e-mail exchanges at most and some missed getting their e-mail back because they were absent. In addition, the three weeks my project was ongoing were fraught with interruptions in the classroom. I believe the limited time on task kept students from feeling as much ownership for their interactions with elders as they could.

### **Lessons For the Classroom**

My analysis has shown a number of ways to better integrate online oral history into a classroom. While some of these lessons are well known, I feel they bear repeating:

*More computers.* Students had limited time using computers partially because there were so few available in the classroom. Work by Hickey, et. al. (Hickey, Kindfield et al. 1999) shows that a computer lab may be helpful in this case, but having more computing facilities in the classroom itself is much better.

*Be ready for interruptions.* Classroom interruptions are commonplace. When designing a unit including kid-elder communication, teachers should be sure to allocate extra time at the end in case the unit runs over.

*Create an understanding on reply times.* Elders did not always respond in a timely manner and some students did not get responses in time to use them in their projects. The Kids As Global Scientists project (Songer 1996) mandated a 24 hour reply time limit for everyone involved. My elders indicated they would prefer two days.

*Teaching with e-mail responses.* Some teachers may have difficulty thinking of ways to integrate e-mail into their lessons. Providing examples of ways to teach with e-mail is an important part of making kid-elder discourse part of the classroom.

### **Lessons for CSCL Design**

My analysis has shown that existing technology may be improved in the following ways:

*Shared profiles.* Records from my elder profile database are currently unavailable to participants. Thus, entries to the database vary widely. Some elders type only a few sentences while others write pages. Making the database available to all participants would make expectations clearer and enable teachers to select elders to work with their students more easily. It would also give elders the sense of joining a larger community.

*Disconnected operation.* The Internet went down during my study and the kids lost nearly a day of e-mail work. Creating a system that can store messages when the Internet is unavailable and send them when it returns would allow students to work during outages.

*Pointers to examples of good discourse.* Students sometimes had trouble thinking of good initial and follow-up questions to ask. Creating online pointers (perhaps in a case library) to examples of good discourse within the community may provide students with the fuel they need.

*Quality rating for elders.* Some elders are better at interacting with kids than others. Some may write great responses, others may not respond at all. Allowing teachers to rate elders' performance may help them filter out elders who are problematic. In addition, some teachers have particular requirements of elders. For example, Language Arts teachers may prefer elders

who have good writing skills. Allowing teachers provide this kind of information on elders they have worked will allow future teachers to more easily find elders that meet their needs. Finally, ratings may serve as a motivating factor for elders – allowing them to create a reputation in the community.

*Discourse visible to all.* With e-mail, there is a concern that elders may tell students erroneous (historically inaccurate, racist, etc.) stories that go unchallenged. Creating an environment where the discourse is available to everyone would provide a way for other elders or teachers to step in and set the record straight.

*Supporting different schedules.* Every group of users has their own rhythm. I need to provide a discourse system that allows kids and elders to work together, both when they are online at the same time and when they are not. A combination of newsgroups and chat, like that used in Babble (Erickson, Smith et al. 1999), provides a potential direction.

## **6 Survey of Existing Technology**

Here, I take a brief look at a number of existing technologies and examine their strengths and weaknesses as interaction mediums. Particular attention is paid to each system's appropriateness to supporting the sort of kid-elder discourse Palaver Tree requires.

### **E-Mail**

E-mail is the primary interaction medium used in my pilot work for supporting kid-elder discourse. One of the main advantages of e-mail is its ubiquity. E-mail is by far the most prevalent online interaction medium, largely because it is both immediate and asynchronous – messages reach their destination quickly, but may be read at any time. In fact, e-mail has been shown to be one of the few groupware success stories (Grudin 1990).

E-mail has reached new levels of expressiveness with mailing lists, attachments, and HTML messages. However, to a large extent, these new features are tacked on, that is, they are not integral features the medium. In addition, e-mail provides little in the way of a central place for members of a community to come together, other than mailing lists.

## **Mailing Lists**

Mailing lists are the primary way to form relatively informal communities online (as was done in my Civil Rights years pilot study). Essentially, with a mailing list, people in a given community are able to send an e-mail message to the subscribers of the list. In the past, one of the key problems with mailing lists was that subscribers had no control over how they received messages. In addition, messages were not persistent unless a subscriber actively saved them locally.

Recently, web sites like OneList (<http://www.onelist.com/>) have begun to provide a place where members of a group can review messages. This is a simple concept but one with far-reaching implications. First, such sites give users far more control over how they participate in the list. In general, users can choose to have messages sent one at a time or as a daily digest. Users may also review past messages by visiting a web page, which provides a new level of persistence. Persistence is an important ingredient of online community.

Unfortunately, while mailing lists can be made persistent, they do not provide for any presence information about which other users are online, or an easy way to get background information on other subscribers.

## **Discussion Groups**

Online discussion groups (USENET, web-based discussions, etc.) bring people together in some of the same ways as mailing lists, but instead of reaching them all individually at a different e-mail addresses, discussion groups centralize all the discussion in one place. In addition, they generally have a hierarchical structure, with a visual indication of which messages are replies to other messages (threading).

This is getting closer to the sort of medium needed for online oral history discussions. However, in addition to a persistent, structured messaging medium, Palaver Tree needs to provide chat-like interaction. It is important to support chat-style interaction in order to make the most of situations where two or more people are online at the same time – to make their discussion feel more immediate and personalized.

## **Chat Rooms and Buddy Lists**

In many ways, chat rooms are the flip side of discussion groups. Typically, they provide for rapid-fire, quick-turnaround discussion, but offer little in the way of persistence. This has the effect of discouraging more thoughtful discussion because participants (1) feel pressure to respond quickly and (2) know their utterances are not saved, anyway.

Buddy lists such as ICQ (<http://www.icq.com/>) and Yahoo Messenger (<http://im.yahoo.com/>) offer a new twist on the chat room idea. They provide an index of “buddies” (friends who are currently available online) that users can instantly chat with. This provides an additional awareness indicator that is lacking from traditional chat rooms. In addition, many buddy list programs provide links to user home pages, providing additional context for discussion.

Buddy lists still do not, however, provide the persistence that is a necessary component of supporting users who are not always online at the same time. Online oral history requires a medium that offers discussion with the presence of buddy lists, the immediacy of chat rooms, and the robustness of newsgroup discussion.

## **Babble**

The Babble system (Erickson, Smith et al. 1999) provides a closer match to these needs, by providing a hybrid of newsgroup discussion and chat called semi-synchronous interaction. Babble discussions allow for quick interaction, with users sending messages back and forth instantly. In addition, the system saves the discussion, so users may review the discussion later. Finally, Babble provides a “social proxy,” an abstract representation of the users who are online, where they are located, and when they most recently spoke.

