

The “Pacific Instruments” of the Twenty-First Century

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Introduction:

In 1999 Edward Ayers wrote an article titled *History in Hypertext*, in which he cited Vannevar Bush and his idea of “Pacific Instruments. (Ayers, 1999) Ayers used Vannevar Bush as someone who after World War II was able to envision the changing of how the writing of history is done because of two “pacific instruments”. (Ayers, 1999) Ayers (1999) then goes on to describe a machine that Bush envisioned call the “memex” which empowers the human mind because he believed that the mind operated by association. This idea of “pacific instruments” and a “memex” led to the question: What do we believe is/are the “pacific instruments” in our society today? After reading numerous articles a conclusion can be drawn that the “pacific instruments” of today are the internet and digital archives. Much like photography, microfilm, the copying machine and the fax machine; the internet and digital archives will revolutionize the doing of history and possibly bring Bush’s machine called the “memex” into existence. Instead of it being made of tangible materials it will be entirely online as individuals will be able to research their interests and create trails and weave them into lasting patterns. (Ayers, 1999)

Across the readings three themes became apparent that establish the internet and digital archives as contemporary “pacific instruments”: the accessibility of the internet and digital archives, the ability for scholars to have conversations, and finally, the pedagogical implications which the internet and digital archives provide the community. (Ayers, 1999)

Accessibility:

After World War II microfilm, photography, the copying machine and the fax machine were viewed as “pacific instruments” because they made the attainment and spread of information easier. Today, in the twenty-first century, the internet and digital archives have become “pacific instruments” because they accomplish the same thing, they make knowledge

more accessible. The accessibility of knowledge through the internet and digital archives will be able to revive old worn out subjects, allow universal accessibility and create new ways in which information can be searched and categorized.

The accessibility of information through the internet and digital archives can create new meaning and interpretations on topics that were once thought to be exhausted. In Matthew Pinsker's article (2009), *Lincoln Theme 2.0*, he cites James G. Randall as he questioned whether or not the topic of Lincoln has been exhausted. However, Pinsker (2009) believes this is not the case because of the access to new evidence, or more accurately the recovery of old evidence through the use of digital history and archiving. These two pacific instruments have revitalized the Lincoln topic, however with this new found access Ayers believes that the challenge now is to find meaning, coherence, and patterns. (Ayers, 2009) With the accessibility of older or once closed off resources organizing, or "cooking", them becomes paramount. (Cohen, 2004) With these resources being digitized it will enable researchers to search for these resources in way that best suits their needs.

Digital archives are powerful due to their universality. Tim Berners-Lee believes that the power of the Web comes from the essential aspect that it is accessible by everyone regardless of disability. (Cohen and Rosenzweig, 2005) Before, access to information was limited mostly to people that were capable of going to the location in which the artifact was located. Now, a person can access it from home regardless of capability. Even with government regulation, resources that are born digital are confronted by the problem of inadvertently limiting less educated or less well-to-do subjects' access to resources. Mainly because these groups do not have access to the necessary technology or are limited only to free sites or archives because vast precincts of the History Web are only open to paying customers. (Cohen and Rosenzweig, 2005)

There are limitations to the accessibility of resources that Renn (Abbot, 2001), as noted in the upcoming paragraph, is trying to take apart.

An additional theme of the accessibility of resources through the internet and digital archives is searchability. In libraries or hard copy archives the way a researcher is able to search for information is typically limited because of how resources are catalogued. An example is how the Cambridge University Library catalogues books by broad subject categories and by date of acquisition and one must be able to sift through the numerous volumes to be able to find the information that is needed. (Davison, 1997) The internet and digital archiving will improve access to information based on the simple fact that archives and databases can be fully searchable. (Abbot, 2001) Renn, a director at the Max Planck Institute in Berlin, has a goal to make all possible sources of information that have come down over the millennia digitized and made available so that it can be accessed beyond the traditional barriers of language and academic discipline.(Abbott, 2001) Renn would like to open the study of history which is currently limited to the few individuals with the necessary skills and/or access to the documents and artifacts.(Abbott, 2001) If Renn does meet his goal of making fully searchable databases, it will allow researchers to transform raw digital history into cooked in the manner that best suits their needs. (Cohen, 2004) However, the accessibility of information through the internet and digital archives is a largely recent phenomenon and does not come without some challenges that will need to be solved.

