TECHNOLOGY, CITIZENSHIP, AND THE SOCIAL STUDIES CLASSROOM: EDUCATION FOR DEMOCRACY IN A TECHNOLOGICAL AGE

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Throughout human existence, changes in technology have influenced human life. As humans expanded the types of tools they created and increased the strength and durability of these tools (i.e., moving from stone to bronze and then to iron tools), they were able to use the land in different ways, begin to harness the strength of animals to do work, and start to create other items, such as wheels, that significantly altered their lives. During the industrial revolutions in Europe and the United States, inventions, such as the steam engine, transformed how humans worked and how goods were produced and transported. In the twentieth century, the creation of affordable, mass-produced vehicles changed the landscape of the United States forever.

Innovations in technology also impact civic life. Radio and television became prominent fixtures in the United States in the twentieth century. As these items increased in use, they became important aspects of the political world, from Franklin D. Roosevelt's fireside-chat broadcasts via radio to the first televised presidential election in 1960. As we entered the twenty-first century, another technological innovation, the Internet, emerged as a new factor in civic life.

Technology has and continues to influence how we participate in our democracy and, in turn, shapes what educators must consider as they prepare students to become active members in a democratic society. This article begins by explaining three ways in which technology has impacted and continues to impact civic life in the United States. It then focuses on implications for the social studies classroom.

Technology Impacting Democracy and Citizens

Changes in technology impact democracy and citizens in at least three major ways: access to information; access to the political process; and, access to the topics or issues that are debated, discussed, and legislated.

Access to Information

An informed citizenry is one key to a healthy democracy[1] and access to information is one important aspect for creating an informed citizenry. Access to information has changed over the last two hundred years. As Bruce Bimber explained, when the United States was created, "no workable method existed for the public to communicate reliably or thoroughly outside their immediate communities,"[2] and thus access to information was quite limited. At different points in time, national mail service, national newspapers, radio, and television have all changed citizen access to information. Now, the Internet and other electronic technologies are changing access again. [3]

During the past ten years, access to the Internet and daily use of the Internet grew considerably in the United States for adults[4] and students. The percentage of schools with access to the Internet increased from 35 percent in 1994 to nearly 100 percent in 2003,[5] and classrooms with Internet access increased from 3 percent in 1994 to 93 percent in 2003.[6]

Besides access to the Internet, the amount of information available via the Internet is also important. As of 2002, the Online Computer Library Center reported 8,712,000 unique Web sites.[7] Such an increase in the access to and the amount of information on the Internet means an ever-increasing amount of both numeric and narrative information available to students and citizens. To make educated decisions in a democracy, individuals have always needed to be able to evaluate the validity and reliability of information, synthesize multiple sources, and determine a position or plan of action. As the Internet assumes a stronger position in everyday life, these skills are even more important. A citizen must acquire skills to sift, sort, synthesize, and evaluate the massive amounts of information, such as numeric information in the form of statistics, charts and graphs, and narrative information from Web logs or blogs, Web sites, and e-mail that they can retrieve and that they receive.

Access to the Political Process

Beyond accessing information, changes in technology have also increased an individual's access to the political process. In the early history of the United States, access to the political process was limited by the lack of good communication tools. Representatives were hard pressed to truly represent their constituents when ways to communicate were severely limited, and those they represented could be hundreds of miles away. In addition, this lack of communication restricted the development of parties and other large-scale political organizations.[8] Two major changes in the 1820s and 1830s, the formation of a massive nationwide postal service and a national newspaper industry, combined to form the

first information revolution that transformed politics dramatically. Then, during the second information revolution, as a result of the industrial revolution and the growing nation, "information became enormously complex and highly differentiated."[9] During the third information revolution, the television created greater opportunities for individuals to receive political messages and for more diverse political messages to be expressed. Now, we are in the middle of a fourth information revolution: a revolution centered on the Internet and other information technologies.[10] Access to and use of these new technologies affords us yet another occasion to transform the political process.