As close as Babble is to my ideal in terms of interaction medium, it is a general tool. I am tailoring the software to the specific purpose of supporting online oral history. While not necessary for Babble’s intended audience (workplace communication), my goals require support for online multimedia artifacts integrated with discussion. As an adherent to the constructionist philosophy, it is especially important for students to be able to share their work online and receive comments from elders and other students.

## **MOOs**

MOOs (Multi User Domain Object Oriented) are a different beast than many of the systems I have discussed so far. Essentially, a MOO is a text-based virtual world where users interact by having online discussions and building objects that have behaviors. As such, MOOs are far more flexible than many of the environments I have discussed – they can be modified to support a number of interaction styles.

For instance, creating an environment within a MOO that supports persistent, hierarchical discourse as well as text-based artifact creation would be relatively easy. In addition, MOOs already support the creation of a social environment, through visible descriptions of users within the system, and the ability to chat with others real-time.

While I could implement Palaver Tree in a MOO, the result would necessarily be impacted by the heritage of that environment. In particular, MOOs are strong on text, but deficient in graphics. I want students to be able to create and share multimedia artifacts. An additional problem is that, while one could build a discussion environment in a MOO, many of the affordances of graphical news browsers would be lost. Users would essentially be left with the ease of use of command-line newsreaders such as “rn.”

Recent years have seen the advent of graphical MOOs such as Microsoft Virtual Worlds. While these tools perhaps point to the future of online community, they are too technology intensive for current schools. In addition (and perhaps more importantly), they currently offer relatively poor support for text-based communication, as their focus is more strongly on the graphical modality.

## **7 The Case For a New Technology**

In thinking about these technologies, I was left with a fundamental question: Can one build a system that addresses the issues indicated above using existing technology? Numerous discussion group and chat room software packages exist that have more robust feature sets than would be possible to implement in a research project. Can they meet the needs of my user community or is development of additional software required?

I feel that the findings in the pilot studies mandate the development of a new software environment for the following core reasons:

### **No One Tool Will Suffice**

In order to achieve the interaction medium I seek, I would need to combine a number of existing technologies. No chat or buddy list software provides a robust, shared conversation logging facility. Likewise, no newsgroup software (web or otherwise) provides the immediate updating I seek. While Babble provides much of the required features, there is no support for online artifact creation or different user types.

My design calls for an integrated solution – one that combines profiles, discussion, and artifacts in an easy-to-navigate way. No one tool offers all this functionality in an integrated package.

### **Additional Tools**

While I will clearly not be able to add the complete functionality of some of the more robust commercial discussion software, there are a number of features that these packages lack that are important for my audience. For example, teachers will need a way to view their class' contributions to Palaver Tree and perhaps look at student discussions with elders alongside the artifacts that grew out of those discussions. No one off-the-shelf package offers this level of customizability.

I am also including tools for artifact creation (PalaverStories). While many schools already have graphics software, importing and uploading graphics to an online forum is not a trivial task. Palaver Tree will make this task simpler. In addition, integrating elder-provided images and text into artifacts would be a complex task in existing software packages. Palaver Tree will address these issues specifically.

### **User Interface Control and Feedback**

I am tailoring Palaver Tree Online for a particular audience and task. Each member of the community has a particular role they need to play in order for the online oral history process to work. Because Palaver Tree is designed from the ground up for oral history, I am able to provide this scaffolding in a way that existing systems cannot.

In addition, Palaver Tree needs to provide an interaction medium that makes the most of times when a number of people are online at the same time, in order to provide a feeling of presence and provide “ins” for discussion. Existing web discussion group software – from web-based discussions, to USENET – do not provide for the kind of presence support that I believe is so important to supporting meaningful kid-elder discourse.

In addition, while good feedback is important in any good interface, research has shown that interfaces may still need to be specially tailored for elders (Worden, Walker et al. 1997) and children (Bruckman 1998). For example, Bruckman states that when designing for children, I need to “hide nasty things under the carpet.” Many existing systems fall short in this category.

Finally, while combining existing tools might provide much of the functionality I seek, this would likely reduce usability. It is an unfortunate fact that established technologies have broadly differing interfaces. Thus, combining such technologies would necessarily entail a usability drop-off. I see usability as a fundamental feature of Palaver Tree and I am not prepared to sacrifice it.

## **8 Future Work**

In order to build a system which best supports meaningful kid-elder discourse online, I have chosen to build an online community of history. Palaver Tree Online will combine the best features of existing technologies with new elements aimed at supporting my target audience.

### **Thesis Statement**

My thesis statement and focus in the area of educational technology is:

*By building an online community that supports rich interaction between children and elders, I can improve children’s knowledge of and interest in history. In addition, I can reduce the amount of effort required of teachers to implement oral history projects in the classroom.*

## **Issues for Design**

My software design and future work in the classroom address a number of issues uncovered in my pilot work (Ellis, Bruckman et al. 1999). These issues and initial thoughts on solutions are presented below.

### **Supporting Teachers Managing Online Interaction**

A key difficulty in my pilot work was that a support person (the author) was required to spend several hours a day making sure students got replies, prompting elders to reply, and making sure the mailing lists worked appropriately. This kind of micro-management will not scale as a support person cannot be hired for each participating classroom. Thus, it is important that Palaver Tree automates more of this process and provides an easy way for teachers to move into this role – managing the interactions of students and elders online.

I am addressing this issue through the creation of a teacher-specific student management interface. This interface will provide an easy way for teachers to track each of their students' contributions to the community – in both discussions and artifacts. In addition, it will provide an overview of discussions and who has contributed, in order to scaffold their conversation management.

I believe much of the additional management problems experienced in the pilot work will be remedied in the move from e-mail and mailing lists to semi-synchronous open discussions. For example, open discussions allow many elders to answer student questions. In the e-mail interaction, if an elder did not respond the students they were working with, the students had no data to use in their project. By making the discussions more open, kids may get answers to their questions from several elders, minimizing the impact of unreliable elders. O'Neill has seen a similar effect in his move from the CoVis Mentor Database (an e-mail mentoring system) to more open Knowledge Forum databases (O'Neill and Scardamalia 2000).

It is my belief that this new manner of interaction will create a place where elders can support or dispute each other's stories, students model proper discussion technique for one another, and elders and students work together.

### **Understanding the Meaning of History**

Students are used to book learning. In my Civil Rights study, they had trouble making the connection between what they read in books and what they heard from their elder partners. How do I help them understand that history they hear from elders is just as valid as that which they read in books?

One way Palaver Tree might help with this problem is by providing a medium where elders can more easily share photographic artifacts and talk about them. Perhaps providing this additional evidence of their experience may help solidify the elder's role in history in students' minds.