Empirical Questions:

One of the challenges that are facing this issue of accessibility is how to preserve all the digital resources, especially resources born digital. With so many artifacts being born digital, such as blogs (or digital journals), articles, and pictures, Cohen and Rosenzweig (2004) believe

that preserving artifacts that are born digital will require a significant amount of effort because technology changes at such a rapid rate and there are unknown dangers that threaten digital archives. With this access, the new question arises of how to preserve artifacts that are born digital if the maker does not do so themselves. (Cohen and Rosenzweig, 2004) If this problem is not solved, Cohen and Rosenzweig (2004) assert that because so much information is now born digital; future generations will not be able to understand the way we lived if they are not preserved.

A second challenge that was brought about because of the accessibility of the information that will need to be empirically solved is the quality of the digital archives accessed. One of the most glaring examples is the digital book archive that Google is attempting to develop. Robert Townsend (2007) notes that the project is failing to expose literature to the world because Google is piling mistake upon mistake as they have low quality of scans, the metadata is not helpful and the public domain is restricted. This is a problem that if not corrected could become detrimental to the future of digital archiving because it could be viewed as unreliable and that paper is the trusted approach. Guidelines need to be set forth that will ensure some sort of quality control when an organization wants to develop a digital archive.

Conversation among Scholars:

A new gateway is opening because of the accessibility of digital archives and other resources on the internet. This new gateway allows for scholars to communicate when researching online, creating a community in which people are able to share thoughts and ideas. The term scholar does not exclusively refer to those working in academia. It can mean elementary and secondary students researching, professors, upper education students or professional researchers; virtually anyone who wants to become a part of the online community

while learning about a certain topic. With the use of the two “pacific instruments”, the internet and digital archives, the conversation between scholars is no longer constrained by geography or time. The conversation flourishes because of the ability to interact with the material, increased opportunity to put ideas online, and because of the advancement of technology.

Digital materials are unique because they let the reader interact with them. Cohen and Rosenzweig (2004) make the distinction between print and digital sources. Print merely delivers documents from point A (historians) to point B (audience), digital materials allow for a two way street. The internet is ideally suited for this kind of exchange as discussion boards and forums are examples of active processes of communication and interaction. Readers of articles in an online forum are able to ask questions, post comments in which others can comment or find a site in which they will be able to. This interaction will force historians to be open to becoming a community in which ideas are shared facilitated by the fact that when something is online it opens up the possibility of someone leaving a response.

The internet is a place of opportunity because it has expanded the limited space of the library shelf. Writing and publishing articles and sharing viewpoints is no longer limited to those in academia. The internet and the digital genre of history allows students to stand side by side with professional historians and can create their own interpretations from digital archives (Lee, 2002) The internet has allowed enthusiasts and amateurs to post new forms of secondary literature online. Enthusiasts and amateurs with a deep personal, but not professional, commitment to a historical topic are using this forum because it is often their first opportunity to be published. (Cohen and Rosenzweig, 2004) People are always going to be drawn to new opportunities, especially if they feel that they are cut off from other avenues of publishing and with the advent of new technologies this conversation will only continue to grow.

The development of the conversation is going to be aided by advancements in the field of developing websites. Ayers' believes that Computers' healthiest influence has been the deepening and broadening of professional conversation. (Ayers, 1999) Aiding this professional conversation is a new type of website that is going to be developed to foster the growth of a conversation among scholars as its main goal. Thomas Thurston (2000) is attempting to develop a website that he calls an aortal which will enable the creation of social networks that connects academic communities. Websites will become more dynamic as they consider how they can nurture the development of these communities, how people will be able to share ideas, and edit content on websites.