The 2004 election campaign, for example, marked the first time that the Internet played an important role in a presidential election. A Pew study explained that during the 2004 campaign, "37% of the adult population and 61% of online Americans—used the Internet to get political news and information, discuss candidates and debate issues in emails, or participate directly in the political process by volunteering or giving contributions to candidates."[11] Through Web sites, blogs, and e-mails, candidates and their campaigns were able to reach constituents in a new way. These tools were used to raise funds, organize rallies, and spread the message about particular candidates and issues. Beyond periodic elections, the Internet has expanded access to the political process in general. For example, it is becoming easier to send a political message to a government official or to a wider audience. Political parties and political organizations, such as Environmental Defense (www.environmentaldefense.org) and the National Rifle Association (www.nra.org) have begun to use the Internet as an access point into the lives of citizens. The means to organize are changing as well, becoming less expensive, more efficient, and quicker because of e-mail and blogs. E-mail, blogs, and Web sites abound and offer an opportunity for citizens to become more active in the political process. E-mail also offers a new tool with which to contact representatives and influence the political process at local, state, and national levels, a tool that is much quicker than traditional routes. Although access and opportunity have increased, the need for citizens to develop the desire to participate has not been altered by technology—access and opportunity does not equate with use.

New Topics and Issues

As technology changes, new issues emerge that require a citizen's careful and thoughtful attention. Whether the issues are with the use and regulation of electronic media, such as the Internet and e-mail, or with scientific discoveries and exploration, such as cloning and stem-cell research, changes in technology often add to the political debate and contribute to the ever-increasing complexity of the political world. As com-

113

puter and information technologies expand, issues of privacy,[12] equity,[13] and freedom of speech will become more and more common. With these new issues and topics, the government and public will engage in more frequent discussions over when there should be control, who should have control, what should be controlled, and how much control is appropriate.

Technology and Educating a Citizenry

A democracy needs an educated citizenry. Thomas Jefferson argued this in the eighteenth century,[14] and John Dewey continued the argument in the twentieth century.[15] What does an educated citizenry in a technological age look like as opposed to when these men wrote about the relationship between education and democracy? How can we prepare this new citizenry? The three ways in which technology has impacted democracy, as discussed above, provide a useful structure for exploring implications for the education of citizens to participate in a democracy influenced by technology. For example, access to increased amounts of information means that citizens need to become even more information savvy than ever before. Additionally, not only do they need to know how to understand the multiple perspectives that they encounter, they need to feel an obligation to explore multiple perspectives to fully understand the society they live in and make informed decisions. This section highlights implications for social studies education based on the three ways technology changes democracy.

Access to Information and the Classroom

In defining the term social studies, the National Council for the Social Studies stated that the "primary purpose of social studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens."[16] For students to develop into and remain informed citizens who can make reasoned decisions in today's information rich and computer-dependent world, they must develop the ability to decode and interpret the numeric and narrative information they encounter, develop the ability to evaluate the source of the information, and develop a respect for and desire to hear, and learn ways to find multiple perspectives.

Understanding the information they access. Citizens are bombarded every day with statistics, charts, graphs, and other visual representations of numeric data. Through social studies and technological tools, students can begin to decode and interpret both numeric and narrative information by learning how to analyze statistics, graphs, charts, other visual representations, and text. Teachers can also help their students develop a disposition towards critically assessing data they encounter. This ques-

114

tioning contributes to their ability to analyze and interpret information and, in turn, make informed decisions.

During the past few presidential elections, for example, many news broadcasts used a familiar political map of the United States to illustrate states won by each candidate. This commonly used map provided viewers with a quick, simple way to see which candidate won a state's electoral votes, but the map commonly used was deceptive. Since the map used is based on the physical size of states rather than population or the number of electoral college votes, the map misrepresented the vote.[17] Using the standard map for the 2004 election makes it appear as if most of the country voted for George W. Bush. However, the numbers, or a cartogram based on population density, tell a different story. Someone who does not know the population density of the different areas of the United States or does not know how many electoral votes each state has would quickly and easily deduce from the map used that the election was a landslide for President Bush. This, however, was not the case, and a citizen needs to understand this and the implications of this misrepresentation to fully understand and remain active in the political process.

