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Cognitive Apprenticeship Into the Discipline: Helping Students With Disabilities Think and Act Like Historians

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This study explored the apprenticeship of students with high-incidence disabilities into the discipline of history through mediation of a web-based instructional environment, the Virtual History Museum (VHM). Thirteen students with high-incidence disabilities spread across two co-taught classrooms participated. They engaged in two units of American history within the VHM. Students' written responses, interviews, and classroom discussions revealed their emerging understanding of multiple perspectives and apprenticeship into the role of historians. Specifically, the students were able to see and accurately represent multiple perspectives about controversial figures in history, as well as take a position and support their position with a rationale.

Key Words: History, Technology, Apprenticeship.

Sociocultural theory is generally attributed to Lev Vygotsky, who is considered one of the founders, if not the primary founder, of this perspective (Ratner, 1991; Vygodskaya, 1999). Sociocultural theory presumes that knowledge is constructed in the everyday activities that are common to a group of people as they interact among themselves as well as with the tools, artifacts, and other materials of their environments (Greeno, Collins, & Resnick, 1996). Since Vygotsky's time, many other researchers and scholars have written about the sociocultural perspective (see Cole & Engestrom, 1993; Collins, Brown, & Newman, 1989; Lave & Wenger, 1991).

Key aspects of the sociocultural perspective that have been studied and discussed within the context of education include teaching within a student's zone of proximal development, "scaffolding" tasks for novices by more knowledgeable others, and use of dynamic assessment (Gindis, 1999; Stone, 1998). Another aspect from the sociocultural perspective of learning is cognitive apprenticeships, which can play a pivotal role in the teaching and learning of history (Brown, Collins, & Duguid, 1989; Stone).

This study explored the apprenticeship of students with high-incidence disabilities into the discipline of history through mediation of a web-based instructional environment, the Virtual History Museum (VHM). Before detailing the study

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and its findings, we present a literature review of the key elements of this research, including cognitive apprenticeship, the discipline of history, the learning of history by students with disabilities, and the role of technology within the teaching and learning of history by students with disabilities.

Cognitive Apprenticeship

Webster's dictionary (www.m-w.com) defines apprentice as "one who is learning by practical experience under skilled workers a trade, art, or calling." This same definition applies in the field of education, where teachers and more knowledgeable others (i.e., peers or adults) apprentice an "inexperienced" student into a discipline. Specifically, teachers, or other more knowledgeable others, help students acquire the language and tools of the discipline they are studying and scaffold learning experiences to give students support as they learn to act and think as members of the discipline (Looi & Tan, 1998). Scaffolds offer cognitive support in advance of independent performance. Temporary yet meaningful supports, scaffolds are slowly removed as students become competent and able to perform the functions of the discipline more independently.

The goal of cognitive apprenticeships is to apprentice others (i.e., students) to become members of a discipline; that is, becoming part of the community of the discipline (Tisdale, 2001). According to Tisdale, the best use of a cognitive apprenticeship is to assist people in becoming a type of person, whether that is a reader, a mathematician, an electrician, or a historian. Brown and colleagues (1989) stated a similar position, "cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop, and use cognitive tools in authentic domain activity" (p. 39). These perspectives illustrate that cognitive apprenticeships occur when classroom learning is embedded within authentic problem-solving activities.

The role of cognitive apprenticeship has been explored in different disciplines within the field of education, most notably literacy, as well as with specific populations, such as students with disabilities (see Englert, Berry, & Dunsmore, 2001; Tisdale, 2001). Englert and colleagues, who studied the cognitive apprenticeship model in elementary classrooms within the discipline of writing, found that students with high-incidence disabilities could be successfully apprenticed in these learning environments. They concluded that successful apprenticeships require access to the discourse or language of the discipline, mediational tools of the discipline, and a supported context that included appropriate scaffolding. Given the emerging focus on cognitive apprenticeships and students with disabilities, this study sought to explore this topic in history, a rather unexplored area in the field.

The Discipline of History

While history is a core academic subject, understanding history is challenging, as students must make sense of people, places, events, and issues from another time (Wimmer, 1981). The complex nature of history can pose limitations for children. One challenge is that history is viewed as boring, or not commanding or encouraging engagement from students (Loewen, 1995; Paxton, 1997). True scholars of history endorse the perspective of Nash, Crabtree, and Dunn (1997), who wrote "written history is based on carefully gathered evidence, but that historians must weave facts together into plausible explanations of the human experience" (p. 9), emphasizing that history requires engagement to ensure meaningful understanding.

Studying history is a constructivist activity, as there are multiple perspectives and interpretations of its content (Nash et al., 1997). As Duplass and Ziedler, (2000) stated, "social studies classrooms offer opportunities for students to refine their thinking, engage in dialogues in support or in opposition to ideas, take positions on issues, and articulate their views" (p. 113). Acting as a member of the discipline, being a "historian," requires gathering information, analyzing multiple and often divergent accounts, interpreting across sources and understanding that there are multiple perspectives, and then finally writing one's own interpretation or account of the event, person, or place.

