The Use of Technology to Reach the Various Learning Styles of Middle School History and Social Studies Students

Keith Dils <kdils@epix.net>

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01. Introduction (Return to Index)

In Democracy and Education, John Dewey stated that learning is a personal "incursion into the novel." One aspect of this personal incursion, or delving into, is that each individual learner has their own learning preference or style. In particular, middle school students have varying abilities for remembering what they hear, see, or experience. Historically, traditional, teacher-centered approaches benefiting students with verbal learning styles have been the sole method of instruction for middle school students. However, with the wide availability of technology, teachers now have a greater opportunity to reach more of the various individual learning styles by incorporating progressive, student-centered approaches into their curriculum and by improving traditional, teacher-centered approaches. Therefore, this paper will describe the present and future ways that technology may be used in a middle school classroom to: (1) expand the use of progressive, constructivist learning experiences in order to reach students with experiential learning styles; and (2) expand the use of traditional, teacher-centered approaches so that the educational needs of students with verbal, kinesthetic, and visual learning styles are addressed.
The author, a practicing middle school social studies teacher, will provide classroom-tested examples demonstrating both approaches. Examples of constructivist learning activities will include having students use technology to increase voter turnout, construct presidential trivia web sites, and engage in authentic station work. Examples of teacher-centered instructional approaches will include the innovative use of presentation software and hardware to augment lecture and discussion. The paper concludes with a note of caution concerning the potential misuse of technology, in a manner that does not contribute to the learning objectives of the classroom.

.01A. Student use of technology with constructivist learning principles

Constructivist learning principles supported by the writings and theories of Dewey, Piaget, and von Glasersfeld, to name a few, afford history and social studies educators with one way to facilitate incursions via diversified instruction and curricula. When using this approach, educators can effectively reach students with experiential learning preferences. This process is greatly facilitated by the fact that constructivist approaches do not rely solely on direct transfer of knowledge from teacher to student, as is often the case with traditional, teacher-centered approaches. Constructivist learning principles take into account that "learners do not passively absorb knowledge, but rather construct it from their own experiences." Accordingly, teachers who use constructivist approaches act as coaches and knowledgeable guides who can empower students to reflect on their experiences as they relate to the goals of education.

.02. Constructivist Learning: An example of a technology-aided project

A main goal of public education is to teach students to be responsible, active citizens. Because active citizenship is beyond the direct experience of most eighth graders and the isolated classroom does little to expand that experience, constructivist history and social studies teachers instead choose to engage students in multimedia forays into the world outside the classroom. Instead of attempting to browbeat students into accepting the value of democratic participation, a technology-based project was designed to challenge students to increase voter turnout in their town.

Students were provided with a desktop computer, video camera, and a hand-held audio tape recorder. The students proceeded to write and produce a public service announcement that was aired on the local radio station throughout the day of the election. In the process of constructing this public service announcement, it was intended that students construct their own knowledge of the benefits of voting. After the service announcement had played in the community, students used the computer to run comparisons between the voter turnout of past years and the current year’s turnout. Students were then encouraged to formulate hypotheses on the impact their project on voter attitudes. By considering the results of what
they had constructed, students were encouraged to recognize the impact of their efforts on the democratic process.

Other students in the class used a video camera to create a public service announcement for television. However, due to the lack of editing equipment, the quality was poor. That project did not continue beyond the classroom. The incursion into the novel, for those students, ended on the teacher’s desk.

.03.Future technology-aided project (Return to Index)

John Dewey also emphasized how critical it was for students to reflect on the "relation between what we try to do and what happens in consequence." Those students that created high quality radio spots had many positive consequences to consider. The other students, however, did not have the appropriate editing equipment. Therefore, their video did not provide as many positive consequences. If both sets of students had the technology available to produce a high quality product, the reflection on both learning experiences would have been enhanced. With additional software and computer capacity, both classroom experiences would have given students an opportunity to reflect positively on the relationship between what they attempted to accomplish and the resultant positive outcomes.

Therefore, in the near future my classroom will have a computer with editing software and the appropriate memory to capture and edit video as well as audio. As this technology becomes more affordable, it can be purchased inexpensively by school districts and used to greatly enhance students' understanding that participation in a democracy can bring about positive consequences. Even though eighth grade students cannot participate by voting, they can influence others to vote. With this type of effort being well received in the community, students could very well be encouraged to remain active in the democratic process long after they leave school. Nonetheless, this is not the only goal of history and social studies.