Through the social studies classroom, students can regularly be exposed to this type of misrepresentation, discuss these phenomena in multiple contexts, and learn from the experience how to think about visuals in the future. Technology has made it easier to access privately created and published cartograms of the election, for example, and has made it easier for teachers and students to design unique cartograms themselves. In addition to cartograms, commercially purchased software such as *MapViewer* or the online National Atlas' (www.nationalatlas.gov) *Map Maker* tool allow teachers or students to create rather sophisticated maps inexpensively or free, which combine geographic and numeric information. Using such tools can enhance many political, economic, and environmental discussions, increase students' understanding of how data can be misrepresented, and help them begin to question the information that they encounter.

Creating and using charts and graphs coupled with developing a critical eye towards interpreting them is another important aspect in the development of informed citizens. Charts and graphs have been important in school mathematics for many years and have been a part of most social studies curricula as well. However, a consistent and systematic integration of charts and graphs into a social studies classroom has often been limited to students interpreting the ones provided by textbook companies, since frequent creation of sophisticated charts and graphs takes considerable time away from what little time a social studies teacher has already. Now, with technological tools such as the National Center for Education Statistics' *Create a Graph* online tool (http://nces.ed.gov

/nceskids/createagraph) or Microsoft's *Excel* program, students and teachers can create charts and graphs to represent information quickly and inexpensively. With these tools, teachers can readily integrate charts and graphs into social studies lessons throughout the year. For example, social studies students can develop charts and graphs to organize and facilitate interpretation of historical data, as exemplified in the *Jobs in Jamestown* lesson plan accompanying the Virtual Jamestown digital history project.[18] In the lesson, students use two types of graphs to represent primary source information. They create pie charts and bar graphs to show comparisons among the numbers of people in the first Jamestown settlement according to job titles. This allows students to visually see numeric information and answer historical questions. For instance, these charts and graphs can depict the disproportionate number of gentlemen compared with tradesmen and laborers.

In addition to using the charts and graphs, teachers can engage students in conversations about what types of charts and graphs to use, how to label these charts and graphs, how the scale of the chart or graph matters, and whether raw numbers or percentages best represent the situation. Developing an awareness of how scale, for example, can change the way the graph illustrates the information can help students begin to understand how bias can be seen in these graphical forms of communication.[19] Engaging in activities and conversations centered around the creation and use of charts and graphs will help students develop an essential awareness that can be used in their lives as citizens to interpret the data that is often presented to them on television, in the newspaper, and online.

Besides addressing information in visual and numeric forms, social studies educators can make use of political and ideological blogs and Web sites to help students learn to decode and interpret narrative statements. John Lee suggested that ideological Web sites can serve as "the object of instruction."[20] In his description, the teacher would provide ideological Web sites and writings to help students more fully understand the ideological differences in the discussions, disagreements, and complex arguments over a particular topic being debated. Interacting with these forms of communication in a classroom with the guidance of a teacher can help students develop their ability to recognize and uncover bias, an important skill in becoming and remaining an informed citizen.

Evaluating the information they access. It has always been important as a citizen to judge the validity and reliability of a source of information; and with the incredible increase in the amount of information available, it is now imperative. A social studies teacher can help prepare students for their role as citizens by teaching them how to evaluate the information they encounter. Just as students can be taught how to judge the reliability

and validity of historical sources, students can also learn to judge the reliability and validity of the information on Web sites, in blogs, and in emails.

James Shiveley and Phillip VanFossen created a system for evaluating information sources from the Internet. They explain that teachers and students should consider the authorship and/or source of the Web site, the objectivity and bias of the source, the validity of the content within the source, the bibliographic and or reference links provided or not provided within the source, the currency of the source, and the quality of writing of the source.[21] Social studies teachers can create evaluation guides for their students based on these suggestions and integrate evaluation of Web sites into their courses in much the same ways they integrate the evaluation of other materials like primary sources. As teachers introduce Web sites to their classes, they can explain the criteria they used to choose the site, identify why particular sites are reliable and trustworthy, and provide students with opportunities to determine the worth of sites for themselves. Explicitly teaching students to judge the validity and reliability of an online source in a social studies class enables them to make independent decisions about the value and trustworthiness of a source as they begin to explore the Internet on their own.[22] Without a clear understanding that all sites are not equally reliable and that criteria can be used to determine reliability, students are likely to draw conclusions that the teacher never anticipated, or that counter the goals and objectives of the course.[23]

