Editor's Note: Fifteen years ago, Peter Martorella asked what has now become a seminal question in the field of social studies and technology: “Which way to the sleeping giant?” He suggested a number of roles for technology (or computers) within the social studies curriculum: (a) computer as alter ego; (b) computer as citizenship education; (c) computer as workplace; (d) computer as school; and (e) computer as data gatherer.

Like other researchers, we have been inspired by the charge to awaken a potential giant for social studies education. We have marked the 15-year anniversary of Martorella’s powerful article with a series of special articles that reflect on the evolution of technology integration in the field of the social studies and also point to the future highlighting promising new practices. The first of these papers follows. In this paper, Mark Pearcy reflects on the attempts to integrate and fully prepare preservice teachers for a brave new classroom, including an emphasis on the challenges to fully awaken the sleeping giant in teacher education.

A self-proclaimed outsider to the technology research community, Pearcy provides an interesting perspective to the evolving literature base on social studies, technology, and teacher preparation. Using his own university in New Jersey as a staging ground for his analysis, he concludes his reflection with clear recommendations for preservice educators to more effectively promote and prepare the newest generation of teachers to be technologically fluent.

Kathy Swan and Megan Manfra, Editors
Contemporary Issues in Technology & Social Studies Teacher Education
A Year of Reflection: The More Things Change

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Abstract

The emphasis on technology in preservice teacher education has become more important with the introduction of new standards from the Council for the Accreditation of Educator Preparation (2013). Despite continual efforts by teacher education programs, many social studies classroom teachers still do not effectively integrate technology into their instruction. This article considers the nature of teachers’ resistance to such integration, as well as the state of technology in classrooms today, in light of the new national standards. Additionally, this article addresses how teacher education programs may more effectively prepare preservice social studies teachers to use technology in the classroom by examining one university program.

In 2007, during my 13th year of teaching social studies in public schools, I was accepted into a doctoral program and began working toward my Ph.D. That same year, the iPhone was named Time’s Invention of the Year, praised as “a genuine, handheld, walk-around computer, the first device that really deserves the name” (Grossman, 2007).
Also in 2007, Michael Wesch, a cultural anthropologist at Kansas State University, produced a video with his students highlighting the massive changes being engendered by technology. In “The Machine is Us/ing Us,” Wesch described the growth of something called “Web 2.0,” a move toward interactive, collaborative digital communities (Wesch, 2007).

Four years later, I finished my doctoral program, and 2 years later I finally got my own iPhone. The particular model I had—and still have—is an iPhone 4G, which regrettably, is already antiquated, airily dismissed by enthusiasts in favor of the new iPhone 5. Michael Wesch, still at Kansas State, recently stated that technology, while wondrous and useful in the classroom, cannot replace the real-world importance of interaction between teacher and student (Young, 2012).

I share this personal anecdote to make a point, which is stunning only in the degree to which it is not stunning at all. Technology has profoundly changed the world in the last two decades, but in ways that are hard to predict or channel.

The same is true of technology’s role in teacher education. When I was first a college student in the early 1990s, I did not own a computer, and did not know anyone who did. When I was writing papers, I went to the university computer lab to print them, since that was essentially what computers were for—generating a finished product, after all the research and writing were completed. The Internet did not exist, not in a practical sense. The technological distinctions between then and now are astounding. Even more astonishing is the distinction between now and 4 years ago, especially in the classroom, where it seems to be accepted fact that technology is part of the solution to most, if not all, education problems—though educators are not exactly sure how.

I taught for 19 years in public education and utilized technology regularly and, I think, effectively in the classroom. Teachers tend to point to such use as a matter of professional pride more than as an indicator of effective teaching. Teachers seem to have a fundamental belief that technology, by its nature, is a marker of that nebulous concept, good teaching. Most teachers (and teacher educators) seem to agree implicitly with the conclusion that “technology has great potential for helping learners become constructive producers of knowledge rather than just reactive consumers of information” (Katic, 2008, p. 158). At the beginning of my teaching career, I was astounded by the possibilities of technology, especially the Internet, and I assumed, like many others, that
the next generation of students and teachers would be so adept at the use of such tools that they would fundamentally change the world.

