

Commentary: Science, Technology, and Society in Guidelines for Using Technology to Prepare Social Studies Teachers: A Reply to Hicks et al. and Crocco and Leo

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Abstract

This essay is a response to both the “Guidelines for Using Technology to Prepare Social Studies Teachers” published in this journal by Hicks, Lee, Berson, Bolick, and Diem (2014) and the rejoinder by Crocco and Leo (2015). The author agrees with Crocco and Leo’s assessment that removing the principal regarding science, technology, and society is concerning, though for different reasons. The technology guidelines should include an examination of the nonneutrality of technology, including the psychological and social effects of technology, as part of this principle. This approach could foster more competent decisions regarding the implementation of digital tools in the social studies curriculum.

The updated version of the “Guidelines for Using Technology to Prepare Social Studies Teachers” (Hicks, Lee, Berson, Bolick, & Diem, 2014) is a useful document that includes a wealth of thoughtful suggestions about appropriately and conscientiously integrating technology into the social studies curriculum. The subject of my sole concern echoes that of Crocco and Leo (2015) regarding the removal of provisions pertaining to science, technology, and society in the updated guidelines. However, the details of my concerns differ sharply from Crocco and Leo and focus largely on addressing the psychological and social effects of technology as part of this theme.

In the revised guidelines, the authors argued that having students study the relationships between science, technology, and society is no longer warranted, as this principal “was a product of its time” (Hicks et al.), though they incorporated pieces of this theme into other parts of the document. In the original guidelines regarding this principal (see [Mason et al., 2000](#)), the authors focused mainly upon equality of access issues. While universal access to digital tools has been addressed, though by no means resolved in the intervening years, other pertinent issues regarding science, technology, and society warrant further examination.

Crocco and Leo astutely pointed out additional concerns, such as the need to consider distinctions between what is public or private, cyber bullying, and issues of power and oppression, such as sexism and racism, which are prevalent online. The increasing presence of marketing and consumerism facilitated by digital technologies is worth considering and, in particular, Internet social networking, since sites like Facebook are designed to data mine students’ tastes and preferences for purposes of targeted marketing.

I also must respond to some of Crocco and Leo’s conclusions regarding what they call the “social media paradigm.” New technologies are always what Neil Postman (1992) called “faustian bargains.” That is, they offer new possibilities, but also disrupt or harm other things, such as existing social relations or practices that may be useful and important. The guidelines for technology in the social studies should include provisions that encourage reflectively considering the trade-offs of both past and contemporary technologies. The original guidelines touched upon one of these concerns briefly when they noted that new technologies may adversely impact social development (see Mason et al. 2000, in the section, “Include Opportunities for Students to Study Relationships Among Science, Technology, and Society”), but more needs to be said on this matter.

The Nonneutrality of Educational Technology

In their response to Hicks et al., Crocco and Leo made the crucial point that information is not a neutral force but rather is always embedded in relations of power. They advocated critical media literacy as an antidote. I agree with this move. As part of guidelines for technology integration, students should be asked to consider the positionality of texts and generally be taught to become deep, critical readers and users of material in both written and visual forms, the latter of which are becoming increasingly prevalent due to the proliferation of digital technologies.

While information is value-laden, because it is always embedded in power relations, the tools used to access information are also not neutral, a fact which may be less understood. Every tool privileges accessing particular kinds of information and encourages perceiving content in particular ways that affect how users make meaning. Proponents of educational technology have long embraced the implicit assumption of technological neutrality, or the idea that new technologies are mere tools for achieving instrumental objectives without any accompanying psychological or social effects. The prevalence of assumptions of progress through new technologies has been previously identified in the social studies (see Tally, 2007).

Conceptualizing technologies as neutral forces can lead to a progressive understanding of technology, as new devices and tools often allow tasks and goals to be achieved faster and easier. If more problematic consequences are ignored or simply not perceived, then new

technologies can seem like unmitigated blessings. This belief at least partly explains the often-made connections between new technologies and constructivism. Those advocating constructivism in the social studies recognize that access to primary documents and other resources has become much easier due to contemporary technologies. Although they undoubtedly are, adequate resources for such approaches have been more or less available for several generations. John and Evelyn Dewey documented examples of experiential and inquiry approaches to teaching in the early 1900s (see Dewey & Dewey, 1915). The guidelines provided by Hicks et al. do much to argue for a more sober and realistic assessment of educational technology's potential in the social studies, but the conception of technological neutrality and its connections to assumptions of progress through technology must be understood by future social studies educators before such calls will have any lasting impact.