.04. Constructivist Learning: The creation of a classroom multimedia presidential trivia game (Return to Index)

Another main goal of public education in history and social studies is the development of research and critical-thinking skills applied to "real world" problems. These skills were certainly developed in public schools prior to the introduction of computers. Computers, however, have increased the speed and ease of research. While the Internet appears to be the quickest and potentially most useful research tool for middle schools, there is evidence that a large amount of Internet data is of dubious quality. Therefore, there exists not only a need for students to be skillful researchers, but also for them to be skillful in critically evaluating the data they have acquired. Hence, learning experiences involving research should be designed so that the computer’s speed is used to enhance both the research and verification process. One method of incorporating a
constructivist approach in this manner is to have students construct an accurate and entertaining computer presentation depicting a presidential trivia game. After conducting library research on U.S. presidential facts, the students were provided with one class period to complete Internet research at the school’s computer lab. After gathering information, pairs of students constructed PowerPoint presentations illustrating the results of their research. The PowerPoint files were saved on a floppy disk, for future use in classroom presentations. The classroom learning experience was composed of three different components. While one pair of students conducted their PowerPoint presentation on a big screen television, two teams of students monitored computer terminals hooked to the Internet and to CD-ROM encyclopedias verifying the accuracy of the presentation. The remaining students used their textbooks to perform a similar quality control function. This type of critical analysis not only focused student attention on the historical information, but also enabled the class to observe the possible inaccuracies of research and to recognize the need for, and engage in, verifying the authenticity of information gathered from various Internet sites.

.05. Future Internet presidential trivia web site ([Return to Index](#))

The researched information about U.S. presidents can be applied to the "real world" by having students construct an educational Internet web page. Most schools in the near future will have a homepage that can house a collection of all the research gathered by students throughout the year, including traditional student papers demonstrating more extensive historical investigations. An accurate and entertaining presidential trivia game could be used as one enticement for Internet "surfers" to explore the rest of the home page. Therefore, students will have experienced the intrinsic reward of discovery in response to the "real" problem of attracting readers to a class history/social studies research web site.

.06. Constructivist Learning: Authentic computer and non-computer learning stations ([Return to Index](#))

Constructivist and reflective inquiry learning principles challenge teachers to provide excursions that convert abstract concepts into concrete understandings. Authentic learning experiences are simulations that encourage students to construct concrete understandings of abstract concepts by allowing them to analyze "real" situations. Authentic learning experiences are "real" in that they deal with problems that student’s face in their day to day lives. While typical worksheets and quizzes pose problems to students, from the perspective of the student, they pose the same problem: providing the answer that will please a parent or teacher and produce a grade that will lead to some future, abstract goal. Authentic learning experiences, however, engage students with current, meaningful problems that enable them to perceive an actual dilemma or ambiguity. Many Internet and CD-ROM activities are ideal vehicles for generating this type of analysis. While there are problems, for example, a class of 30 or
more students and a limited number of computer terminals, there are also ways of overcoming these obstacles, such as using stations as a possible solution. Case in point, when covering the Bill of Rights, students were actively engaged by rotating through both authentic computer and non-computer related activity stations. One computer activity entailed showing a video clip on the use of a fire hose against demonstrators during the Civil Rights movement. Students then participated in a small group discussion concerning which amendment was involved and whether the event illustrated the violation of rights. After several minutes of discussion and analysis, students recorded their observations and then moved to a non-computer station displaying a school’s disciplinary referral form stating, "Johnny will serve detention for praying before a test." Once again, students held a small group discussion concerning which amendment was involved and whether the student’s rights were violated. The students continued this rotational process until they visited every station.

.07. Future authentic computer experiences ([Return to Index](#))

In the near future, students at our middle school will be able to engage in station work that includes video conferencing with individuals throughout the nation and world. Students at a station, for example, will be able to communicate visually and verbally with citizens in Australia to obtain a first-hand account from those living in a nation with mandatory voting. Stations, however, remain the only way to allow all students to be involved in this type of classroom activity. A decrease in the cost of technology and increase in student access to personal laptop computers will hopefully reduce the need for such stations. No matter how students use computers with constructivist strategies, it is but one part of a diversified curriculum, which also includes the more traditional, teacher-centered lecture/discussion format.

.08. Teacher-centered instruction: The use of computers to enhance lecture/discussion formats ([Return to Index](#))

Computers in the classroom help to diversify middle school instruction and curricula, not only by providing constructivist learning experiences, but also by enhancing more traditional teacher-centered experiences. Essential knowledge provides what writers of the Yale Report of 1828 termed "furniture of the mind," or mental structures in which abstract ideas inhabit. While the traditional, teacher-centered approach may be the most popular learning experience for introducing students to this essential knowledge, the computer can be a tremendous tool for helping teachers to accomplish this pedagogical task. In fact, some evidence indicates that the visual appeal of computer presentations enhances motivation and achievement. Although the traditional, teacher-centered approach of lecture/discussion can be effective with verbal learners, the computer can augment presentations so that students with other learning styles are more effectively reached.
Teacher-centered instruction: An example of computer-assisted teacher presentations facilitating kinesthetic and visual learning