As is the case with any educational technology project, however, software is only part of the solution. The teacher will play a critical role in helping students understand the significance of the elders' stories, before, during, and after the project. In addition to software, I will also provide a curriculum that will aid teachers in helping students to understand the meaning of elders' stories and helping them integrate book learning with oral history work.

### **Face-to-face vs. Online**

There is a certain power to face-to-face interaction that will likely never be replicated online – being in the same room as a powerful speaker is a unique experience. One local elder I worked with told wonderful stories to me verbally, but many of them did not make it into her e-mail response. How do I infuse online discourse with more of the power of face-to-face interaction?

I am taking a number of steps to move Palaver Tree closer to face-to-face interaction than existing technology. First, Palaver Tree provides a discussion space that combines the immediacy of chat with the robustness of newsgroup conversation. Second, the software provides an interface that makes it easy for elders to share photographs and other images, and for kids and elders to have discussions around them. Finally, Palaver Tree will support real-time presence information.

In an attempt to provide some of the context missing in text-based online interaction, I am encouraging each user to enter a profile, giving their background and perhaps a photo. (Users will be able to access profiles quickly by clicking on a user's name, wherever it appears.) Finally, Palaver Tree includes historical artifact creation tools for students – tools that will allow

them to combine stories provided by elders with their own text and artwork. Students and elders may then have online discussions about these artifacts and students may revise them. This kind of discussion was not possible in the pilot studies because student artifacts were not available online. (More detail on the operation of the software is provided in the section entitled “The Design of Palaver Tree Online.”)

### **Ownership Factor**

In the Civil Rights pilot study, students did not seem to feel ownership over the online discourse – it seemed more like a class requirement. How can I help them feel like the discourse is something they have the freedom to shape?

I believe that much of the reason students did not feel ownership of their interaction with elders in the pilot studies was due to limited time and resources. Specifically, not enough computers were available and there was not enough time for the kids and elders to work together. In designing the new study (see “Studying Palaver Tree in Use”), I have extended the period of interaction students have with elders. In addition, students will move to a computer lab so each student has more on-computer time than in my pilot work.

In terms of software, Palaver Tree Online moves from a one-on-one type of interaction (e-mail) to an open discussion forum style. This provides a way for students to get answers to their questions from multiple elders as well as see answers to questions posed by other kids. I feel that this interaction style will be more engaging and provide more of a feeling of ownership than the e-mail-based interaction in my pilot work.

### **Matching Kids with Elders**

How do I effectively match kids and elders? Teachers may be able to do some of the legwork, but filtering through the over 70-person profile database was already daunting for teachers in the pilot work. What if the database grows to 1000 people? I will need a better strategy.

The primary way Palaver Tree addresses this problem is by allowing elders to self-categorize. When elders join the community, they are asked what parts of history they would like to discuss with kids. Teachers are then able to search through the elder database for elders whose interests match the historical material they plan to cover.

An additional way to aid teachers in selecting elders is by providing ratings. In my pilot work, some elders wrote pages and pages of quality stories while others did not respond at all. Palaver Tree will provide a mechanism by which teachers may rate elders their class has worked with. In this way, future teachers know will have some idea of what they are getting into when they recruit a particular elder. For example, teachers might sort elders by rating and select highly rated ones to work with their students.

### **Scaffolding History Making**

In Palaver Tree, students will create online artifacts that reflect their new understanding. This has the dual advantage of allowing kids to share what they have learned with a larger audience and keeping elders up-to-date on their progress. However, the software needs to avoid simply creating a generic authoring kit or paint tool and, instead, focus on history recording. How can Palaver Tree support the creation of historical artifacts in particular?

To address this, I have taken ideas from a prior student historiography project, “Downtown Beaufort as a Classroom,” done at Lady’s Island Middle School in Beaufort, NC. In this project, students investigated local history by researching buildings in a nearby downtown area and produced a book. Each page of this book features graphics on the right and text written by students on the left.

Palaver Tree extends this design to electronic media, providing an artifact creation tool I call PalaverStory. This tool provides a paint area (MacPaint-style) on the left and rich text area on the right. Students can copy text and graphics from discussions, profiles and elder photos, and integrate them with their PalaverStories. Palaver Tree scaffolds the use of discussions and elder photos in PalaverStories through the use of the standard clipboard. Any text or graphic in the system can be cut and pasted into these artifacts.

In addition, an anchored discussion is associated with each PalaverStory students create, so elders can comment on the work and the student can revise it. In this way, elders and kids may work together to reach a shared understanding of elder stories and their historical relevance.

## **Division of Responsibility**

A key problem when building software for the classroom is addressing the division of responsibility between teacher, software, and students. Where should the software scaffolding end and teacher scaffolding begin? Where should they overlap? Where can students support each other?

I have aimed to make Palaver Tree strong in the sorts of supports teachers need, while allowing them flexibility in the sorts of projects they ultimately use it to do. For example, Palaver Tree allows teachers to easily establish their own Palaver Tree (with discussions and space for student artifacts), recruit elders to work with their class, and an announcement system for the whole group. Each user is scaffolded into their role in the community by an interface tailored to their user type, called a Home Screen. What the teacher does with these resources is largely up to them.

For example, PalaverStories do not limit teachers to a specific activity (or even a history-related activity). This is done specifically by design. I did an informal survey of several teachers that have done special projects in the past and found that the breadth of projects they are interested in doing within the community are best served by a tool that is reasonably open-ended. I could have included scaffolding for doing portraits of just one elder. While this would have perhaps somewhat simplified doing interview-style projects, it would box teachers in. Providing a more generalized tool gives teachers more control over how the software is integrated into their classroom.

Leaving the software reasonably open-ended is not a panacea, however. The breadth of projects that can be done involving kids and elders may overwhelm some teachers. To help reduce this problem, I will be including a number of “serving suggestions” that give teachers ideas for the sorts of projects they might do.

## **Software That Works in Today’s World**

There are essentially two types of educational technology research projects:

1. Real-world projects. These projects are intended to impact today’s classrooms and take into account the needs of current computer users as well as their technology constraints. A main

benefit of this approach is that the software can be tested in the environment for which it is intended and potentially have an impact on students today.

2. Future-thinking projects. These projects take a more long-term approach, projecting what technology will be available a number of years into the future and designing for that. A main benefit of this approach is that researchers are not constrained by current technology in their designs.

I have chosen the former approach for this work, primarily because I see the real-world deployment of a working system as an important step towards my scalability goal. Thus, in order to have Palaver Tree used in today's classrooms and by today's elders, the design with must take specific entry-level hardware and bandwidth considerations into account.