The issue of technological neutrality brings up another concern regarding the principal of science, technology, and society: the changing symbolic environments that our students inhabit as a result of new technologies. Various academic fields of study, including media ecology in communications, along with the interdisciplinary field of science, technology, and society (STS) studies, examine the nonneutral consequences of technology, but this understanding has yet to impact education scholarship. At this point, a brief sketch of some of these perspectives would be helpful in explaining why an exploration of the issues surrounding STS should be included within guidelines for technology education in the social studies.

Langdon Winner (2004) stated, "Technologies are not merely aids to human activity, but also powerful forces acting to reshape that activity and its meaning" (p. 105). Similarly, Peter-Paul Verbeek (2006) argued that new technologies mediate the world for users, because "when a technological artifact is used, it facilitates people's involvement with reality, and in doing so, it coshapes how humans can be present in their world and their world for them" (p. 364). Technologies frame the world in particular ways that facilitate certain types of behavior while discouraging others.

This concept is important to understand for at least two reasons. First, as new technologies are introduced into learning situations, they do not only make accessing resources easier, they also alter the dynamics of meaning-making for students. This capability may often aid in the process of constructing knowledge, but can just as easily hinder it. Without explicitly considering this issue, preservice social studies teacher may have difficulty distinguishing the difference.

A recent example from my elementary social studies methods course illustrates the point. When students were turning in their initial lesson plans, I noticed that several students had included YouTube™ readings of books instead of performing the read-aloud task themselves. In a subsequent discussion about their pedagogical choices, we talked about the dialogic role of interactions between teachers and students and, in particular, how teachers can conduct a read-aloud in ways that involve students in what could be called a shared performance, in which students may respond to the teachers' inflections during the reading. The teacher may also ask for predictions from students or include partnered discussions at various points, and so on.

Much of the experiential, meaning-making possibilities associated with constructivism are lost, however, if teachers give over the reading to a static recording. This anecdote speaks to some preservice teachers' progressive assumptions about new educational technologies and demonstrates the need to consider this concept critically as part of technology integration.

To understand another reason why the nonneutrality of technology matters for social studies education, we must examine the communication subfield of media ecology. Like STS, scholars from this field recognize technology as a nonneutral force, though media ecologists emphasize the role of technologies, particularly media technologies, as environments that structure human interaction in various ways. Neil Postman (2000) explained, “A medium is a technology within which a culture grows; that is to say, it gives form to a culture’s politics, social organization, and habitual ways of thinking” (pp. 10-11).

While media ecologists readily understand that cultures produce media for purposes of communication, they argue that cultures are also produced by media technologies. The implications of this assertion are that media cultures help produce the character and disposition of individuals, normalize how relations should be conducted, and generally, filter the ways that people are able to make meaning of their social worlds. Thus, as media change within the culture, the dispositions of people tend to change as well. It impacts both preservice teachers and, as well, their future students, but first, explicating how it has affected politic dynamics in the broader culture is important.

In the second half of the 20th century, political discourse shifted, due in no small part to the emergence of television as the dominant cultural medium. Consider the 1996 presidential debates between the incumbent President Bill Clinton and the challenger Bob Dole. Media scholar Robin Anderson (2000) described the media coverage leading up to the first debate, noting the “endless replays of video clips of the most dramatic one-liners from past televised debates” (p. 260). She asserted that “it started to become clear that these singular soundbyte moments were the sum total of the media’s history of presidential debates” (p. 260).

An array of analysts appeared on network channels in the days preceding the debates, with their analysis consisting mostly of predictions concerning who would be most likely to make a gaffe and what each candidate had to do to emerge victorious. Anderson (2000) concluded, “These TV commentaries were giving viewers a framework for judging the outcome of the debate. And all criteria were theatrical. All the preparatory TV talk revolved around the candidates’ performance as entertainers” (p. 261). By contrast, little was said of actual political issues or policy matters.

Anderson blamed poor media coverage for this state of affairs. While it would be difficult to argue with this conclusion, media ecologists insist that screens facilitate such coverage, as the screen form lends itself to a focus on appearance and impressions over analysis. An explanation for this phenomenon can be found by examining philosopher Suzanne Langer’s (1996) distinction between discursive versus presentational symbolism. Discursive symbolism is the world of language exemplified by print. Here, ideas are abstracted from their context and displayed in linear form.

