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American Timewarp: A Virtual Community of History

Introduction

History is a topic many school-children find repugnant. From stories of lands and times far away, to far removed people (mostly white, mostly men), history is something that kids have a difficult time attaching to their daily lives. In fact, many histories presented in textbooks are removed from any kind of realistic context. It is difficult for anyone, much less children, to relate to "history" presented in this manner [9].

This is especially problematic for groups that are historically underrepresented. Their heritage is clearly just as rich as those of majority groups, but their stories are seldom told, many times even within the group. For instance, a local Atlanta Public School, the Walden school, is 99% African-American and the school is walking distance from the Sweet Auburn historical preservation district. Before last year, however, none of the kids had been to the site or even knew of its existence.

Oral history provides one way to capture these stories and help kids understand their importance. This paper discusses a system, American Timewarp (AT), designed to leverage the historical knowledge contained in local and distant communities and create a distributed community of learners. Helping kids appreciate and enjoy history is essential as, in the words of George Santayana, "Those who cannot remember the past are condemned to repeat it." Children with no

knowledge of the past will have a more difficult time dealing with today's world, let alone the future.

What is American Timewarp?

Based on many of the same principles as MOOSE Crossing [2], American Timewarp (AT) is a constructionist [11] virtual community. However, where MOOSE Crossing is a text-only environment where kids learn to program by constructing a virtual world, AT allows kids to learn about history in more graphical surroundings.

AT invites kids to "build history" by piecing together oral histories they collect, supplemented by other sources. The histories will be completely built by kids, with senior citizens, historians, and other volunteers aiding them. Teachers will play an editorial role.

The intention is to build an environment within which many different points of view on history can be exchanged and discussed. A place where people in different parts of the country can come together and contribute to the history collection process. A place where history comes alive.

Audience

American Timewarp is designed to with children and seniors at its core. Children bring a fearlessness of computing technology and an eagerness to learn, while seniors contribute a lifetime of historical knowledge and first-hand experience they want to share.

Bringing these two groups together gives each of them a chance to leverage their skill sets for a higher cause while learning something about the other group. Since both groups also have a fair

amount of leisure time on average, we believe their participation will give them a sense of accomplishment and a sense of being needed.

Other participants include teachers who bring their classes online. Kids need not be in any class to use the system, but we reserve the right to warn and/or remove accounts of people who refuse to abide by the rules of the site. We must be careful to manage deviant behavior in the system, remembering that problems can escalate if not managed properly [3]. In addition, teachers may invite seniors, historians, and others with historical knowledge to participate online.

An important thing to note about the system is that none of the participants need be collocated. In particular, seniors and historians need not be anywhere near the students constructing the site. American Timewarp allows kids to pull knowledge from all corners of the world.

The site is constantly on display. Artifacts kids build are immediately viewable by other students. Visitors may also stop in and view public artifacts but may not participate without registering. Teachers must OK artifacts before they are available to the public, though. More on this later.

Building for Community

An important component of any virtual community is the metaphor. We want to evoke a place in the users' minds when they first arrive at the site -- a place where something exciting is going on. For this community, we have chosen the metaphor of a newspaper. This is no ordinary newspaper, however. Here, the reporters report mostly on the past, with the present taking something of a back seat. These kids are the Timewarp Reporters. Their charge? Collect and record the past as a time capsule for the future!

The Timewarp Reporters' home base is a publication called "The Warp." The lobby of this publication is the first of three static areas of AT that users will encounter. The remaining two are the Café and reporter offices. A final area, we call the "Timewarp Production Center," contains all of the histories kids construct. More on how this is laid out later; for now, just consider each history -- each artifact -- a separate area.

A number of things are common among all of the areas. For instance, each has an associated bulletin board (BB) and chat. It should be noted that all BB's are available from anywhere, but the default in any given room is the BB for that room. One must go to the proper room in order to participate in that room's chat, however.

Each area allows access to a map which gives a sense of where the user is and the ability to jump anywhere else in the system with a single click. A "go back" button gives users the ability to return to previously visited areas. There is also an entry point to the help system in every location.

The Lobby

As we enter AT, we find ourselves in the very lived-in lobby of "The Warp" (see key screen 1). The place has a very homey feel and lots of character. You certainly know you've come to an interesting place. It's an old building and floors are hard-wood and creak slightly as one walks across. A skylight above lets in some light that conveniently surrounds the U shaped desk that sits in the middle of the room.