Of course, for the most part, we were right—the spread of the Internet and the ease of accessibility, especially through mobile devices, really have changed the world. Has technology changed education, though? More particularly, has it changed teacher preparation programs and preservice teachers?

I joined a university faculty last year as a professor, so now I have a different perspective on what teachers learn before they become teachers. I had come to believe through my time in the classroom during the Internet’s adolescence that students were incredibly dexterous in using online tools, but their abilities were surprisingly superficial. On one occasion in my class, I provided a student with a topic question for an essay. The student turned on a laptop, opened a web browser, went straight to Google, and typed the entire question, verbatim, into the search box. The student expected Google simply to provide a response rather than suggest sites that could help in the construction of the paper.

In 1996, the National Commission on Teaching and America’s Future reported on barriers to school reform, among them a failure in teacher preparation programs to include technology (Franklin & Molebash, 2007). It was becoming clear that traditional teacher education programs would have to incorporate training for preservice teachers in technology. In 2004, the U.S. Department of Education claimed there was “no dispute over the need for America’s students to have the knowledge and competence to compete in an increasingly technology-driven world economy” (U.S. Department of Education, 2004).

By the turn of the century, most accreditation bodies had recognized that, as well. The National Council for Accreditation of Teacher Education (NCATE), the Interstate New Teacher Assessment and Support Consortium, and the National Board for Professional Teaching Standards all issued calls for colleges and universities to begin preparing teachers for “the increasing demands of the 21st century”—whatever that turned out to mean (Darling-Hammond, 1996; Franklin & Molebash, 2007).

Now teacher preparation programs face increased scrutiny and pressure to help preservice teachers constructively integrate technology into their instruction. Recently, NCATE—newly rechristened the Council for the Accreditation of Teacher Education (CAEP)—revised their standards
regarding technology training in teacher preparatory programs. In practice, they are requiring an ongoing consideration of what technology is for and what it can do and what it means to a variety of constituencies—preservice teachers, working educators, and students.

My career, from classroom teacher to professor, across a span of time where technology became a constant feature in all our lives, has given me the opportunity to reflect on the questions we face, as well as the issues the answers may raise, in a representative teacher education program.

**The New Normal**

In 2008, NCATE called for teachers to be able to “use educational technology to help all students learn” and to “facilitate student learning through the integration of technology” (fourth question). Now, under its new label as CAEP, the organization has created new standards that place a greater onus on colleges and universities to account for their graduates’ ability with technology. Teacher education programs will be required to provide “clinical preparation” that includes “technology-based collaborations” in situations “enhanced by technology” (including, according to CAEP, “virtual opportunities” like online chats and simulations). Similarly, preservice teachers must be able to “integrate technology into their planning and teaching and use it to differentiate instruction.” The Council also requires teacher education programs to provide “multiple forms of evidence” of their graduates’ ability to effectively use technology of such integration (CAEP, 2013, p. 22).

The CAEP (2013) standards reflect an understanding that teachers (and teacher educators) have held for some time:

> Technology and digital learning in our schools can efficiently bring quality education to all P-12 students. It can address the inequitable access to essential learning technology resources in the home and the community that has too frequently been evident in schools serving diverse and economically disadvantaged students. (p. 20)

To its credit, the Council recognized in these standards the unequal access to technology facing many students across the nation, and the “profound implications” such inequality represents. Their insistence that teachers “need to know how to recognize specific technological inequities experienced by their students and identify and undertake strategies that
improve P-12 students’ access to, and skills in, using these resources” (p. 20) is, though hard to apply, a welcome goal.

The responsibilities of teacher education providers are present not only in how preservice teachers are educated in college classrooms, but also in the field. “Technology-enhanced learning opportunities” are deemed necessary for clinical experiences; and again, providers are required to present “multiple forms of evidence” of teacher candidates’ ability to integrate technology during field placements (p. 22). This new normal presents an opportunity to determine what these standards can do and what they mean.