In order to make meaning from print, readers must engage in a complex process of decoding and imaginative interpretation. Such a process fosters psychological distance from the content, promoting reflection and analysis. By contrast, presentational symbols, which include gestures, pictures, paintings, and screens, “do not present their constituents successively, but simultaneously, so the relations determining a visual structure are grasped in one act of vision” (Langer, 1996, p. 99). In other words, presentational symbols in screen form bombard the human perceptual system with a vast amount of information that must be perceived simultaneously.

This perceptual data matters for the 1996 presidential debates and other political matters on screens, because the material is anchored in presentational symbolism. Though the

candidates use language to communicate, the totality of the presentation is what tends to come through in the perception of viewers. This experience fosters a “phenomenology of closeness” (Hart, 1994, p. 64) that emphasizes felt impressions over more dispassionate considerations of substantive matters such as social issues and policy positions.

I am not disparaging presentational forms outright, nor do I mean that the perception of viewers is irrelevant. Felt impressions are one important way of making meaning. However, the problem in political matters is that the difference between immediate felt impressions and more reflective considerations are blurred within screen experiences, as “the audience forgets about the communication technologies and experiences the story world as a spontaneous conjunction of human expression and embodied perception” (Gaines, 2010, p. 126).

To support this assertion, research suggests that the personal qualities of political candidates are more important to television viewers than newspaper readers (Hart, 1994, p. 38). Also, over the last generation, polls have shown that citizens will increasingly vote for a candidate whose policy positions they disagree with, as long as they like the candidate personally (Meyrowitz, 1997, p. 22).

Though the Internet remediates both print and television, the dominant forms of new media have increasingly moved toward an image-focus, making presentational symbols an ever-more prevalent feature of contemporary media experiences. The point to be made is that achieving critical media literacy, which is also advocated by Crocco and Leo, requires understanding these matters. An appropriate reaction to present-day symbolic environments is to incorporate these understandings into technology education in the social studies in order to foster more critical and conscientious appropriations of such tools by teachers.

While contemporary symbolic environments offer challenging prospects regarding political discourse, they also entail consequences for the practices and habits of students that impact social studies classrooms. Sociologist Zygmunt Bauman (2010) wrote about the individualization inherent in online environments, in which the appeal is geared toward the atomized individual, with interactions that lack the complexity and ambiguity of offline environments.

For the young, the main attraction of the virtual world derives from the absence of the contradictions and cross-purposes that haunt offline life. Unlike its offline alternative, the online world renders an infinite multiplication of contacts conceivable—both plausible and feasible. It does this through reducing their duration and, consequently, by *weakening* such bonds as call for, and often enforce duration—in stark opposition to its offline counterpart, which is known to find its bearings in a continuous effort to *strengthen* bonds by severely limiting the number of contacts while extending and deepening each of them. (Bauman, 2010, p. 15)

Bauman argued that the quality of human bonds help forge a strong sense of self and foster deeper understandings of difference. Such understandings must be practiced in order for growth to be achieved. By contrast, “instantaneous disconnection on demand perfectly fits the essential precepts of the consumerist culture; but social bonds, and the skills needed to tie them and service them, are its first and principal collateral casualties” (Bauman, 2007, p. 107). Bauman connected individualized online environments and the increasing commodification of culture, both of which represent immense challenges for the development of engaging civic habits among youth.

Sherry Turkle voiced similar concerns about diminished social expectations in online environments. In her research into youth and social networking sites, Turkle (2011) noted that relationships become objectified online as friends turn into fans. She described vulnerable youth who are anxious about keeping up appearances on Facebook and exemplify what she calls a “hyper-other-directness” that is overly dependent upon the approval of peers (p. 177). These youth prefer the isolation and control of mediated online interactions and find face-to-face interaction or even telephone calls discomfiting in that they may reveal too much of oneself.

Similar insights have been noted by education scholar Howard Gardner. In recent work, Gardner and Davis (2013) explicated a “paradox of *action* and *restriction*” (p. 24) in the online interactions of youth, who roam the virtual world encapsulated by computer software that restricts possibilities. Paralleling Turkle and Bauman, the authors described a “push toward an overall packaged sense of self” (p. 61) that is largely commodified and externally oriented, with behaviors that are increasingly circumscribed by digital code. These students, the authors asserted, are more socially risk-averse.