The desk serves as a central hub for the site. It offers a tutorial for new users, tailored for each type of user (student, teacher, senior, etc.). This is also where the system owners post messages general to everyone. Copies of the code of conduct are prominent here as well as well as contact information for the owners.

Finally, there will be a weekly poll, inspired by a similar poll in Jazz Central Station [7]. Each week we will feature a historical question with multiple choice answers. At the end of the week, we will post the correct answer in the Café along with statistics on how many people gave each answer. This will give teachers a basic sense of the knowledge base of the community as well as provide a fun way for kids to increase their historical knowledge weekly.

The Café

To the right of the desk is the entrance to the site's Café. This is where users go to hang out when they aren't working. Here all the general BB groups are front and center -- basic history chat, virtual and real life event announcements, discussions on how to do interviews, etc. There are also a number of general and scheduled BB discussions, especially Q&A sessions with famous people, historians, and seniors.

Office Space

Behind the desk is a stairway that leads up to the offices. Upon entering this area, users are presented with an overview of all the offices -- each class that's online gets its own wing of the building. Users may enter the offices of other users provided the door is open. When visiting the office of another, though, one can only view its contents, not make changes. Teachers may post announcements at the entrance to their wing for all their students to read.

Each user gets their own office which they may personalize in any way they like, adding new background, moving furniture around, etc. Much of this is just for cosmetic appeal but it also serves as a key method of free-form self expression within the system. The default BB's in an office are the favorites for that user.

Another important use for offices is the display of artifacts. Users may create "artifact portraits" (AP) which are hung on the walls. These portraits are thumbnails of artifacts they are currently working on and/or are most proud of. Clicking on portrait takes us to the screen for that artifact. In this way, AP's serve as bookmarks for the office owner. In addition, they form a kind of gallery for the visitor, allowing them to get a sense of the office owner's contribution to the site.

Teachers also get offices, and are encouraged to create galleries of artifact portraits within them that showcase their students' talents. Such galleries may announce "openings" in order to create an incentive for their own class as well as encourage other classes to come by and explore the work of another group.

Artifacts

The final exit from the lobby is to the left -- an entrance to the "Timewarp Production Center." This is the heart of the site since it is where all the artifacts are created and displayed. Users who enter here have a choice: they may view the artifacts by person, place, or event since these are the atoms of which all the histories on AT are composed. We chose to create a decomposition of artifacts because of the navigational aid it provides. We chose this particular decomposition for its simplicity and flexibility.

Whichever we choose, the background changes color to reflect that type of artifact we've selected. Next we are presented a list of all the artifacts of that type. We may list all the artifacts, just those created by our class, etc. An African-American history focused project, for instance, might include a list of people such as Martin Luther King, Malcolm X, George Washington Carver, etc. A list of places might include the King Birth Home, Sweet Auburn Avenue, and Washington, D.C. A list

of events might include the March on Washington, the shooting of Dr. King, and Plessy v. Ferguson.

There will also be a search facility to help folks find what they are looking for. If the artifact a student is seeking does not exist, they are encouraged to create it themselves, entering the name, pertinent dates, a summary, and providing a photo.

Other kids may visit an artifact you create (see key screen 2) and add stories to it, but they cannot change the basic introductory information written by the creating user. Stories may contain text, audio, graphics, movies, and other media types. Part of the code of conduct will cover the intellectual property issues involved with using these kinds of materials.

Any user may create links for the artifact. A link connects an artifact to a related artifact. For instance, one might connect The King Center in Atlanta to Coretta Scott King, its founder. These links help new users and visitors find related information, and also help students stay in touch with folks working on adjacent artifacts. More on the uses of adjacency in the next section.

Communication Specifics

This leads us to one of the key ingredients of an online community: communication. How do people interact online? In American Timewarp, there are three basic ways: Chat, BB's, and e-mail. Each of these is accessible from every screen by clicking the "talk" icon which shows a communications bar at the bottom of the screen. Users may then choose the communications mode they want from this bar.

Asynchronous Messaging

Asynchronous techniques are perhaps the most familiar -- posting or sending a message that may be read by other users at a later time. AT supports one such technique: e-mail. As on the Internet, e-mail within AT is purely point-to-point. Users send messages to other users of the system and only the addressee may view them.

One might initially think that the BB's within AT would also qualify as asynchronous and they do. As we will see later, however, they also operate as an synchronous medium, making BB's a hybrid messaging technology.