For this reason, I am not including audio and video support as core features of Palaver Tree. While many schools have high-bandwidth Internet connections, the same cannot be said of the elders they will be working with. For instance, the overwhelming majority of elders in my pilot work were connecting from home with modems. Thus, Palaver Tree focuses on text as the core interaction medium, with images as an additional option.

### **An Interaction Model for Online Oral History**

Palaver Tree is focused on providing a richer environment for teacher-scaffolded kid-elder discourse. Specifically, Palaver Tree provides tools to support teachers in recruiting elders and managing their classes online. I also aim to provide a place where elders feel comfortable sharing their stories and personal photos. Finally, Palaver Tree aims to be a place where students can take elders' stories and build meaningful artifacts based on them.

As such, Palaver Tree is designed to scaffold a complex social process. Thus, I have developed an extension of my prior interaction model. (Points indicated with an \* are software-scaffolded.)

1. Recruiting – teacher recruits elders \*
2. Background – students read literature as part of the standard curriculum
3. Brainstorming – kids brainstorm questions based on their reading & send them to elders \*

4. Elders Reply – elders respond with answers, stories, photos, cartoons \*
5. Going Deeper – students ask deeper questions based on elder replies (repeat from step 4 as necessary) \*
6. PalaverStories – kids build artifacts based on elder responses \*
7. Feedback – elders respond to PalaverStories \*
8. Revision – students revise their PalaverStories based on elder feedback (repeat from step 7 as necessary) \*
9. Finalization – PalaverStories are finalized \*

### **The Design of Palaver Tree Online**

The primary design goal for the Palaver Tree Online community is to provide a richer interaction medium for doing online oral history projects. Palaver Tree aims to move closer to face-to-face oral history interviews than the e-mail interaction used in my pilot work. In order to move towards a richer medium, the community includes three primary elements: Profiles, Discussion Space with anchored discussion, and the PalaverStory artifact creation tool.

An additional important component is the consideration and scaffolding of the roles kids, elders, and teachers need to play in order for the community to work. Home Screens, an interface designed to address these issues, is described in the “Scaffolding Social Roles” section below.

Taken together, these interface components are designed to carry out the interaction model mentioned above.

#### **Profiles**

Profiles provide important context missing from the e-mail interaction in my pilot work. Both students and elders in the pilot studies complained that they did not know much about those whom they were conversing via e-mail. A profile is a personal description within the community that gives some of this missing context – name, location, age, race, a photograph, and other optional information can be shared here (see Figure 1). Making these profiles available to all in the system allows users to get a better understanding of those who makes up the community.

In addition, in my pilot studies, teachers found picking elders out of the over 70 submissions to my volunteer database too time consuming. As mentioned above, profiles allow elders to self-categorize, that is, express an interest in discussing a particular type of history. Teachers can use this elder interest information to reduce the number of elders they have to search through in selecting folks to work with their students.

Finally, profiles are integrated throughout Palaver Tree. For instance, in a discussion or PalaverStory, clicking on a user's name will display the appropriate profile.

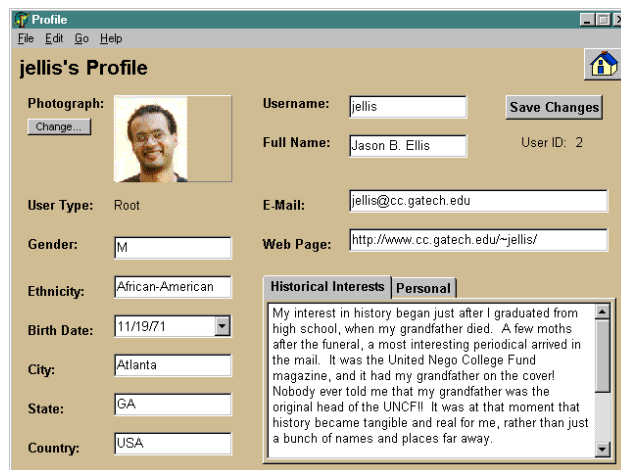


Figure 1: Profile interface.

## Discussion Space

Discussion space is where the majority of the interaction in the community takes place. As such, it is particularly important to provide a sense of immediacy when kids and elders are online at the same time. To this end, a chat-like interaction scheme would be most appropriate. However, in my pilot work I found that children and elders have very different schedules – kids are at school as early as 7 am, while the local elders I worked with typically got going around 10 or 11 am. Students typically got access to computers around 9 to 10 am for a very short window of time while elders worked later in the afternoon and evening for longer periods of time. Since kids and elders have such different life rhythms, it is essential that my system also support asynchronous communication (a la USENET newsgroups).

Thus, the Palaver Tree discussion space employs a technique known as semi-synchronous interaction, in a way similar to Babble (Erickson, Smith et al. 1999). Users online at the same

time interact in real time, increasing the feeling of presence (synchronous). This interaction is also saved so those who arrive late to the discussion can get up to speed, and the discussion can be reviewed once it is completed (asynchronous). In this way, I create a medium that combines the immediacy of chat with the robustness of newsgroup conversation.

Some of the specific features offered by Palaver Tree's discussion space (see Figure 2) are as follows:

- Replies – the ability to reply to previous comments. Palaver Tree does not provide a full hierarchical system (such as USENET), as I believe these to be too confusing for my target audience. Instead, I am creating separate discussions as threads, with a lightweight referencing mechanism (quoted text).
- Persistence & visibility – discussion is saved and visible to everyone, so students may leverage the discussions of others in PalaverStories.
- Presence – the ability to see who is currently logged in as well as a list of all the people associated with your class (teachers, elders, students).
- Instant updating – messages appear to everyone as soon as they are posted (semi-synchronous interaction). This provides an opening for immediate, real-time interaction between kids and elders. I believe this sort of real-time interaction will increase the feeling of talking to a real person for all involved.
- Overview – the ability to see a high-level view of the discussion and zoom in on details, in the tradition of Fisheye Views (Furnas 1986). The “Overview” side-panel allows users to track which postings they have and have not seen, and click to scroll the full text on-screen. I believe my variant of this technique will reduce the chances of users getting lost in the discussion space.
- Right-sized messages – support for more in-depth discourse than chat rooms, but not as long-winded as USENET. Chat rooms typically afford only short (sentence-long) utterances. USENET, on the other hand, has messages that drone on for page after page. In class, students only have time to read a limited amount of text. One way to find the middle ground

between these two extremes is through visual affordance. This affordance is provided in two ways: (1) a chat space that fits a certain size of post nicely, and (2) a dialog box that reminds users of the appropriate length of posts visually. This box will scroll, allowing for more text, but it is not as easy to write a post that doesn't fit within this constraint – a soft limit.