**The Power (and Allure) of Technology**

In my first classroom, I had an overhead projector on which I would place transparencies, clear plastic sheets that could be written on with a felt-tip marker or (after personal computing became ubiquitous) could serve as a medium to be photocopied or printed onto to produce more visually attractive presentations of information. Textbook companies would create entire reams of transparencies, with accompanying maps and graphics and charts. The overhead projector was effectively the height of technology in the standard social studies classroom at the time, rivaled only by the pulldown world map with multiple flip-up pages or, perhaps, the television I could borrow from the media center—which also came with a VCR.

This scenario, of course, is laughable in comparison to today’s world. The US is a culture awash in devices, apps, and their attendant media. Twenty-seven percent of children (age 3-18) use tablets, 43% use smartphones, and 52% use laptops (Dockterman, 2013, p. 54). Adults are just as culpable—a study at Northwestern University found that 39% of parents surveyed had built a “media-centric” home, in which a standard of 11 hours of media exposure (TV, videos, laptops, tablets, and smartphones) is the norm (Wartella, Rideout, Lauricella, & Connell, 2013, p. 7).

Martorella (1997) famously alluded to technology as the “sleeping giant” in the social studies curriculum (p. 511), and like most educators, I was thrilled by the potential of such resources. For the last two decades, educators have been preparing for a generation of students who, as “digital natives,” would have the capacity to use technology in a seamless,
integrated manner far beyond their befuddled predecessors (McPherson, 2008).

Most teachers who came of age in the early days of the Internet believed implicitly in its alleged power to promote “student engagement and collaboration” (Shafer, Stearns, & Kallo, 2006). We were amazed by the sheer wonder of the technology, the ability to type a question into a search engine and then to get an answer in the form of a seemingly endless list of websites and resources. The description of the Internet as “nearly magical” (Doppen, 2004, p. 266) was true for all of us at that stage.

Berson (2000), described a future that I, for one, believed was right around the corner: “A new classroom is evolving that is an expansive learning environment extending beyond the walls of the traditional class setting….As a result, teaching may become more creative with technology serving as a tool to enliven the process” (p. 128). Though the dreams of a “tablet-sized computer connected to a wireless network” for every student is still unrealized (Bell, 2001), it may be closer than we think—Los Angeles County’s school district recently announced plans to buy $30 million worth of iPads for over 600,000 students by the end of 2014 (Dockterman, 2013, p. 54).

This faith in technology has translated, for many teacher educators, into a general conviction that technology also has the power to overcome (or, at least, mitigate) many of the ills facing public education. This faith is genuine and well-placed. During my tenure in the classroom the move from overhead projector to Smart Board to laptops to smartphones was turbulent but rewarding and effective in application.

Problematically, though, the zeal for new technology and optimism in its potential can lead to a disabling tendency to assume such tools have a cure-all propensity that they do not possess—a sort of instructional “fool’s gold” that allows educators to ignore the more mundane deficiencies of public education (“Advocating the intelligent use of classroom technology,” 2007, p. 5). Having technology, even in a readily available state, does not necessarily translate into high quality teaching or learning (Brush, Gazewski, & Hew, 2008, p. 113), nor does the simple existence of the Internet result in better learners or citizens. It must be utilized effectively (Bolick, Berson, Friedman, & Porfeli, 2007; DeWitt, 2006; Salinas, Bellow, & Liaws, 2011).
This issue—the effective use of technology in the classroom—is a lasting concern. VanFossen (1999-2000) found in the early days of the Internet that a majority of social studies teachers in Indiana did not effectually integrate technology into instruction; by 2008, it seemed little had changed for the better (VanFossen & Waterson, 2008; see also Sheffield, 2011).

Thieman (2008) found “little evidence” that the technology used in teaching situations supported critical thinking, problem-solving, or decision-making” (p. 342). In social studies, particularly, it seems that technology is not at the forefront, with one study concluding that “technology typically plays a marginal role in most social studies instruction” (Hammond & Manfra, 2009, p. 161). As Doolittle and Hicks (2003) acerbically put it, “the sleeping giant has been having quite a long nap” (2003, p. 74).