Synchronous Messaging

We believe much of the interaction on AT will occur synchronously, that is, in real time. When we are in Chat mode, the bottom third of the screen displays the faces of all the people collocated with us (see key screen 2). If we are working on an artifact, all the people in adjacent artifacts are displayed smaller and in the background. The technique produces an appearance similar to a synthetic group photo [6]. This gives a sense of presence to the folks who are working alongside us.

By mousing over a face, we get the name of the person and the artifact they are working on (if we are not collocated). A menu is also displayed that allows us to send them a chat message, ignore all messages from them and so on.

Users may send anyone else in the same room a "chat message" which appears as a word balloon over their icon's head. One may also send a general chat message which is visible to everyone

who is collocated or adjacent. Messages sent to a particular user will appear to that user no matter what they are doing. General messages are only visible to users in the Chat mode.

Both one-on-one and general chat messages are limited to a short string, much like the "doing" field in Ding! [4]. Typically, we envision users using this feature to give quick updates, make short suggestions, or invite users to meet them on a BB for a more in-depth discussion..

Chat provides a way to have lightweight interaction and presence representation. For more in-depth discussions, users are encouraged to use the BB feature.

Hybrid Messaging

There is a specific bulletin board for each area, but all of them are accessible from anywhere. On BB's, folks post messages for everyone else to read. These operate very similarly to USENET newsgroups, complete with threading and the ability to have moderated groups. Unlike chat, messages may be of any length.

One key difference from standard newsgroups, however, is the fact that these groups can function as a synchronous medium as well. Like Babble [1], this system supports rapid posting and updates, so users who are posting at the same time may communicate in a chat-like manner, with the advantage of their chat being recorded for future reference. This is an important feature as it serves as an audit-trail for the decisions made about a particular artifact. Future users curious about how the artifact developed have this history available to them. Users entering a discussion late have a way to catch up. Finally, if users really wish a private conversation, they may retreat to their office and have discussion that is recorded only for them and is not publicly available.

We have divided the communications between lightweight (Chat) and heavyweight (BB's) since many graphical chat interfaces have trouble supporting quality in-depth communications [10] and/or large groups [12]. Chat is intended for first contact situations and presence indication, BB's are where the real hard-core discussion takes place.

People Finder

The users one might want to interact with are not always going to be collocated with them. The People Finder feature provides a way to locate other users and send them messages. Clicking this tab takes the user to a dynamically updated list of "who's online and where." From here, a user may elect to another them a chat message and ask them to meet somewhere for a BB discussion session, for instance.

Communication Scenario

Now we have seen all the features of the communication system, but how are they useful? This section gives a brief scenario exploring how some of the features might be used.

Danny is working on The King Center and has a problem. He is writing about when the center was built but doesn't know when the MLK tomb was added. He sends a general message in chat, "Anyone know when the MLK tomb was added?" and several people message him directly that they do not.

Danny checks the PeopleFinder and notices that several historians are online. One, in particular, named Bob, is listed as an expert on Auburn Ave. among other things. Danny sends a chat message to the historian and asks for a meeting on the King Center BB. Bob messages back: "OK, be there in a minute."

Danny switches to the BB by clicking on "Bulletin Board" at the bottom of the artifact screen and works on another part of the King Center until the expert arrives. Danny and the expert talk for a while by posting back and forth and the discussion ranges into all different aspects of Auburn. Unfortunately, the expert does not know exactly when the tomb was added to the King center however. He does point Danny to another expert who is a member of AT but is not logged in.

Danny thanks Bob, exits the BBS, and sends the second expert, Sandy, an e-mail. He works for a while on artifacts adjacent to the King Center. Eventually, he checks his mail and finds a message from Sandy describing the King tomb in great detail. He runs back to the King Center and finishes his story.

A few minutes later, there is a general message from a student working on Auburn Ave., an adjacent artifact. Danny messages him back explaining that he just had a lengthy discussion about it and points the student to the BB for the King Center.

Cyclic Events

Another way that AT works to build community is by supporting cyclic events. The administrators of the site, for instance, run a weekly poll. A historical question is posted and a multiple choice answer form is provided. At the end of the week, the results of the poll are displayed in the Café section along with the correct answer. Polls will be themed in that we will try to synchronize them with ongoing projects.

Teachers and site administrators will work together to organize a monthly BB discussion with a volunteer -- historian or senior. Kids from many different classrooms could come to the Café and

discuss the volunteer's area of expertise in a moderated BB discussion. Other discussions might be started to talk about importance of holidays or the anniversaries of historic events.