Emphasizing multiple perspectives. The National Council for Social Studies called for social studies programs to facilitate students' development of personal, academic, pluralist, and global perspectives.[24] In order to develop these perspectives, students need to encounter and understand multiple perspectives. Technology has made the process of accessing multiple perspectives and highlighting different points of view cheaper and easier than ever before. Teachers in social studies classes can use this new technology to help students learn how to seek out multiple perspectives, how to synthesize various viewpoints, and how to make an informed choice. For example, a teacher could modify the traditional current events activity by expanding the task to include papers from around the world. The introduction of global newspapers along with guiding questions to help them uncover differing points of view is one way to broaden the perspectives students encounter.[25] The Internet Pubic Library provides a thorough index of newspapers from countries around the world[26] that can be accessed to help students begin to see events from multiple perspectives.

Increased access to multiple perspectives alone will not suffice. Although there are millions of Web sites on the Internet and thousands of

blogs to discuss just about anything from the political to the mundane, students and citizens will not automatically search out multiple perspectives. Because there is so much information, we naturally seek ways to classify and organize it in order to limit and control this situation. We use filters and search engines to help us control our access, but this compartmentalization can quite successfully eliminate the multiple perspectives well-informed citizens need when making decisions. Informed citizens must learn to seek out multiple perspectives to make a truly informed decision.

Accessing the Political Process and the Classroom

Becoming active in the political process, like searching for multiple perspectives, does not happen just because of increased access to the political process. Social studies educators must guide students toward this path by explicitly teaching them how to become informed and involved. At one level, social studies teachers can introduce students to Web sites that can offer political information. Web sites have been created for the executive, legislative, and judicial branches of the federal government (www.whitehouse.gov–with access to all fifteen departmental Web sites, www.house.gov, www.senate.gov, and www.supremecourtus.gov) that provide access to a wide variety of historical information, information on current topics, and contact information. State and local governments also have created similar structures. Indeed, most political action committees and political parties have Web sites. Exploration and exposure to a diverse array of groups is a first level. Students can use the sites to help them understand the history and purpose of different parts of the political process. This level of access provides students with knowledge. At another level, these sites and the use of email allow for quick and easy contact with government officials and others. Teachers can conduct lessons that require students to use these sites to become or stay aware of current issues and to contact representatives with their perspectives. Through these strategies, social studies teachers provide initial opportunities for students to enter and begin to engage in the realm of the political.

New Issues and Topics and the Classroom

As mentioned earlier, changing technologies have introduced new discussions on topics, such as freedom of speech, privacy, and equity, that citizens will need to understand to make decisions. Through social studies education, students can be prepared to understand and take positions on these issues. These topics present excellent opportunities for teachers to help students engage in authentic civic action. Using innovations in technology, teachers can combine the increased access to information and the

increased access to the political process with traditional methods like discussion to help their students develop and voice clear, well-supported positions to local and national politicians. For example, teachers can use the Web sites of organizations, such as the Center for Democracy and Technology (www.cdt.org), as tools to expose students to issues relating to government and technology. Copyright issues encountered on the Internet, for example, are one area students could explore. While exploring past and current cases related to this topic as well as the positions of those impacted, students can also be learning how to develop and express their arguments. The teacher can employ commercial software like Tom Snyder's *Decisions! Decisions!* or *Decisions! Decisions!* online (ddonline.tomsnyder.com) to simulate deliberative decision-making processes essential in democratic citizenship. As students engage in these simulations, the teacher can draw parallels to the decision-making process that they must undergo about the topic under study. As they are trying to develop informed and well-supported positions, the teacher can utilize electronic and face-to-face discussion to help students learn to articulate their positions and to appreciate the perspectives of others. An electronic discussion has become an excellent complement to face-to-face discussions for helping students develop skills in democratic discourse. As Bruce Larson explained, electronic discussion reduces "the limitations of time and place"[27] opening up more possibilities. In particular, this format can provide opportunities for students who typically do not participate in face-to-face discussions to share ideas and perspectives.[28]

As electronic and information technology become more pervasive aspects of civic life, so must they play an important role in the education of citizens. We must not be lulled into a sense of complacency by the amount of information or the level of access that exists; education is still essential. For example, there may be more information accessible but citizens have to want to find it, and there may be more ways to access the political process but citizens have to seek out this participation. Social studies educators are instrumental in the process of preparing informed, thoughtful citizens, and technological tools are becoming vital in this work. Social studies educators must consciously consider the ways in which technology changes the life of a citizen and make choices to integrate technology in ways that support the development of an educated citizenry. Without deliberate integration of technology and a clear focus on the skills, knowledge, and dispositions needed to be an active and informed citizen, the development of an educated citizenry will not occur.