Learning history involves understanding multiple perspectives, but history textbooks do not present this concept well. Unfortunately, the vast majority of students' learning of history comes from textbooks (Britt, Rouet, Georgi, & Perfetti, 1994). History textbooks emphasize memorization and facts and promote lower-order thinking skills (Loewen, 1995; Paxton, 1997). Research has also shown that textbooks do not aid in students' understanding of multiple perspectives of historical events, people, or situations (Tunnel & Ammon, 1996; Wade, 1993). Hence, history textbooks have received much criticism. Not only do members of the discipline criticize history textbooks for their focus on lower-order skills and a one-right-answer approach, but students find them dull (Loewen). Loewen indicated that history textbooks often fail to capture the engaging stories of history, the very stories that seem to attract individuals to historical novels, mini-series, or movies (Leinhardt, 2000; Loewen).

In addition, Britt and colleagues (1994) criticized history textbooks for what they lack – capturing that history is interpretative and that multiple perspectives exist. Students do not appear to grapple with the content presented in "traditional" textbooks in a meaningful or constructive manner. Rather than synthesizing or interpreting, they simply regurgitate information (Paxton, 1997). Furthermore, "textbooks mitigate against the full participation of students with disabilities because many of these students have reading disabilities," and they are often written at a higher reading level than what students with disabilities possess (Cawley, 1994, p. 69). One way to overcome the limitations of history textbooks, especially for students with disabilities, involves incorporating technology, such as computers, videodiscs, and the Internet (Okolo, Ferretti, & MacArthur, 2002).

Special education within the discipline of history. History instruction for special education students has been underemphasized. Patton, Polloway, and Cronin (1987) found that social studies was not a high priority for students with high-incidence disabilities. This was particularly true at the secondary level, where the researchers found that almost half of special education teachers surveyed were not teaching social studies (Patton et al.). While no recent data exist, it is unlikely that these findings would have changed for the better, particularly given the current era of accountability, where social studies is not yet mandated to be tested and not counted towards schools making "adequate yearly progress" (No Child Left Behind, 2002). Even when social studies is taught, students with disabilities face many obstacles.

Besides the challenge of textbooks, learning history poses as problem for students with disabilities with regard to the method by which it is usually presented – teacher lecture and individual seatwork, as opposed to more active engagement and

application of knowledge and skills (Cawley, 1994; Deshler, Schumaker, Alley, Warner, & Clark, 1982). In addition, previous work by Ferretti, MacArthur, and Okolo (2001) found that students with disabilities struggled with understanding multiple perspectives, particularly in terms of forming their own opinions when information was provided from different points of view.

Data from a state that assesses students in social studies illuminate the necessity to improve instruction in history for students with disabilities. In Michigan, only 8% of students with disabilities in the eighth grade were deemed to have met or exceeded state standards on the history portion of the Michigan Education Assessment Program (MEAP) (Michigan Department of Education, 2003). This is in comparison to 35% of students without disabilities. At the fifth-grade level, 11% of students with disabilities met or exceeded state standards on the history portion of the MEAP, as compared to 30% of students without disabilities (Michigan Department of Education). Overall, both groups had low rates of meeting or exceeding state standards. Students without disabilities met or exceeded state standards at more than double the rate of students with disabilities.

The intersection of history, special education, and technology. While little research has examined the use of technology within the discipline of history, especially in relation to students with disabilities, existing studies show promise for this medium within this content area. Okolo and Ferretti (1996) examined upper-elementary students' design of multimedia projects based on the Industrial Revolution. Content knowledge and attitudinal gains were experienced by students both with and without disabilities after interacting with the technology-immersed learning, and differences in engagement or off-task behavior were not found between students with or without disabilities (Okolo & Ferretti).

Higgins, Boone, and Lovitt (1996) conducted a study on the use of hypermedia text presentations within an inclusive secondary social studies classroom. Three conditions were examined with regard to content presentation – hypermedia study guide, hypermedia study guide with lecture, and just lecture. The highest retention scores on tests and daily quizzes for students with learning disabilities occurred in the lecture/hypermedia condition, followed by the hypermedia condition. The authors concluded that the use of hypermedia did not interrupt or inhibit the comprehension of students within a social studies classroom (Higgins et al.). These few studies demonstrate the positive effects of technology on social studies instruction.

The Virtual History Museum (VHM)

The Virtual History Museum (VHM), conceptualized by Okolo and Englert (2001), is a web-based history-learning environment designed to promote the understanding of history by all students. It offers supports and scaffolds to students with disabilities to increase their participation in the discipline and the classroom (Okolo & Englert; Okolo, Englert, Bouck, & Heutsche, 2007). VHM was developed to assist students in gaining historical understanding through "analysis and interpretation of historical evidence and artifacts," as well as give students opportunities to publish their own interpretations of these artifacts and exhibits (Okolo & Englert, p. 9).

The Virtual History Museum was designed, as its name suggests, as a web-based learning environment modeled after a museum. Teachers become the "museum curator" and select artifacts for display in an exhibit. The artifacts can include written documents, written explanations of both primary and secondary historical documents, images, sound clips, and movies. The exhibit is then created using the artifacts to reflect some aspect of history (e.g., a person, place, event, or issue) the curator wants students to explore, interpret, and understand. After students have experienced the exhibit, they have the opportunity to respond in activity settings based on their analysis and interpretation (Okolo & Englert, 2001). For example, teachers can create activities, such as compare-and-contrast charts, journal entries, or position papers, for students to respond to based on the exhibit. These activities typically require students to synthesize the information or make interpretations of the data presented (see Figures 1-5 for screen captures depicting aspects of VHM).