- Rich text messaging – support for underlining, italics, boldface, color, different fonts, and different font sizes. This will provide for a more expressive communication medium.
- New message tracking – showing users what is new on the site since their last visit, allowing them to see where the conversation has gone while they were away. New messages will appear bold in the overview, and discussions with new messages will appear bold in the discussion list.

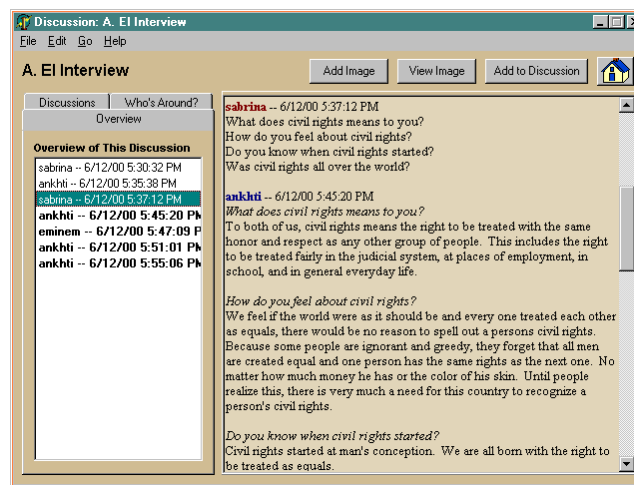


Figure 2: Discussion interface.

### PalaverStories

PalaverStories provide a place for students to synthesize what they have learned in the discussions and create a personally meaningful reflection of it. One of the key tenets of constructionism is the outward expression of one's understanding as a pedagogical tool – a distillation of one's thought processes, allowing for community-based feedback, correction, and encouragement.

Here, kids take discussions with elders and build a representation of it, combining graphics that show the story (elder-provided photos and their own drawings) with rich text that tells the story

(including quotes from elders and their own text). My tools are tailored particularly to the use of online discussions with elders in the creation of online historical posters and journals. Of course, these stories can also be printed out for use in the classroom.

A primary benefit of kid-created online stories is that elders can offer their feedback them. Each PalaverStory provides an outward representation of the child's understanding of an ongoing historical discussion. By looking at PalaverStories, elders may point out inconsistencies or errors in the child's understanding of the historical events discussed and the child will have an opportunity to revise and refine their ideas. In addition, moving stories online provides a central point for the discussion to revolve around, a form of anchored collaboration (Guzdial 1997).

The PalaverStory creation tool provides for the entry of both text and graphics side-by-side. Students illustrate their stories on the left of the screen using MacPaint-like tools, and then enter text on the right to tell the story using the standard text editing tools, including a spell checker (see Figure 3). Clicking on the graphical area shows the painting tools, and clicking on the textual area shows the text tools. Stories may have multiple pages. Pressing the "Discussion" takes the user to an anchored discussion about the project.

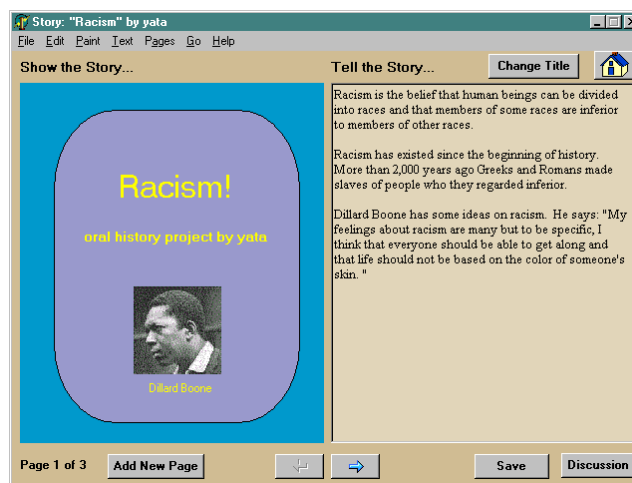


Figure 3: PalaverStory, showing title page of "Racism" story.

This design is partially inspired by Margaret Rushton's work at Lady's Island Middle School in Beaufort, South Carolina. In her recent project, "Downtown Beaufort as a Classroom," her class generated a book with a similar layout for historical stories. In her case, the stories were about the history of particular buildings in Downtown Beaufort. Each page has a drawing of the

building by students, with supporting text on the right side. My design is similar, but students may also add multiple pages to their PalaverStories.

PalaverStories have three states:

- **Started.** The student has started on a PalaverStory but has not requested feedback yet. Only teachers and other students in the class can see the story at this point.
- **Requesting Feedback.** The student has made significant progress on the PalaverStory and is requesting feedback on it from the other students and the elders working with the class. At this point, the PalaverStory is visible to everyone in the community. A discussion is created expressly for feedback on the project.
- **Finished.** The student is indicating that the PalaverStory is completed and there will no more revisions. Congratulations and complements are invited, but no more work will be done.

These states provide students privacy as they begin their PalaverStory (started), allow them to get feedback once they feel comfortable (requesting feedback), and then provides a way for students to have closure on their PalaverStory as the unit ends (finished). I believe that these three states provide a way to help students create a reflection of elders' stories without feeling self-conscious, and get meaningful feedback on their work.

### **Anchored Discussion**

How do I integrate PalaverStories and elder-provided photos with discussion? How can elders provide photos alongside discussion? How can students and elders have a discussion around a particular elder-provided image? How can students get feedback on their projects?

I considered allowing elders to attach photos to individual postings. However, this does not give the feeling of discussion *around* a set of media. With photos attached to each post, one needs to dig through the entire discourse to uncover all the photos provided. While such an approach could clearly be the basis for a meaningful community, I believe providing a central point – a central set of anchors for the discussion – will provide a stronger sense of purpose and direction for discussions in the community. Anchoring has been shown to significantly lengthen discussions (Guzdial 1997).

Palaver Tree's approach (Figure 4) provides a central place in each discussion where all the elder photos and kid stories appear. If there are media in a discussion, a resizable pane appears above the discussion and shows it as thumbnails.

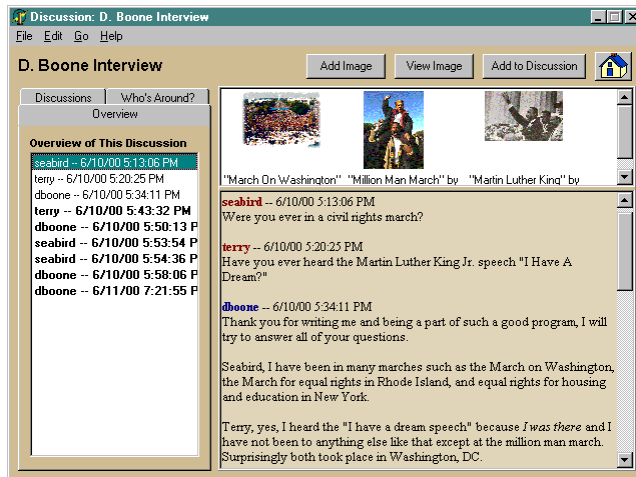


Figure 4: Anchored discussion interface.