Given the new emphasis CAEP is placing on effective integration of technology in teacher education, this turn of events is disconcerting. A yawning gap extends between academics and teachers in the field, especially with regard to research on best practices. Considerable barriers remain to reaching the future that educators found so promising 20 years ago—but they are certainly not insurmountable. In light of new standards and contemporary expectations, it is necessary to reflect on why we, as educators, still have this problem.

**Technology in Preservice Teacher Education**

Most teacher preparation programs grasped quickly the importance of training preservice educators in the possibilities and use of technology. Moursund and Bielefeldt (1999), in a study conducted by the International Society for Technology in Education, found that 7 of 10 teacher education programs required their students to take a minimum of three credit hours “related to generic instruction technology skills” (p. 32). These programs also recognized the importance of modeling teaching practices infused with technology as a route to help new teachers transfer those practices into their own classroom (Bolick et al., 2007; Halpin, 1999). Franklin and Molebash (2007) described a university methods instructor using a “wide variety of teaching methods... applying an assortment of technologies in seamless ways to enhance these methods” (p. 158).
Similarly, researchers have indicated the importance of such training for teachers already in the field, to help them "visualize and implement innovative pedagogical practices using computers' unique capabilities (DeWitt, 2006, p. 260). It also seems that most teacher preparation programs feel as if they are getting the job done. Bolick et al. (2007) found that almost 70% of university faculty believed their education students were “adequately prepared” to teach with technology when they graduated (p. 182), and a similar percentage claimed to be “satisfied with the support they receive from their institution to use technology in their institution” (p. 184). Even better, the emphasis on technology seems to be working. According to one study, 85% of a group of preservice teachers integrated technology skills and knowledge in their lessons with students (Thieman, 2008, p. 342).

Yet, the emphasis on technology has not seemed to impact practice in the field substantially. I recently received an email from a former student in my methods class, who had taken a full-time job near our campus. He asked me about an introductory Power Point presentation that I used as part of an early lesson, and he wanted to know if he could use it as a model for a similar application with his new students. I assented, but I was struck by the fact that this was a new teacher, who had been exposed to all sorts of new technology—both in his personal life and in his preservice training—and he was opting to use a program which, at this point, has been around for over two decades and is now as ubiquitous as the overhead projector used to be.

Not that this is inherently problematic—technology can serve as a useful mechanism for tasks that were once traditionally carried out with different apparatuses, like the chalkboard. Clearly, students in preservice programs who already struggle with technology will have difficulty integrating these skills into their teaching or to help their future students use similar tools (Birch, Greenfield, Janke, Schaeffer, & Woods, 2008, p. 371). I am concerned that the new teachers who are expected to carry the torch for new instructional technology seem to rapidly become teachers who emulate their predecessors. They do not emulate the methods instructors in their teacher preparation programs, but instead the teachers they grew up with, the ones they routinely criticized as hopelessly out of date.
Teachers as Obstacles

There are teachers like this, of course—the veteran educators who stereotypically view all new things with skeptical disdain, those who are the objects of most critique and analysis. Researchers tend to castigate them as roadblocks to the successful implementation of new instructional technology. Some of this characterization is accurate. After all, teachers can be disarmed by students who seem to know “far more about manipulating [technology] than we do” (Blanchette, 2012, p. 6).

On the other hand, one of the reasons these teachers are veterans is because they have been “through the wringer” many times, so perhaps their caution is justified. They are often inundated with obligations in and out of the classroom that prevent them from serving as effective mentors to new teachers (Brush & Saye, 2009, p. 55). The excitement that new innovations can engender should be tempered by “wariness over its ability to be integrated and questions regarding its effectiveness” (Bolick et al., 2007, p. 176)—and, too often it seems, this wariness on the part of practitioners is misinterpreted as cynicism.