Figure 1. A screen capture of the homepage of the Virtual History Museum, available at http://vhm.msu.edu.

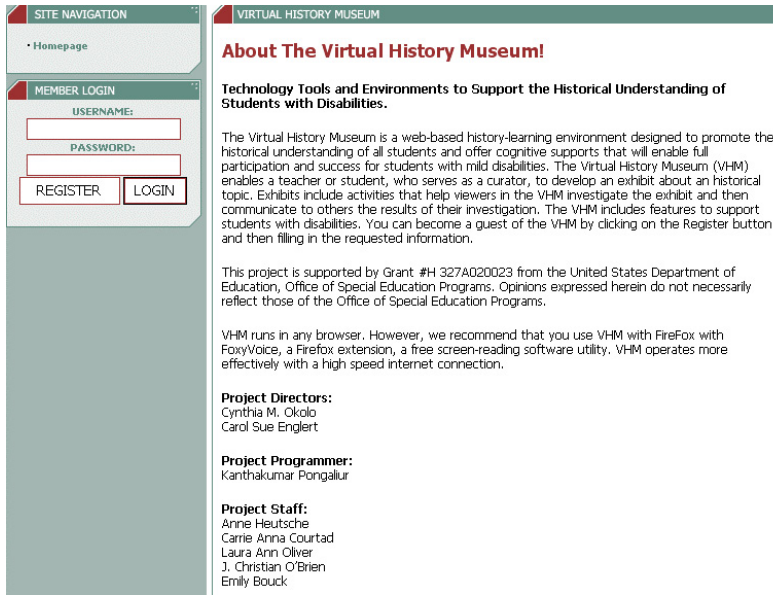


Figure 2. A screen capture of the third page of the Andrew Jackson exhibit used in the study, which explored the contradictions of Jackson's early years, military years, and presidency.

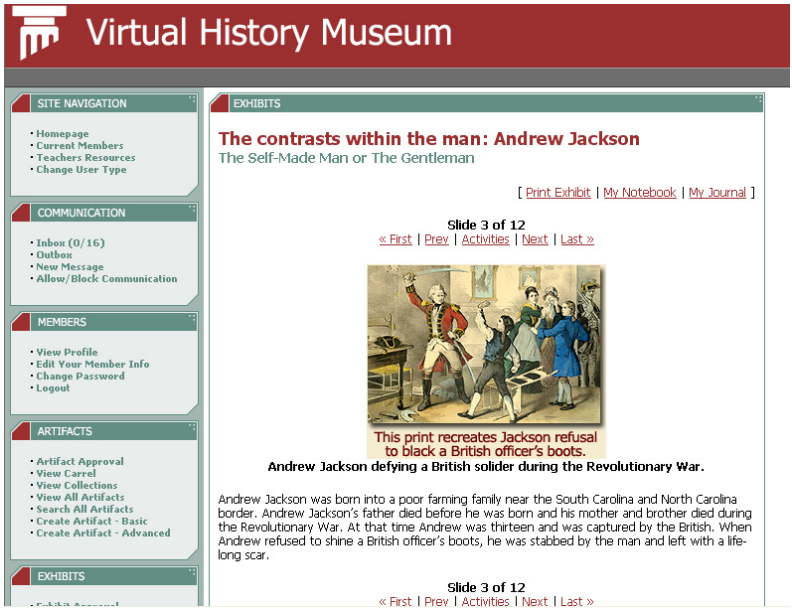


Figure 3. A screen capture that shows the final page of the Andrew Jackson exhibit used in the study, specifically the "Read this page to me," which represented the text-to-speech function for students to access.

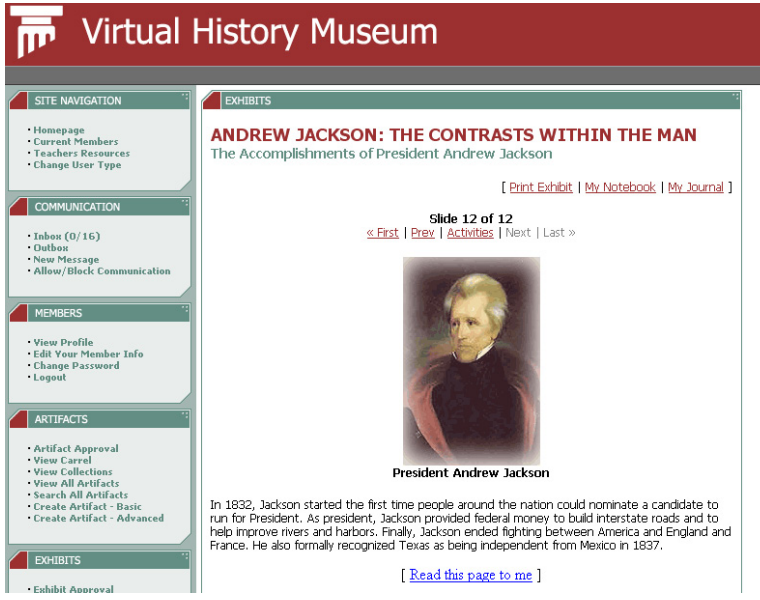


Figure 4. A screen capture of the compare-and-contrast chart from the Andrew Jackson exhibit used in the study; the chart was analyzed to understand students' apprenticeship.