In addition, the administrators will publish a monthly e-mail newsletter showcasing interesting artifacts within the site along with announcements of upcoming events and pointers to outside resources. This newsletter is intended to both draw the current community together and get outside communities interested in joining.

Teachers will also be encouraged to set up real-life meetings for their students with key volunteers. The suggested format for such meetings will be meeting in person as the project starts up and have the kids chat with the volunteers (historians and seniors) for an hour or so. Go online for the bulk of the project, with volunteers collaborating with kids synchronously or asynchronously. Then the project would end with a "wrap party" where the kids and volunteers would come together for a meal and discuss the site's progress in person one last time.

Roles in the Community

Up until now, we have discussed teachers, system administrators, kids, and historians/seniors with a vague notion of how each would contribute to AT. Some part of these roles may be clear simply in the carryover from their real-life roles. What may not be so clear, though, is there are two categories of users: leaders and contributors.

Leaders

Teachers are probably the highest-profile leaders in the community. Generally collocated with their class, they have physical presence and are known and respected quantities with their students.

They will work directly with their classes as they create artifacts and perhaps lend their expertise and insight to other classes as they have time.

As we discussed earlier, they will organize historians and other volunteers coming online as well as moderating kids' discussions with them. Hence, teachers will have rights to create new BB's and control the content therein if they choose.

In addition, teachers will be responsible for the content their classes contribute. Teachers are given the power to OK content their students contribute before it becomes viewable by visitors. They may also edit the content their students create but we encourage them to offer editorial comments and let the kids make the modifications themselves.

Teachers have a special representation online. Their icon appears with a graduation cap, and a smaller version of this icon appears trailing all occurrences of their login name in the system. This makes it easy for kids to identify a nearby teacher if they have a question.

The other group of leaders, the administrative staff, tries to keep a much lower profile. This staff will be in same place as the main AT server, that is, at Georgia Tech. Perhaps several folks in the ELC group will maintain the system once it is started up, but at the beginning the author will most likely be in this role by himself.

System administrators will be the Uber-Hosts, as Amy Jo Kim puts it [8], that instruct incoming teachers on how to manage their students in the environment. We will provide them a hosting manual and answer questions as they come in. In addition, we will monitor the system for any problem behavior by kids and inform the teacher and/or give the kid a warning.

Certainly, one key role if the administrators is to keep the system up and running. We will need to listen to users in order to get feedback on performance problems and other bugs they encounter. In addition, we must take into account user suggestions, not only for systematic improvements, but also for additions to the code of conduct among other things.

Administrators also have a special appearance online. Their icon is endowed with a rounded hat that says "elc" on the front, indicating their affiliation with the owner organization, ELC. This lets kids and teachers know where to direct technical questions.

Contributors

The obvious contributors are the kids. They build the site and everyone else is their consultant -- essentially running support for them. When a kid creates an artifact, they own it. They must enter summary and background information as well as providing a photo for the artifact. No other kids can change this information, but other kids may add stories to the artifact or link it to other artifacts in the system.

Teachers, as we mentioned before, reserve the right to edit whatever the kids write before it is published for visitors to see. Editorials are encouraged to be in the form of comments to the kids, allowing the kids the dignity and control to edit their contribution in a way they see fit. This also pedagogical value as the kids do not just have things cleaned up for them. Instead, kids must make the changes themselves, forcing them to understand the problem and devise a solution.

The final set of contributors are seniors and historians. These folks are the primary resource for the site as living encyclopedias of historical knowledge that are eager to share. We believe how special the site is depends largely on the interaction of these folks with the kids. Our experience

thus far (a small pilot project with World War II veterans) has shown that these interactions are seen as valuable by both groups.

As mentioned previously, these folks may be introduced to the site via a moderated discussion. Our hope is that, after they have been introduced, many will want to come back and participate more regularly. We will have an open door policy for them, giving them access they may use at will.

In keeping with their role, these folks will not be able to modify any of the artifacts. Instead, they will spend a great deal of their time interacting with students, be it in Chat or BB's. Their icon will be customized as with teachers and administrators. However, since we especially value their time, we will give them a more serious and dignified icon modification -- a star on the lapel.

Visitors

A final set of users are the visitors. These folks have only the right to view teacher-approved material. They are not represented by an icon and need not provide a username and password to access the system. They may participate in some specially earmarked discussions, but in general they are just there to view what the kids have created.

Filling a Role

Since AT has four different participatory roles, it is clear that we will need some way to give those who take on the roles separate guidance. In addition, we need a way to be sure of the credentials of those who take on the roles. Especially in an environment that is designed to be safe for kids, we cannot afford to have any of the impersonation or other deceptions that occur many times in other online communities [5].