This design takes inspiration from MediaText (Land 1993), a system that decouples graphics and text. MediaText pushes back from recent trends towards the imbedding of graphics in text and asks the question: “How many people feel comfortable writing on a canvas?” (Soloway, Guzdial et al. 1994). Thus, instead of imbedding graphics in the discussion text, I instead promote all graphics to a space above the discussion – giving them prominence and allowing all postings to reference them.

### Scaffolding Social Roles

Palaver Tree has three distinct user populations: children, elders, and teachers. These groups each have different needs from the system and designing an interface usable by all three is a challenge. Egan suggests four approaches to accommodating individual differences in software design (Egan 1988). These approaches move from user interface specific to targeted training:

- Robust interfaces. Designing one interface that serves all the user communities well. (Of the four approaches, this is perhaps the most similar to standard user interface design.)

- User prototypes. This approach entails the creation of descriptions of each user type and their needs. From these descriptions, designers then create and test different user interfaces tailored to each type of user's particular needs.
- Adaptive trainer systems. Creating a training wheels-style interface (Carroll and Carrithers 1984) that prevents certain common error types. An essential part of such interfaces is that there be a process by which users can be weaned from the training wheels interface to the actual interface. One proposal is to make such weaning an adaptive process so that users can get help in the areas where they are having the most trouble, while removing help in the areas where they are no longer experiencing problems.
- Automated Mastery Learning. Implementing a full-scale training curriculum that aims to even out differences between users.

Palaver Tree Online uses the “User Prototypes” approach. Egan suggests this approach is best when “users of the same system naturally fall into a few strongly defined groups.” This is certainly the case for Palaver Tree. Thus, I am creating separate interfaces for each of my three core user populations (kids, elders, and teachers) in order to facilitate and encourage the sorts of contributions I hope they will make to the community.

#### **Student Interface**

I hope students visit topics of discussion created by others as well as creating new discussions and working on their own stories. Thus, I have provided a prominent listing of the topics available and the stories they are working on (Figure 5).

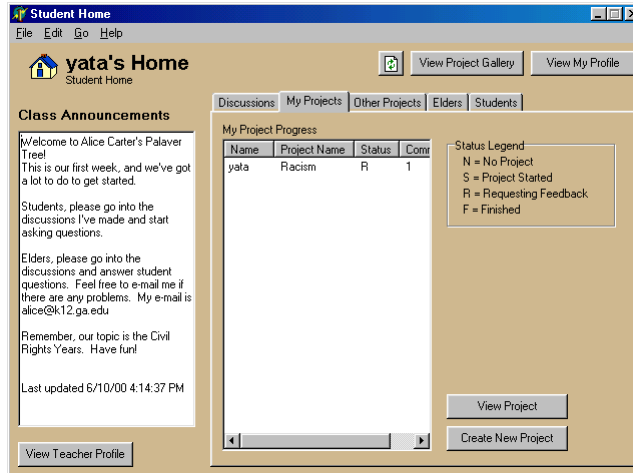


Figure 5: Student Home Screen

### Teacher Interface

Teachers will need to manage their students and recruit elders to work with them. Thus, I have created an interface for tracking student and elder contributions to the community, as well as a recruiting system for elders – available under the “Elder Progress” tab (Figure 6).

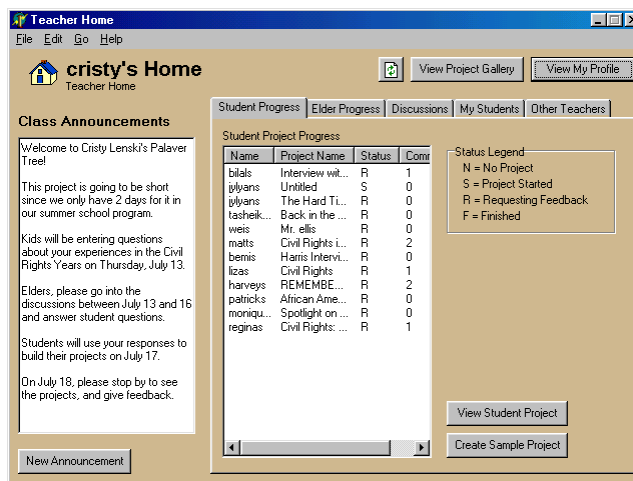


Figure 6: Teacher Home Screen

### Elder Interface

Elders will adopt a particular class and work with them, so it is important that they see what discussions those particular students are working in as well as the PalaverStories (Figure 7). An additional consideration when designing for elders is that some elders may have difficulty holding mice or reading small text. So far, this has not proven to be a problem with my interface, however I will continue looking for ways to tailor the interface to elders’ special needs.

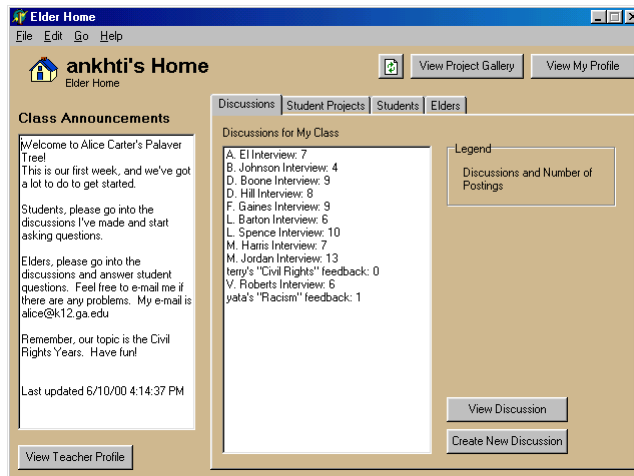


Figure 7: Elder Home Screen

### Common Features

While these interfaces emphasize different aspects of the community – teacher as organizer, elder as storyteller, student as active listener – they have many common features as well. Clearly, one of the dangers of providing separate interfaces to groups that one expects to work together is that they will complicate the communication process. For example, an elder might attempt to explain how to do something to a child, but the particular function is in a different place or absent in the child’s interface. For this reason, I have worked to keep the interfaces as consistent as possible, from terminology to the data displayed to placement of widgets.

For instance, each interface has an “Announcements” section on the left, which provides a way for the teacher to post a message that everyone working with his class can see. (Announcements provide a mechanism for each of students to be aware of not only the instructions they have been given, but also the instructions given to elders, and vice-versa.) The teacher is given a button that allows them to update the announcement, while kids and elders can only view it. The “New Announcement” button in the teacher interface is replaced with a “View Teacher Profile” button in the student and elder interfaces, allowing them to get more information about the posting teacher. In this way, the interface supports a consistent look and feel, while scaffolding the different needs and roles of users within the community.