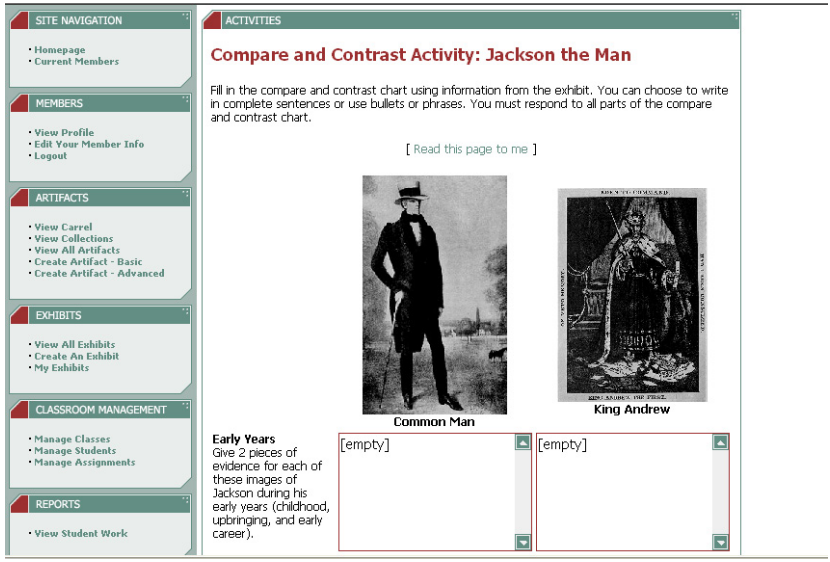
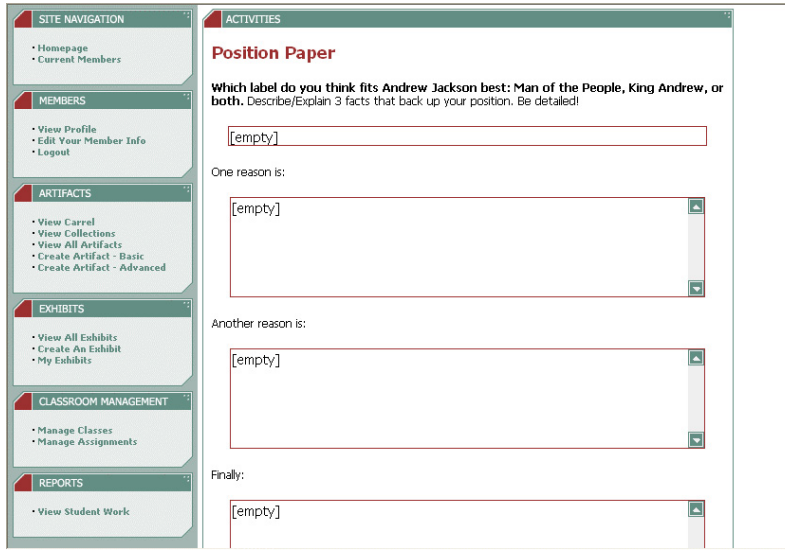


Figure 5. A screen capture of the position paper from the Andrew Jackson exhibit used in the study; the position paper was analyzed to understand students' apprenticeship.



Research Questions

This study was part of a larger study examining the impact of a web-based instructional environment on students' understanding and knowledge of historical events and situations. The purpose of this particular study was to examine the relationship between a web-based instructional environment (i.e., VHM) and the cognitive apprenticeship of students with disabilities into the discipline of history through analysis of students' emerging understanding of multiple perspectives. Specifically, the study attempted to answer the following questions: (a) What is the nature of students' cognitive apprenticeship into the discipline of history through involvement with a web-based instructional environment? and (b) What were students' perspectives of the web-based instructional environment?

METHODOLOGY

Setting

The school site was a middle school in an urban school district in the state of Michigan. The school district served 17,079 students. The school itself – one of four middle schools – housed students in grades 6-8 with a student count of 866. Less than half the population at the school was Caucasian (46%), 29.6% was African-American, 16.4% was Hispanic, 6.4% was Asian, and 1.7% was Native American. The school district overall had a special education population of 18.8%, as compared to 13% in the state. The school had a high economically disadvantaged population – (64.8%) compared to 57.1% for the entire school district and 30.7% statewide. It also has a low rate (39.1%) of students passing the state's general large-scale assessment – the Michigan Education Assessment Program (MEAP) (Standards & Poor's, 2004).

Participants

Thirteen students with high-incidence disabilities participated. Ten were certified as having a learning disability, one as having attention deficit-hyperactivity disorder (otherwise health impaired), one with cognitive impairment, and one with a dual certification of learning disability and emotional impairment. All 13 students were educated in one of two eighth-grade co-taught American history classes taught by the same two teachers: a general education teacher and a special education teacher. The 13 special education students comprised 30% of the population of the two co-taught classes. This percentage was based on the number of students who had consent forms and had over 50% of a complete data set. Approximately 54% of the 13 special education students were male; approximately 46% were female. About 46% were African-American, 31% Caucasian, and 23% Hispanic.