We have chosen to attack both of these problems by requiring all contributing users (read non-visitors) fill out and mail in a registration form. Each form will require the signer to indicate that they have read the rules and regulations for their role and will execute them to the best of their ability. Seniors and historians will need to indicate their area(s) of expertise and provide some support for their claims. These forms will take on a flavor similar to those required of participants in MOOSE Crossing.

Future Work

A number of issues came up in working on this project that we were not able to solve entirely. This section contains the details of some of the more important problems.

Handling children not affiliated with a class. We want the system to be open to all kids, even those not affiliated with a class that is registered with the system. However, it is not entirely clear how to manage these kids as kids in classes will have the more direct supervision of their teacher. Perhaps the agreement they sign is enough, but we think the administrative staff might have to keep a special eye out for "unattached" children.

Teacher tools. We need an easy way to allow teachers to view the accomplishments of their class, separate from any links to the work of other classes. In addition, teachers should be able to list the work of just one kid in their class. The easy way to do this is to provide a list of classes and a list of kids and allow the teacher to simply point and click to show the stories and artifacts they have contributed.

The problem with this is that there is no overview. There is no clear way to see all of the parts of the site a child or class has touched. Creating a better overview technique is left to future work.

In addition, teachers need a way to view all the artifacts that must be read and OK-ed so they can be displayed publicly. Perhaps they also need a way to indicate to students what still needs to be done -- providing checklists for artifacts. All in all, teachers need a specialized interface that allows them to maintain their classes, understand their impact, and provide them guidance.

Showing/hiding the communications bar. Right now, the communications bar is shown by clicking on a "talk" icon at the top of the screen. Hiding it is another matter. Should kids click on the icon again to close it? Should the icon disappear once the bar is shown? Should we use a different metaphor all together, perhaps making the bar a separate window? All of these questions need to be answered before the real version of the system is made available.

Direct vs. general chat messages. It seems that chat messages should appear differently if sent directly to you or to everyone in your location. It is not clear how best to differentiate them, however. Perhaps we could have different balloon types for the different types of messages or make the balloons different colors.

Still, if you send a direct message to someone, you probably want to be sure that they actually received it. Perhaps making general messages disappear after 10 seconds, but forcing users to click to dismiss direct messages is a reasonable answer.

Too many people in chat. Another problem in Chat is that there may not be room to show everyone's icon. One solution for this is to have word bubbles coming from the side of the screen to indicate someone who is off-screen talking. Another helpful addition would be allowing users to select which users are their most important collaborators, and making sure their faces appear. In the first version of the system, though, our solution to this problem is to have folks move to at BB discussion to give everyone equal billing.

Interface specification. We have not fully fleshed out how the interfaces for offices, the Café, bulletin boards, mail, weekly polls, and others would operate. While the operation of the latter ones might be somewhat clear as they are based on well known systems, we clearly need to fully specify these before we start building them.

Name problems. Currently we have no better name for the artifacts that kids create than just that -- artifacts. We should come up with a better name to get kids more excited. Also, the name American Timewarp is slightly misleading because kids are not necessarily traveling in time. For instance, they could be creating artifacts about buildings that have just been put up. We may need to use a slightly different metaphor in future versions of the system.

Navigation. The current version of the system allows kids to navigate by selecting an adjacent artifact from a scrolling list or going to an overview "map" which is essentially a listing of artifacts. We need a better navigation metaphor.

We initially thought of using a hyperbolic tree to let kids navigate through the semantic (link) relationships, but that is too far removed from the rest of the metaphor. Creating a better navigational system is left as an unsolved problem as well.

Conclusion

American Timewarp is a proposed virtual community for constructing and exploring history. It is designed to pull together groups of learners and resources for those learners, managed by a layer of teachers and administrators.

The system addresses a major problem in many schools -- the fact that history is not engaging so children do not understand its importance. Consequently, kids come away remembering only dates and miscellaneous unconnected facts. Many do not learn the important lesson that they can have a tangible effect on things in the here and now.

American Timewarp takes several steps towards rectifying this problem, but perhaps most importantly, it attempts to make history real for children. Through AT, kids learn that history is something that was experienced and created by people around them in their own community and across the country. They learn that history is something that really happened and that the outcome was not necessarily clear at the time. They learn that anyone can have an effect on history if they only accept the challenge of the hard problems of the day. They learn that they can be heroes.

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