NOTES

1. Bruce Bimber, *Information and American Democracy: Technology in the*

Evolution of Political Power (Cambridge, Mass.: Cambridge University Press, 2003), 197.

2. Ibid., 47.

3. Ibid., 47-88.

4. Ibid., 210-16.

5. Basmat Parsad and Jennnifer Jones, *Internet Access in U.S. Public Schools and Classrooms: 1994–2003* [NCES 2005–015] (Washington, D.C.:U.S. Department of Education, 2005), 4.

6. Ibid., 18

7. Online Computer Library Center, "Size and Growth Statistics [OCLC—Web Characterization]," http://www.oclc.org/research/projects/archive/wcp/stats/size.htm.

8. Bimber, *Information and American Democracy*, 47–49.

9. Ibid., 19.

10. Ibid., 19-20.

11. Lee Raine, Michael Cornfield, and John Hoorigan, *The Internet and Campaign 2004* (Washington, D.C.: Pew Internet & American Life Project, 2005), http://www.pewinternet.org/PPF/ r/150/report_display.asp.

12. Ann Cavoukian, "Privacy Enhancing Technologies: Transforming the Debate Over Identity," in *Digital Democracy: Policy and Politics in the Wired World*, eds. Cynthia J. Alexander and Leslie A. Pal (Ontario: Oxford University Press, 1998), 181-93.

13. For examples of issues of equity, see discussions of the digital divide at www.digitaldividenetwork.org.

14. Jennings L. Wagoner, Jr., *Jefferson and Education* (Chapel Hill: Thomas Jefferson Foundation/ University of North Carolina Press, 2004).

15. John Dewey, *Democracy and Education* (New York: Free Press, 1967).

16. National Council for the Social Studies, *Expectations of Excellence: Curriculum Standards for Social Studies* (Washington, D.C.: National Council for the Social Studies, 1994), vii.

17. Michael Gastner, Cosma Shalizi, and Mark Newman, "Maps and Cartograms of the 2004 US Presidential Election Results," http://www-personal.umich.edu/~mejn/election.

18. Sonja Czarnecki, "Jobs in Jamestown," http://www.vcdh.virginia.edu/teaching/jamestown/jobs.html, (accessed July 1, 2005).

19. For an example lesson idea demonstrating how scale matters see, Joe Garofalo, Clifford Bennett, and Cheryl Mason, "Plotting and Analyzing: Graphing Calculators for Social Inquiry," *Social Education* 63, no. 2 (March 1999): 101-05.

20. John K. Lee, "Ideology and the Web," *Social Education* 66, no.3 (April 2002): 161-65.

21. James M. Shiveley and Phillip J. VanFossen, *Using Internet Primary Sources to Teach Critical Thinking Skills in Government, Economics, and Contemporary World Issues* (Westport, Conn.: Greenwood Press, 2001), 21-25.

22. James M. Shiveley and Phillip J. VanFossen, "Critical Thinking and the Internet: Opportunities for the Social Studies Classroom," *The Social Studies* (January/February 1999): 42–46.

23. Ibid.

24. National Council for the Social Studies, *Expectations of Excellence*, 6-7.

25. David Hicks and E. Thomas Ewing, "Bringing the World into the Classroom with Online Global Newspapers," *Social Education* 67, no. 3 (April 2003): 134–39.

26. Internet Public Library, "Internet Public Library: Newspapers," http://www.ipl.org/div/news.

27. Bruce E. Larson, "Comparing Face-to-Face Discussion and Electronic Discussion: A Case Study from High School Social Studies," *Theory & Research in Social Education* 31, no. 3 (Summer 2003): 347–65.

28. Ibid., 360-61.