Procedure

In this study, students engaged with two units created within the VHM and completed activities based on their interpretations and synthesis of the exhibits. One unit was created by research assistants in conjunction with the teachers, while the other was created entirely by the general education teacher. Both units were based on the content of the general education history curriculum. The VHM units were designed to be consistent with the teachers' content focus during regular instructional units.

The first unit was entitled *Andrew Jackson: Man of the People (but which people?)*. It was designed to focus on the contradictions within Jackson's life. Within the unit, students experienced exhibits on the background of Andrew Jackson, including Jackson's life from childhood through his presidency, how he became president, and a specific instance within Jackson's presidential career – the Cherokee Removal. The Andrew Jackson unit took five class periods (225 minutes) to complete and spanned two weeks. The unit occurred in a computer lab within the school, in which each student worked independently on his or her own computer (three of the five days) and the classroom in which the teachers used the VHM to facilitate discussion and presented the information to the whole class through one computer (two of the five days).

In session one, the teachers presented the VHM exhibit on the background of Andrew Jackson within the classroom setting. The teachers went through the exhibit with the entire class, facilitating student discussion around the issues of the election of 1824, the election of 1828, and Jackson's inauguration. In the second and third sessions, students independently worked on the VHM exhibits in the computer lab. In session two, students explored an exhibit on the contradictions within Andrew Jackson's life. They were asked to complete a chart, providing examples of the two perspectives of Jackson: "man of the people" or a "dictator." For session three, students interacted with a two-part VHM exhibit on the Cherokee Removal. Students worked independently on the exhibit discussing Cherokee assimilation, the Cherokee Removal Act of 1830, and the Supreme Court case surrounding the act. Finally, they completed an activity that asked them to make a prediction on how the Supreme Court would rule and to support their prediction using evidence from the exhibit. The fourth session was conducted in the classroom. Here the teachers facilitated a discussion of the Cherokee Removal using the exhibit and presented the text of the exhibit by reading and elaborating on it. The final session of the study involved the students writing a position paper. To do this, students worked independently in the computer lab, each with his or her own computer, and typed a paper expressing their position on whether Andrew Jackson was a man of the people, a dictator, or both, supporting it with three reasons based on evidence from all the earlier exhibits.

The second VHM unit focused on John Brown, and was entitled *John Brown: Hero of Villain?* It consisted of five slides presented during one class period. At the end of the exhibit, students completed a position paper, giving their opinion of whether John Brown was a villain, a hero, or both. The VHM unit presented the background of John Brown, Brown's actions and attempts to end slavery, such as Bleeding Kansas and Harper's Ferry. Students worked independently on the John Brown exhibit and position paper within the computer lab.

Materials. All exhibits were located within the VHM website, and each student was given an account to log in to complete exhibits and activities. The exhibits included text, images, and sound. All the text, within the exhibits as well as any instructions, was also presented as audio files. Students could choose to read the text, have the text read to them, or do both simultaneously. Headphones were available for each computer in the school's lab.

Data collection and data analysis. Data were collected through multiple means: interviews, written activity responses, and classroom observations.

Eleven of the 13 students were interviewed. The interviews were conducted after the students had completed the two units within the VHM. The interview consisted of nine questions and took approximately 15-20 minutes per student. Questions asked students about their knowledge (i.e., recall) of the historical figures in the two exhibits (Andrew Jackson and John Brown) and events covered in the two units, such as the Cherokee removal (see Appendix). Students were also asked about their opinions of the web-based instructional environment (VHM) and its features, such as text-to-speech, thus getting at consumer satisfaction. Finally, students were asked to compare VHM to more traditional aspects, such as a textbook or responding to prompts on paper versus typing. Transcripts and interview notes were reviewed to assess students' historical understanding.

Students' written responses to the activities within the two units were also analyzed. Students completed a compare-and-contrast chart on Andrew Jackson, a prediction paper on the Cherokee Indians, a position paper on Andrew Jackson, and a position paper on John Brown. Student responses were stored in an online database and later retrieved. They were analyzed with respect to historical content and understanding of the deeper issues of history (i.e., representation of multiple perspectives and ability to synthesize across sources).

The last source of data was classroom observations. The first author conducted formal classroom observations in the two co-taught classes for nine weeks, two to three times a week, and every day of the two exhibits. The observations were conducted following qualitative procedures in which the author took notes during the class periods, formally wrote up the notes afterwards, and also wrote researcher reflection notes. Observations were conducted in the classes prior to, during, and after the implementation of the VHM. Observation fieldnotes were coded according to connection to historical content and issues of engagement, and then analyzed. Attention was paid to student and teacher discussions of history, particularly around these two units.

Results

Apprenticeship

As previously discussed, a crucial aspect of being a "historian" is understanding that history is comprised of multiple perspectives. The 13 students with high-incidence disabilities in this study illustrated their emerging understanding of multiple perspectives of historical events, people, and issues. Two thirds of the special education students who completed their position paper on Andrew Jackson represented the perspective that Andrew Jackson was both a "man of the people" and "King Andrew." The roughly 70% who portrayed Jackson from dual perspectives offered clear rationales to support their positions, another important aspect of being a "historian." The reasons students presented included:

- He gave land to the people that he took from the Indians, but he over ruld [*over*-ruled] the suprme coret [*Supreme Court*].[1]

[1] Students' written responses were provided as they were typed or written by the students. The italicized words in brackets present the standard English spelling of students' responses.