In fact, one could consider the three interfaces to be a sort of permissions system, allowing kids, elders, and teachers access to only the appropriate features. This description is slightly

deceptive, however, in that the interfaces also *direct* users to parts of Palaver Tree where they can be the most productive.

### **Studying Palaver Tree Online in Use**

The evaluation of Palaver Tree Online will occur in two phases: formative and summative. In the formative phase, I will do iterative design of the software, testing with users and taking their feedback as input to the next design cycle. In the summative phase, I will do an in-depth study of the software in use.

#### **Formative Evaluation**

Palaver Tree Online was informally tested with students in a summer camp with students entering grades 6 through 8. The testing took place over five days in July 2000. The goal of the informal testing was to uncover usability and technology problems and to get initial feedback from kids.

Students were charged with creating a “Newspaper of the 22<sup>nd</sup> Century” throughout the duration of the two-week summer camp. As part of this newspaper, kids were required to do an interview, and Palaver Tree Online was used to create that portion of their newspapers.

There were two classes, morning and afternoon, with 23 and 27 students respectively. Students were split into groups of roughly 4, with one student charged as the “news person,” or computer operator. I personally recruited 11 Elders to be interviewed by the kids, and each news person was assigned an elder. Table 3 shows the time breakdown for the project.

<b>Day</b>	<b>Topic</b>	<b>Activities</b>
Day 1	Brainstorming	Teacher introduction of the project. Kids brainstorm questions for elders based on their knowledge of the civil rights years.
Day 2	Asking Questions	Introduction of the software. Students view prior e-mail based discussions through the Palaver Tree interface and brainstorm more questions. Students enter their questions.

Days 3-5 (Weekend)	Elders Respond	Elders read over questions from students. Elders respond to questions with their life stories.
Day 6	PalaverStory Creation	Students read through elder responses and create PalaverStories based on them. PalaverStory discussion forums become available.
Day 7-9	Elder Feedback	Elders view student PalaverStories and give feedback on them in the discussions.

Table 3: Time use in summer school formative evaluation.

This project was short – students only used the software for two hours maximum. However, I learned a great deal from it. A few of the major lessons are as follows:

- Kids and elders are largely not going to be online at the same time. Even if they are, there may not be time in the classroom for them really to make much of the interaction. As the software design moves forward, I need to emphasize the asynchronous interaction more strongly as that is the modality that will be used most often.
- E-mail has an integral part to play in the Palaver Tree community. Throughout this project, I needed to prompt elders to revisit the community at critical points – when the original questions were available, and when student projects were up. This may become less of a problem when the software is put into use over a longer period of time, and elders get used to visiting the community on a regular basis. Still, an automated e-mail reminder whenever the teacher’s announcement changes might be helpful.
- One-on-one interactions are problematic. Palaver Tree Online is tuned to doing more of an open discussion type approach to history discussion. In this study, I attempted to use it for doing interviews (this fit best with the teacher’s goals) and found, once again, that some elders are unreliable. Two elders had legitimate technical problems and could not work with the kids, but two others were unaccounted for and never logged into the system after promising to. Students were still able to do their projects by using interviews done by other students, but this is clearly not the best situation. The more open approach I advocate allows other elders to pick up the slack when a few are unreliable. My next study will need to move in this direction.

- A number of technical and user interface problems were uncovered that will be addressed in the next version of the software. Perhaps the most important issue for us to address is the coordination between Discussions and PalaverStories. Home Screens allow access to each of these individually, but often elders need to view the details of a PalaverStory while commenting on it. Students, as well, need to be able to view discussion while building their PalaverStories. This is currently possible, but it involves moving around windows. I want to make these tasks easier.

### **Summative Evaluation**

In order to assess the impact of Palaver Tree Online, I will do a study of the community in classrooms during the 2000-2001 schoolyear. I will study one or two classrooms in-depth (observation, interviews, etc.), but other classrooms will be encouraged to download and try the software as well. In these cases, I will look at the online data (discussions, elder photos, PalaverStories, and logs) in order to assess the impact of Palaver Tree.

As mentioned in the introduction, I am looking for three basic learning outcomes:

1. Understanding the nature of history. Learning that history is more than facts, but weighing and synthesizing data from many sources.
2. Learning historical content. Gaining an understanding of the broader historical context that surrounds historical material they are covering in class.
3. Valuing elders. Learning the value of elders and their life stories. Elders need not be classified as “heroes” by the historical mainstream to have valuable stories to share.

### *Teacher Support*

In order for the study to go smoothly, teacher support must be at the forefront of the design. Palaver Tree must be easy to use and maintain on the teacher side, yet be flexible enough that teachers do not feel boxed into a particular set of curriculum choices.

Neither of these goals is particularly easy to attain. Palaver Tree partially addresses the ease of use issue by offering an interface specifically for teachers that aids them in the management of

their classrooms. In addition, Palaver Tree will include “serving suggestions” for teachers that provide example uses of the software in a standard classroom.

#### *Classroom Timetable*

A major issue in my pilot work was time. Kid-elder exchanges occurred over the course of three weeks, during which students had to introduce themselves to elders, exchange question and answer e-mails, and do their final project. This amount of time was too short for them to feel much ownership over their exchanges.

In this study, I will attempt to deepen the interactions kids have with elders by providing more time for them to get to know elders before the core of the unit begins. I do this by providing a lead-in period of informal interaction where the kids get to know the software and elders through pen-pal-like exchanges via in-class computers. After three weeks of informal interaction, students begin the heart of the unit.

The final study will cover an approximate ten-week timeline with four weeks of heavy involvement (see Table 4). The initial two weeks are devoted to software setup, unit design, and elder recruitment (Preparation). The next three weeks involve the introduction of the unit, with kids beginning to exchange short messages with elders in order to gain familiarity with their correspondents and the software (Pen-pal). The final four weeks compose the actual month-long unit, with one larger block of time each week being allotted to student-elder interaction in a computer lab. First, students will interview elders for two weeks (Interviewing). Then, they will create PalaverStories and get feedback on them (PalaverStories). A final week is left for potential time overruns.

Please note that, although I worked with teachers to create this schedule, it is not set in stone.

One of the largest lessons learned in my pilot work is that one must be flexible when working in the classroom. Thus, please take the following schedule as more of a guide than law.