Also worth noting is that the impression management that has become an increasing factor in political discourse on screens is, according to these researchers, paralleled by many youth in their experiences with Internet social networking sites. They are greatly concerned with living up to their meticulously crafted online presentations. In line with Bauman, the authors noted that these characteristics make forming deep bonds and, ultimately, forging understandings across difference to be more difficult.

This research complicates conclusions made by Crocco and Leo in their articulation of the social media paradigm. Crocco and Leo rightly noted the emergence of creativity and collaboration among some youth in these environments, but educators should understand the full range of behaviors exhibited with new media, as well as consider the larger social dynamics that surround them. Students may, at times, feel and act empowered in these spaces, but it may often be in ways that emphasize atomization and consumerism, factors that increase the influence of peer groups over parents, churches, schools, and other adults, while encouraging loose and fluid connections that might work against enduring bonds that help forge more robust senses of self.

At the broader social level, advocacy forms of political action, such as online petition drives, have been bolstered by new media environments. However, the culture has also endured greater political polarization in recent years (see Pew, 2014), perhaps due, at least in part, to the ability of new media users to create a “daily me” (Sunstein, 2007), or an individualized media world catered to their preexisting interests.

While advocacy is important, taking on intractable sociopolitical issues like increasing inequality or the influence of big money in elections will require broad-based social movements, consisting of people who are willing and able to deliberate across ideological differences. The experiences of users in new media environments may be subtly making such movements more difficult to achieve.

Digital technologies may foster individualizing tendencies in the culture, but these tendencies are not inevitable. Such technologies could also be used to address many of these concerns, and many of the arguments for using digital technology to support constructivist approaches to learning may work toward this aim. However, without explicitly instructing future social studies teachers about the nonneutrality of technology, these efforts are likely to be scattered and ineffective, as “without an understanding of what is at stake in technological change, meaningful social action in response is impossible” (Adria, 2010, p. 50).

Social studies teachers should not only be taught how to use newer tools for democratic purposes, they should also learn how they may work against such purposes, so they can engage their own students in critical discussions and explorations of such matters. Such an endeavor can begin with considering the relationships between science, technology, and society as part of technology education in the social studies.

Studying STS in the Social Studies

The following proposals are made as an opening consideration for how these issues regarding STS could be included in guidelines for technology use in the social studies.

Examine benefits and drawbacks of contemporary tools. A useful place to begin is with devices students already use in their everyday interactions, including mobile digital devices, in addition to the digital tools that are employed as learning aids, such as iPads. Students could examine how the learning environment is altered by these tools, in addition to how social dynamics are changed by their use. This approach would not only encourage more productive uses of new devices, but could also foster greater awareness of social dynamics in the world around them.

Consider benefits and negative consequences of historical technologies. In the social studies classroom, exploring contemporary technologies could act as a natural springboard to investigating previous technological developments, many of which still play important roles in social life. One example would be to consider the various consequences of the introduction of the automobile during the early 20th century, which made mobility and personal transportation easier but contributed greatly to pollution and suburban sprawl and is a key factor in current concerns over global climate change.

Explore changes in language. Examining how the social use of language changes after the introduction of new tools would be a powerful way to foster critical understandings regarding the relationships between technology and society. Since the introduction of the Internet, a variety of new terms have entered the social vernacular, such as *selfie*, *twerk*, *photobomb*, and *unfriend*, among many others, that could act as inquiry prompts to explore relationships between technology and society.

Also, many terms that have had relatively static meanings have been applied in new ways to online engagement, including *surfing*, *tweet*, *flame*, *community*, *conversation*, *discussion*, and *social network*, to name a few. Exploring how the usage of these terms in digital environments differs from previous usage would foster powerful understandings of how changing symbolic environments subtly affect cultural perceptions and alter social dynamics.

Conclusion

In this response, I have explained why an exploration of STS is important to include within guidelines for technology integration in the social studies and included some suggestions for achieving it. Formal education should respond to changing social dynamics, and few cultural developments have been more important than the changing symbolic environments introduced by digital technologies in the late 20th and early 21st centuries. While Hicks et al. made a wealth of worthwhile suggestions about how to conscientiously incorporate new technologies as educational aids, such learning for future social studies teachers is incomplete without also exploring how these devices affect perception and impact political dynamics and social interactions.

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