- He was a poor boy and he get richand [*got rich and*] he in the emey [army] and he get cut up and he gos for president and get rich and gets greety [*greedy*]. He get greetly becauae he toulk the chareelt land [greedy *because he took the Cherokee land*]
- I think he was [*both a man of the people and a king*] because he wanted to do good things for the people but healso [*he* also] wanted to control the world
- he was born poor but grew up to owen [own] slaves
- Even though some people thought that he was cruel because of his power issues such as killing or overruling you also have to know that he was raised on a farm with no dad to teach him and no mother to sew his clothes and no brother to walk him through tough problems

These position statements, particularly the first and second, illustrate that the students were acknowledging the complexities of Andrew Jackson, inasmuch as Jackson could be viewed differently depending on whose perspective they were taking. Both statements show Jackson from the perspective of the common people, whom it was claimed he represented and supported. Students used examples from his childhood and presidency to support their positions. Simultaneously, they also represented a different perspective of Jackson – that of being a king or dictator. Some students, such as those who wrote the first, second, and fifth statements above, understood that Jackson overstepped the boundaries of the role of president by overruling the Supreme Court's decision and forcing the Cherokee Indians off their land.

It was also evident that the special education students within these classes were coming to understand the multiple perspectives of historical events and figures through classroom observations. This was apparent in the classes' review for the school-mandated quarterly exam that covered the Andrew Jackson unit. During a class discussion, students were asked to decide whether Jackson was a man of the people or a dictator (i.e., king). Two students volunteered to respond to this question, and both were students with a disability. They both initially stated that Jackson was a man of the people because he was poor and he gave them [*people*] jobs. However, Rey,[2] a special education student who had earlier responded that Jackson was a man of the people because he was poor, altered his position during the discussion and said, "he gave the poor land, but that could be under both [*King Andrew and man of the people*]." Rey elaborated, saying that Jackson could also be considered King Andrew because he took the land from the Cherokee Indians [Native Americans]. These comments illustrate Rey's emerging understanding of multiple perspectives, as historically Andrew Jackson was called a man of the people by his supporters, yet was portrayed as a king by the opposing political party.

The students with disabilities also demonstrated their apprenticeship into the discipline of history in the other unit, *John Brown: Hero or Villain*. In the exhibit students were asked to explain how radical abolitionists from the North and supporters of slavery in the South would view John Brown, state their position on whether John Brown was a hero or a villain, and provide support (i.e., reasons). Approximately 88% of the students who completed this portion of the activity gave

[2] Names have been changed to protect the confidentiality of all involved in the research project.

accurate perspectives on how both groups would view John Brown. Students' ability to present the two sides provides evidence that they understood that there were multiple perspectives on Brown's actions: one being that he was a "hero" and another that he was a "villain."

The following are examples of students' responses on the positions towards John Brown of abolitionists from the North and supporters of slavery in the South:

- the south said that he was a no good villain because he was going against slavery. He north thought that he was a hero because he was freeing slaves.
- they [*the South*] thought ht was wrong to kill slave owners and they thought it was right to have slves [*slaves*]. They [*the North*] praise him for his courage to help slaves. they finally thought someone understood them.
- they wear [*lived*] in fear that john will [*would*] kill the people that like slavery. The north likr [*liked*] what john hade [*had*] done to the southand [*south and*] they souvedtd john.
- thay [*they*] seen [*say*] john brown as a killer and that he was just killing people for fun and trying to talk thar munny away [*take their money away*]. [*The north thought*] That he was god and he did not kill peoplethat [*people that*] think he just did not want slavery so he was trying to end it.

These statements clearly represent the two perspectives of John Brown. Students were able to understand and represent the fact that the supporters of slavery in the South considered John Brown a villain because he was against slavery and tried to lead a revolt to end slavery. They also were able to see the position of the radical abolitionists of the North that John Brown was a hero because he was trying to end slavery.

The majority of special education students were able to articulate the two perspectives of John Brown. However, they were unable to use their emerging understanding of multiple perspectives to adapt a personal position that John Brown was both a hero and a villain. They tended to remain judgmental in arguing that Brown was a hero. Most of the students (83.3%) who completed the position paper stated that John Brown was a hero because he tried to end slavery. Only one special education student stated that he was both, "he was both of them becaues [*because*] he try [*tried*] to stop slaery [*slavery*] and he [*was*] a killer."

These examples of students' online responses and in-class discussions surrounding Andrew Jackson and John Brown illustrate their emergent understanding of multiple perspectives. Students were acquiring the conceptual historical lenses to see issues in more complex ways. In short, they were being apprenticed into the discipline of history.

Student Perspectives

The majority of students with a disability were positive about the VHM during their individual interviews, indicating they would choose the VHM over textbooks or paper-and-pencil when learning or writing about history if given the option. Students made such comments as, "Because that one [VHM] explains it a lot to me. Like if you need to go back, then you can actually go back and have the thing

read it to you some more." One student said that VHM was "funner than a textbook." Students reported enjoying VHM because, "it helps kids understand what the lesson is about … And if you use a pencil it takes longer [to write]," and it was faster, "cause you have a computer and it reads it to you and you don't have to sit at a table, you can go at the speed that you want."