Empirical Questions:

There is a new challenge with sites that allow individuals to freely publish articles or edit content. The challenge is how are the quality of the postings going to be regulated. The questions concerning quality are justified. Many of them deal with the extent in which teacher/professors should restrict online discussions by students. To what extent should others be allowed to attach comments, critiques or materials to websites? With the emerging trend of conversations among scholars in an online community how much control should be ceded to current and future audiences of their digital histories is a concern because of where the responsibility lies when it comes to quality control. (Cohen, 2004)

The problem of quality control does not begin and end with individuals attempting to leave their mark on another's site, but with the site creator themselves. This is because as Cohen and Rosenzweig (2004) believe website creators often abandon overly stringent documentation regimes because the absence of an editor allows the website creator to be lazy.

There are many issues that have not yet been resolved with publishing online that are directly affected by the issue of quality control; such as: peer review, credit for promotion and tenure, copyright and archival issues, and the role of libraries. (Kitchens, 2000) For the possibility of the conversations to flourish and the possibility of online publishing to become credible the issue of quality control needs to be confronted.

Pedagogy:

The internet and digital archives with unprecedented accessibility and the ability to have conversations will allow for the focus in the classroom to shift from the teacher to the students. Teachers will need to become master facilitators in which they will need to possess not just content knowledge, but pedagogical knowledge as well. Teachers will need to be able to use their pedagogical content knowledge to guide their students through a more personal access of knowledge and allow them to do history rather than learn history. (Bolick, 2006) Teaching will change because of the access of new ideas and primary sources in a digital form that will allow students to create personal experiences and understanding of history. Conversations through a digital medium will allow students to engage with others and find meaning in the material. New forms of technology will allow for lessons incorporating simulations that will have students take part in history.

The internet will facilitate the access of new ideas and information as it will empower learners by placing unprecedented amounts of information at their fingertips which could have further implications by redefining the role of the teacher in the classroom. (Trask, 2000) The amount of digital information available will allow students to have the ability to exercise greater control over the material and enable them to structure their own thoughts on the material. (Lee, 2002) Students will be able to learn how events in history through primary sources did not just

happen to certain individuals but to all living at the time; the goal of teaching with primary sources should be to capture the experiences of as many as possible. Digital archives will allow for the shift of how content is taught in the classroom, it has the possibility to restore the methodology of history to the center of the classroom and create learner-centered approaches to teaching.(Bolick, 2006) Student-centered teaching will only be a success if a teacher possesses the necessary pedagogical content knowledge that will allow them to purposefully guide students through the curriculum.(Swan and Hicks, 2007) This control and access to information allows students to create an experience unique to themselves in which they will be able to create a personal understanding of history.

Allowing students to have a conversation has pedagogical implications as it could help shift learning in the classrooms from teacher centered to student centered. Students could use the internet and digital archives as a forum for discussing their own concerns with their peers rather than mastering course content. This type of conversation could be viewed as a worthwhile end in itself. (Trask, 2000) Students will be able to take part in the conversation, but in some instances the conversation may become part of the information available so that students can gain insight in how different resources were designed. The New Deal Network website and Thomas Thurston (2000) have been developing the site to meet the particular needs of individual teachers and students. They are doing this by showing the email conversations between site visitors and historians that have led to the emergence of classroom and community activities. These conversations among scholars have led to the development of students being able to do history in social studies classrooms and creating a more student centered approach to learning.

The accessibility of the internet and digital resources will allow a shift from teacher centered classrooms to student centered learning and have students do history rather than learn

history. Ayers believes that the internet is a resource that will enable students in social studies classrooms to take part in games and simulations that are set in historical situations which allows for students to make connections with real people in the past. (Ayers, 1999) This type of learning will not necessarily answer the question of relevance to the curriculum, but it will certainly be a constructivist approach to teaching as technology will be used to facilitate learning that is active, pluralist and collaborative. (Calandra and Lee, 2005)

Each facet of incorporating technology into the classroom is fascinating. There are, however, challenges to making sure that it is done with efficacy. The largest challenge is making sure that in-service and pre-service teachers have the skills to successfully evolve as the teacher-centered approach to education shifts to a more student-centered approach occurs.