Preparation Week 1:	Installation of software. Permission slips sent home. Initial recruiting of elders by teacher. Begin unit design, using Palaver Tree curriculum guide as a model.
Preparation Week 2:	Teacher becomes familiar with software. Permission slips returned to us. Receive responses from elders and decide which ones use. Complete unit design.
Pen-pal Week 3:	Student introduction to software (50 minutes) Brainstorm pen-pal questions based on reading & post them (50 minutes)
Pen-pal Week 4:	Informal pen-pal-like interaction with elders. (50 minutes)
Pen-pal Week 5:	Informal pen-pal-like interaction with elders. (50 minutes) Teacher introduces formal use of software. Students decide their project topic.
Interviewing Week 6:	Students spend two days of the week (100 minutes) interviewing elders online. Students brainstorm questions based on readings from the curriculum. Students send initial project-related messages to elders.
Interviewing Week 7:	Students spend two days of the week (100 minutes) interviewing elders online (computer lab). Students finish interviews. Begin work on PalaverStories, get elder feedback.
PalaverStories Week 8:	Students spend two days of the week (100 minutes) working on their PalaverStories. Elders give feedback on the PalaverStories as they progress. Continue work on PalaverStories with elder feedback.
PalaverStories Week 9:	Students spend two days of the week (100 minutes) working on their PalaverStories. Elders give feedback on the PalaverStories as they progress. Students finalize their PalaverStories.
Week 10:	(Buffer Week)

Table 4: Hypothetical classroom implementation schedule.

### *Experimental Design*

For the study at hand, I am employing interviews, discourse analysis, and artifact analysis to uncover evidence of learning in the Palaver Tree Online community:

- Discourse analysis. Coding of online communication will use the typical inductive process of reading and coding each message, proceeding to the next one, attempting to apply the existing categories, and where necessary, creating new ones. Chi provides a thoughtful guide to discourse analysis (Chi 1997).
- Artifact analysis. Analysis of online artifacts will use a rubric, developed to help categorize different aspects of project quality in a meaningful way. Baron and Wolf provide a good overview of project analysis techniques (Baron and Wolf 1996).
- Interviews. Pre- and post- interviews with teachers, and a subset of students and elders. My interview technique follows the standards set forth by Seidman (Seidman 1998).

I will look for evidence of four types of learning:

- Synthesis – making artifacts from discussions with elders, using evidence to support a point, revising based on feedback. (artifact analysis)
- Interview skills – formulation of questions and follow-up questions. (discourse analysis)
- Attitudinal change – changes in attitudes about history and elders. (interviews, discourse analysis, artifact analysis)
- Historiography – learning what it means to be a historian, learning that history is more complex than facts in a book (interviews)

An additional problem with the pilot work was the age range of the students. It is my intuition that 6<sup>th</sup> graders (Civil Rights years pilot) are too young to do this kind of in-depth oral history work. In the original pilot work with 8<sup>th</sup> graders (WWII pilot), that age range appeared to grasp and connect with the ideas of online oral history much more readily. Thus, I am targeting 8<sup>th</sup> and 9<sup>th</sup> grade classrooms for my final study.

Finally, while my focus is on one or two classrooms, I am planning to deploy Palaver Tree Online to other classrooms around the country. I will not be doing in-depth interviews with the students in those classes, but I will explore how they interact online and leverage each other's contributions by analyzing their online work.

## **9 Research Summary**

In this proposal, I have demonstrated the value of an online community that supports interaction between children and elders. I presented definitions of oral history, constructionism, online community, and scalability, the key ideological foundations of this work. Next, I described why doing oral history projects in the classroom is a difficult process and identified a number of ways in which an online community of history has the potential to reduce this difficulty. I reviewed related online educational environments that aim to create communities of learners and integrate adult topic experts. Next, I reviewed my pilot work in exploring the ability of existing technology to support online interaction between kids and elders. I then examined a number of existing technologies in light of the needs uncovered by my pilot work. In light of this exploration of existing technologies, I discussed why a new software system is needed. Finally, I discussed the design of the software system I have implemented and how I plan to study its effectiveness.

### **Research Goals**

The primary top-level goals of this research are as follows:

- Background work. Understanding the audience I am designing for (kids, elders, teachers), the context my software will be deployed in, and the need. This is my pilot work.
- Implementation of software. Designing and implementing a software system that will provide a richer interaction medium than e-mail and mailing lists alone.
- Study of impact. Placing my software in the hands of the target users and studying its impact on student knowledge of history.

## **Expected Contributions**

The primary contribution of this work is the demonstration of a new way to improve students' knowledge and interest in history, particularly oral history. Many of the changes I hope to see are attitudinal in nature – a child that, after participating, seeks out family or neighborhood elders and learns their stories, for example.

A second contribution is the lowering of the amount of teacher effort required to do oral history projects. I believe that Palaver Tree will make it possible for more teachers to do such projects.

Another contribution of this work is that of a richer interaction medium for history exchange than existing technologies. Palaver Tree provides a community that integrates a robust discussion medium with artifact creation tools, and anchored collaboration around artifacts in order to bring kids and elders together. This community approach to learning history provides an important addition to the Learning Sciences literature on teaching history.

This community provides a way to make thoughtful adults part of the educational process. Many have discussed the importance community involvement in the educational process. Palaver Tree looks at the educational impact of such interaction, a contribution to the Learning Sciences.

Palaver Tree demonstrates one way to scaffold social roles in this complex oral history environment. I believe this will provide a significant contribution to the field of Human-Computer Interaction.

Finally, Palaver Tree is designed to be a toolkit that many teachers can use without my assistance – providing for a scalable community that has the potential to grow arbitrarily large. The design of an inherently scalable community holds important lessons for the Online Community research field.

## **Timetable for Completion**

In this section, I provide a timeline for completing the work outlined in the “Future Work” section of this document.

Pilot Work (Completed June 1999)

- World War II Pilot Study – proof of concept (May 1998)
- Civil Rights Years Pilot Study – test of evaluation methods (April-May 1999)
- Analysis of results became CSCL '99 Paper

#### Design & Implementation of Software (July 1999-January 2001)

- Design of software based on lessons from pilot work
- Implementation of software in Borland Delphi
- Formative evaluation of software
- Design of software became CHI 2001 Submission
- Revision of software based on results from formative evaluation

#### Experimental Setup (October 2000-January 2001)

- Recruiting teachers for in-depth study
- Recruiting additional elders
- PhD Proposal in November 2000
- Details of experimental design – rubric design, lesson planning

#### Software Release & Study (January 2001-June 2001)

- Software released in January 2001
- Study with first teacher (February-March 2001)
- Study with second teacher (May-June 2001)
- Data analysis is ongoing as the studies progress

#### Analysis of Data & Writing Thesis (July 2001-January 2002)

- Data analysis continues – comparison of data from classes studied
- Write thesis based on studies and data analysis

Defense of Research: February 2002

Submission of Thesis: June 2002

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