The positive remarks by students regarding their own pace, preference, and engagement were echoed by the teachers during informal conversations regarding the use of VHM in their classes. The special education teacher remarked,

> The kids were more engaged. Kids that aren't normally engaged were engaged and attentive. The headphones were a big asset for our students. A lot of students would listen and go at their own pace. When you are reading the same content in class, you have to go very slow for everyone or else someone can't keep up.

She followed up by saying, "What I liked about VHM was the ability of students to read and work on their own. They were in charge of their learning."

The general education teacher also noted the positive benefits of using the VHM for his students, and mentioned its ability to highlight multiple perspectives,

> They were learning to take different viewpoints. They would never have been able to do that with a book. I almost felt out of the loop [with VHM]. We could look at their artifacts, but while they were doing it I felt we may have had some influence [but it seemed less than without VHM]. But afterwards they came out with so much more knowledge and connected to what we were talking about. They could dialogue about it afterwards. It showed that they were making more connections than if we turned them loose with a book.

He continued talking about the general benefits of using VHM with regard to student interest and motivation,

> The kids are asking can we do VHM? Can we do VHM? [A special education student] isn't serious about school and he even asked me "Can we do this in the high school?" Kids would just go in and log in without being told. These are kids who push their books aside. … These would be kids who would just log right in and get started.

Discussion

The Virtual History Museum offers many promises for education, particularly for students with high-incidence disabilities (also see Okolo, Englert, Bouck, & Heutsche, 2007; Okolo, Englert, Bouck, Heutsche, & Courtad, 2007). Like other multimedia projects, it utilizes constructivist-based approaches, which have been found effective for teaching and learning (Larsbach & Basolo, 1999). Some suggest that constructivist approaches to history encourage the teaching and learning of this domain to be closely linked to the authentic nature of what actual historians do, such as understanding and representing multiple perspectives (Larsbach & Basolo). VHM's constructivist concept afforded these opportunities to students – to engage in authentic activities of historians, to analyze primary sources, and to share their written work in a public space with peers (Staley, 2000). As apprentices within the discipline of history, students actively engaged with a variety of sources across units in the VHM.

VHM presented multiple sources from which students could gain evidence (Britt et al., 1994). Synthesizing and writing from primary sources, as well as comparing across potentially conflicting multiple sources, has been suggested by Young and Leinhardt (1998) as valuable in assisting students' learning of the inherent controversies and multiple perspectives in history. Access to multiple sources helps students process the information presented, as processing is maximized when students are required to synthesize across various sources (Voss & Wiley, 2000). Along similar lines, VHM presented students opportunities to question or challenge the "premises and assumptions" of history (McKenzie, 1998). VHM promoted students' exploration, higher-order thinking, and even the development of students' own interpretations of history and historical events (McKenzie).

A major advantage of the VHM, in terms of addressing the criticism of teaching history in K-12 classrooms, is that it enabled students to engage in the work of historians. Paxton (1999) noted that historians read, write, and think about the past, which is what students were asked to do in VHM – read, think, and then respond to the historical elements made available. VHM was designed with this goal in mind – to align the study of history with the practice of actual historians. It created an apprenticeship opportunity for students to embark on authentic tasks, similar to what Paxton suggested is needed in the practice. This contrasted with typical, and widely used, textbooks. Hence, VHM attempted to afford opportunities to students and teachers, esaspoused by Wineburg (1991), to allow history in schools to become "a site of inquiry in its own right, a place to explore the complex cognitive processes we use to discern patterns and significance in the past" (p. 518).

The apprenticeship of students with high-incidence disabilities into the discipline of history using VHM occurred through the use of scaffolding and gradual emergence of the concept of multiple perspectives of a historical event or person. As illustrated, students were apprenticed into developing a position with rationale after being presented with multiple perspectives about a historical figure, event, or issue. In the Andrew Jackson unit, students were slowly apprenticed into interpreting from multiple perspectives. In addition to being presented with text and images in the exhibit, students completed a compare-and-contrast chart on how Jackson was both a man of the people and King Andrew throughout three periods of this life. For this activity, students could go back to the exhibit if they needed to review the information. The compare-and-contrast chart set the stage for students to begin to formulate a position and gather evidence to support their position of Andrew Jackson as king, man of the people, or both.

In addition to providing various opportunities for students to identify the multiple perspectives in the Andrew Jackson unit, teachers also provided scaffolding within the exhibit and writing activities. As many of the students struggled with reading, the text-to-speech function on the computer enabled them to access the material presented as well as the instructions for the writing activities. In their interviews, all the students with disabilities acknowledged that they used the text-to-speech function, and the majority (89%) indicated that they would prefer the VHM to textbooks and paper-and-pencil tasks because they found the text-to-speech helpful. As one student stated, "I used it [*read this page to me*] on every one that I practically did cause it a lot faster cause sometimes like it will take you forever just to read

about." He continued highlighting the benefits of the text-to-speech function, "Yeah, it helped me a lot actually because it let me get it the first time instead of reading it over and over again." Another student offered a similar response, "It [*read this page to me*] helped me because I have trouble reading so it helps you read."