The use of presentation software (e.g., Microsoft PowerPoint or Apple Hyper-Studio) enhanced lectures covering the recent history of the Republican and Democratic parties. A series of Likert-scale survey questions were designed to help kinesthetic learners assess their stance on issues as they related to Democratic and Republican platforms. This Likert-scale was then converted into a PowerPoint slide and the image projected so that students could read and respond to questions concerning the death penalty, abortion, and military spending. Responses were then correlated to a political continuum placed at the front of the room. After calculating their responses, kinesthetic learners then experienced a kind of human scatter plot by walking up to their place on the liberal-conservative continuum. Presentation software can also assist visual learners during lecture/discussion. Students can be challenged to develop mnemonic devices when studying the Bill of Rights. These devices can then be converted into a visual equivalent and projected to the class on a PowerPoint slide. Examples have included student suggestions that the First Amendment’s ideals of freedom of expression be associated with the pop singer Madonna’s number one hit song “Express Yourself.” Another student example included converting the freedoms of religion, assembly, press, petition, and speech into the acronym RAPPS. A PowerPoint projection of Madonna "rapping" helped put the First Amendment into the long-term memory of pop-savvy eighth graders. In another example, students created a mnemonic device that made remembering the Second Amendment’s right to bear arms almost effortless. The students suggested one think of "two, bare arms." In order to reach the visual learners, a PowerPoint image depicting a man reaching into a pile of guns with two bare arms was shown to the class. Video clips provide another means to reach visual learners. The vicarious experience of watching a clip of Jimmy Stewart’s filibuster in "Mr. Smith Goes to Washington" enabled eighth grade students, in a classroom setting, to take a trip to the Senate floor. In another example, after a class debate concerning the Watergate scandal, a video clip of Nixon resigning was shown to students. This activity was able to connect the classroom discussion to the actual event in an extremely powerful manner. Finally, rather than merely talk about what it would be like to experience Martin Luther King’s power as leader during the Civil Rights movement, the showing of his "I Have a Dream" speech helped, at a critical time in the lecture, to bring to life that moment in history. This type of technology, inserted at critical moments during instruction, can fulfill, what Dewey has termed, the "quest for something that is not at hand."
In the future, teachers may be able to insert, within a lecture/discussion, virtual excursions for students via computerized information provided by digital icons, indexes, and symbols. This use of technology is very different from its current application. According to Kimberley M. Osberg:

Virtual reality goes at least one level above multimedia in terms of perceptual richness and locus of control. The primary difference is in intent; multimedia is a representation, whereas virtual reality is a simulation, intended to fool the senses into believing that the participant is perceiving their ‘physical’ body to be in another place. And yet, it is the reintegration of the body in the search for knowledge that provides such a compelling tour de force to the technology . . . . This last point is particularly powerful in education. By bringing our bodies back into the search for meaning, we can at long last become fully, not just intellectually, integrated.12

Even though development of this technology is still emerging, one can imagine the possibilities of its future educational applications.

.11. Conclusion and cautionary note concerning the reliance on technology (Return to Index)

The value of using computers in middle school history or social studies classrooms is that they help diversify instruction and curricula, therefore addressing the needs of learners with multiple learning styles. Experiential learning styles can be effectively reached by applying constructivist learning principles. Examples of constructivist learning activities include having students use technology to increase voter turnout, construct presidential trivia web sites, and engage in authentic station work. In addition, augmenting traditional, teacher-centered instructional approaches with the use of PowerPoint presentations can effectively reach verbal, kinesthetic, and visual learners.

However, as with any learning activity, if not used properly, educators will not likely reach their educational goals and objectives. The author observed a classroom engaging in a virtual debate conducted over the Internet with another school. When the obstacles of time, dollars, and distance must be overcome in order to obtain the desired diversity for a well-rounded debate, the use of this technology can certainly be a valuable tool for achieving classroom learning objectives. However, at the time of the observed debate, the majority of schools with this technology were suburban schools attended by students of similar socioeconomic backgrounds. Because the schools had similar students, no materially different perspectives were added to the dialogue. Rather than use technology to scan the globe for what can become a "safer," more detached virtual interaction, why not develop the students’ interpersonal communication and critical-thinking skills by foregoing the use of technology and having students look each other in the eye, in a spontaneous face-to-face exchange of ideas?

Whether teachers are to use computers in support of constructivist learning experiences or more traditional teacher-centered learning experiences, it
should be done in a way that increases the attainment of educational objectives—not merely for the sake of using technology. Therefore, with either learning approach, the thoughtful application of computers in a middle school classroom can be an excellent way to provide the conditions for students to have incursions into the novel.

**Notes** (Please note: The ordinal numbers below are links which will return you to the proper note in the text) ([Return to Index](#))


8. For example, Virtual Senator is a real-time role-playing game where one is cast in the part of a United States Senator found on the web at [http://tqd.advanced.org/2900/cgi-bin/sim.htm](http://tqd.advanced.org/2900/cgi-bin/sim.htm); Microsoft Encarta 1999 CD-ROM Encyclopedia contains several video-clips and other hands on activities.


Note: A previous version of this article was published as "Use of Computers in a Middle School Social Studies Classroom: Providing the Conditions for 'Incursions Into the Novel' Now and in the Future." CSS Journal: Computers in the Social Studies. (March/April, 1999).

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