Challenges:

There is a push in public schools to have teachers use technology in the classroom. However, most teachers are not digital natives and do not possess the skills to facilitate learning through the use of technology. What is happening in many classrooms is that teachers are mistaking the idea that they are implementing technology by replacing the overhead projector with an LCD projector or using DVDs instead of VHS cassettes. In reality all they are accomplishing is a technology centered approach to teaching, whereas they need to learn how to use technology to create learner-centered lesson plans that will use multimedia learning to facilitate information acquisition and knowledge construction. (Calandra and Lee, 2005) Rosenzweig (2000) wrote how Humanities programs rarely equip students with the skills to create born digital articles. They are not the only discipline at fault; Curriculum and Instruction programs need to place more of an emphasis on teaching how to use technology to facilitate learner-centered approaches to teaching. Calandra and Lee (2005) use Doolittle and Hicks' (2003) proposition concerning the

use of technology in the classroom that should be included in curriculum and instruction programs:

- Technology should be used to create authenticity within the classroom.
- Technology's flexibility should be used to allow students to pursue ideas of personal interest.
- Technology should be used to build on prior knowledge and not as a replacement for it.
- Technology should be used to foster autonomous, creative, and intellectual thinking.

Along with teaching pre-service educators how to use technology to create a learner centered approach to teaching, curriculum and instruction programs will also need to teach them how to evaluate digital historical resources and how to read hypertext. The accessibility of information and the ability for learners and researchers to have conversation will help shift the focus from the teacher to the learner in the classroom as it will empower students to have a personal connection to the material. That is why it is important for teachers to be able to evaluate these resources because they are in the role of facilitator and must be able to guide learners in their quest for the attainment of new information. (Lee, 2002) Teachers must also be able to teach their students how to be literate in hypertext because it is vastly different from the conventions of a book. (Davison, 1997) If students do not learn how to be literate in hypertext the amount of information that is available to them will become overwhelming and they will get lost in their quest to attain knowledge and meaning of these resources.

The Pedagogical implications of the internet and digital archives do not just affect elementary and secondary classrooms or curriculum and instruction programs but other academic areas of study at the university level as well. With so many articles being born digital researchers and those in academia will need to have the skills of programmers and web designers. However, these skills are rarely, if ever, taught in higher education humanities programs. (Rosenzweig,

2000) Humanities programs will need to incorporate classes into their programs that will equip students with the skills to keep pace with the evolving technological world around them.

Conclusion:

The internet and digital archives will continue to change our society in many ways; as it has already greatly influenced us in many ways. These technologies have granted unprecedented access to numerous resources that were once closed off to the majority of society. This access to resources does not come without some challenges that must be solved; one challenge is the notion that researchers could solely rely on the past of least resistance when researching and will only consider resources available to them technologically. (Koehl and Lee, 2009) The internet has allowed students, researchers, and authors take an active approach because it allows for conversations to take place in the online community. However, these online conversations and digital archives may not be able to completely replace current book technology because it cannot offer the same kind of pleasures, but it does offer some of its own. The arguments over whether current book technology should be replaced and that there are less face to face interactions people need to realize that one is not better than the other, they offer different benefits.(Ayers, 1999) The internet and digital archives offer more access and the ability to have conversations which have impacted the way teachers teach and how university programs may need to reshape their curriculums to incorporate classes that prepare students to use these technologies affectively. As teachers we must be able to transform our students into citizens that are capable of competing in a digital world and to create a workforce that will have the skills to be knowledge navigators, and be able to adapt and survive in an ever-changing world. (Billington, 2007)

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