VHM also highlighted the very point historians have argued, that writings about history are *a* truth. Students engaging with the VHM could witness and understand that writing about historical events is *a* truth, as they compared the perspectives of themselves and their classmates in response to the same presentation of primary and secondary sources (Paxton, 1999; Zinn, 2003). VHM was designed to ask students to produce more than a simple reconstruction of historical events, discussed as the traditional mode of written response within the textbook approach (Young & Leinhardt, 1998). VHM promoted more interpretative and analytical written responses to primary and secondary sources. For example, students were presented with multiple sources of data to synthesize across documents to evoke a more critical understanding of the historical event or time (Leinhardt & Young, 1996).

The students demonstrated their apprenticeship into the discipline of history through their emerging representation of multiple perspectives. In the Andrew Jackson exhibit, they stated that Andrew Jackson was both a man of the people and King Andrew and were able to give a rationale to support their positions. Generally, the students associated poor with a man of the people and rich with a king. While it is not surprising that a king was associated with possessing money, it is not completely clear why students associated man of the people with poor. One hypothesis is that the students internalized "man of the people" to symbolize someone like them, and hence made the connection to poor. The students may have created the dichotomy of poor versus rich and man of the people versus king in reaction to their own community or context, with 64.8% of the students receiving free and reduced-cost lunch.

While the students understood the multiple perspectives of both Andrew Jackson and John Brown, fewer developed their own position that John Brown represented both perspectives. It is hypothesized that students were less able to view John Brown as a villain because slavery was a theme that was repeatedly discussed in class. The students had previously watched the movie *Roots* (1977), and the teachers tried to help them understand slavery from the perspective of slaves. It is likely that the students had a harder time understanding that John Brown could be both a hero and a villain when he tried to end slavery. Illustrating the importance of the issue of slavery, many of the students used the information presented in the Andrew Jackson exhibit that he owned slaves to support that he was either a king or could be seen as king.

Apprenticeship into the discipline of history is a slow, emerging process. American students are used to learning history from textbooks, which tend not to promote interpretative or analytical thinking (Paxton, 1999). Previous research has shown that even high school students in advanced placement classes struggle when asked to write arguments or positions about historical events through integration of historical facts. Thus, it seems logical that students with high-incidence disabilities would struggle with multiple perspectives after one, two, or even five interventions on this topic. Yet, there is evidence that is it possible for students to be apprenticed

into the discipline of history and come to understand multiple perspectives if instruction addresses this approach (De La Paz, 2005). For example, Foster and Yeager (1999) found that, after instruction, 12-year-olds in England were able to understand that there were multiple perspectives in history and that the different perspectives could have both strengths and weaknesses.

The apprenticeship of students into the discipline of history can also be viewed through the lens of participation. To truly receive an apprenticeship, students needed to participate; indeed, their participation had to change from the peripheral to the central. On a whole, the students in the study were more engaged when they were using the VHM than during their traditional class activities, supported through classroom observations and teacher comments. The students also reported enjoying VHM and indicated they preferred it to textbooks and paper-pencil tasks.

One student presented an interesting illumination of the apprenticeship through participation. Rick, a student with a high-incidence disability, did not complete a single paper-pencil activity in class through the entire observational period. However, he did participate in the online activities of VHM exhibits of Andrew Jackson and John Brown. VHM helped to move Rick's participation from the periphery to the center, where he was able to contribute and demonstrate his knowledge as well as deepen the apprenticeship into the discipline of history.

Limitations, Implications, and Future Research

There are several limitations to this study. First is its small sample size. The study was limited to two exhibits within the web-based instructional environment. Thus, the data on students' representations of their emerging understanding of multiple perspectives are somewhat limited. The study also lacks comparison to other classes with students with high-incidence disabilities not using this web-based instructional environment to examine for differences or similarities with the emergence of understanding of multiple perspectives.

Nevertheless, the study has many educational implications. First, it adds to the small pool of research on the use of technology within history for students with disabilities. Second, it suggests that the Virtual History Museum has the potential to help students with disabilities become apprenticed into the discipline of history and understand the multiple perspectives of historical figures and events. Third, it suggests promise for VHM, as an instructional tool, and indicates that more research is needed on its impact and effects.

Future research should continue to examine the impact of the web-based instructional environment on students' apprenticeship into the discipline of history, including more subjects and analyzing classrooms in which the Virtual History Museum is not used for comparison purposes. In addition, future research should place more emphasis on the interviews, and ask more questions evaluating students' understanding of history, the role of a historian, and students' own apprenticeship into this discipline.

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Appendix

Student Interview Questions and Protocol for VHM

1. What do you remember about Andrew Jackson? Anything else?

2. What do you remember about the Cherokee removal? Anything else?

3. What do you remember about John Brown? Anything else?

4. Here's a page from the John Brown exhibit you used on VHM. How did pages like this help you on VHM? [Show slide 2 from John Brown exhibit]

5. How did this picture help you learn more about John Brown? [Show slide 3 from John Brown exhibit]

6. What is this feature [point to Read Me from slide 3 of John Brown exhibit]? Did you use this? How did it help you?

7. If your teacher asked you to learn history from the textbook or VHM, which would you rather use? And why?

8. If your teacher asked you to write what you learned about history using this activity page of VHM [show VHM activity page] or a piece of paper [point to a blank piece of lined paper], which would you prefer to use? Why?

9. What did you like best about using the VHM? Why or why not?