The usual complaints about any new initiative—unskilled students, unsupportive administrators, a lack of infrastructure, access or time (Banas, 2010)—are exacerbated in the case of technology. A lack of preparation to integrate new technology successfully with class-specific content is a hard obstacle to overcome or dismiss (Ertmer, Ottenbreit-Leftwich, & York, 2006-2007; Sheffield, 2011). Worse yet, it has a tendency to limit teachers to using technology for information-gathering tasks—word processing or Internet-based research—or student communication via email, rather than for the higher order critical thinking desired in classrooms (Banas, 2010; Ertmer, 2005; Sheffield, 2012; Thieman, 2008; VanFossen & Waterson, 2008).

Maybe the most enduring difficulty in encouraging teachers to use technology is getting them to see the value in doing so. Some teachers conceive of technology as a sort of extra, a reward or bonus that can be utilized once the real work of the classroom has been accomplished. To these teachers, technology almost always means computers, and their use comes second, and exclusive to, the course’s content (Brush et al., 2008; Rizza, 2000).

This perspective is maddening to technology advocates, but in truth, many teachers are reluctant to adopt an innovation unless it is patently
clear that “the innovation offers a better way to do something, is compatible with their values, beliefs, and needs, is not too complex, can be tried out before adoption, and has observable benefits” (Banas, 2010, p. 121). What is often derided as obstinacy is sometimes a function of professionalism, as teachers determine whether or not a given tool allows students “to do something they could not do before or to do something they could do before, but better” (Doppen, 2004, p. 250; see also Harris, 1998). This mindset is as true for technology as it was for that traditional symbol of instructional antiquity, the textbook (Schug, Western, & Enochs, 1997). Why surrender something that you know works for something that might work?

New teachers, fresh from their universities, may be expected to escape this reluctant attitude, but many of them seemingly fall victim to “the inertia of traditional practices” (Berson, 2000, p. 122), what might more charitably be referred to as “the technological, pedagogical, administrative, and curricular hurdles that plague many educational technologies” (Milson & Kerski, 2012, p. 107).

Part of this inertia stems from the fact that many of our new teachers come from much different socioeconomic backgrounds from their students and, thus, have a skewed view of technology and its daily uses (Berson, 2000, p. 127). More often, this hurdle is simply the daily grind of a teacher’s life and its emphasis on “coverage and control” (Barton & Levstik, 2004) that overtakes a new educator.

Teacher preparation programs cannot fully emulate this experience, in spite of undergraduate field placements and extensive student teaching. Going through it tends to make new teachers much more conservative in their goals and strategies, which can hardly be surprising (Hammond & Manfra, 2009; Thornton, 1991). Rather than seeing technology as a solution to many of their problems, teachers often will see it as simply causing more problems, including new classroom management challenges and increasingly diverse examples of student cheating (DeWitt, 2006, p. 264).

Additionally, the ubiquity of standardized testing across the nation makes finding and using creative applications of technology with their students difficult (Franklin & Molebash, 2007, p. 160). Sheffield (2011) quoted a teacher who said that the only meaningful, consistent use of technology was a program for standardized test preparation, but “if you want to do anything else, there is no interest or support” (p. 294).
Contrary to my own experience, a teacher entering the field today is faced with almost too many options in terms of technological tools and resources. A preservice teacher in a study by Salinas et al. (2011) commented that the only negative she could see in the use of instructional technology was that “just that there’s so much out there you’ll have to sort out for the best thing to use” (p. 192).

Doing that is understandably hard when confronted with the myriad of demands on a new teacher’s time. Their tendency, then, is to revert to models with which they are the most familiar and comfortable, teaching examples they grew up with (Molebash, 2004). Unsurprisingly, that model often does not include a meaningful integration of technology. A vicious cycle persists—preservice teachers say they want to use technology more expansively, They feel inadequately prepared to do so and similarly unsupported by the system once they are teaching. Thus, when they do use technology, it is often for “low-level, supplemental tasks such as drill and practice activities, word processing, educational games, and computer-based tutorials” (Brush & Saye, 2009, p. 46).

Worst of all, there are times when technology, in light of its perceived power to solve nearly all of what ails the education system, is viewed as not only a cure-all, but as a proxy for necessary elements of a working classroom. Recently, a colleague confided to me that her school district, after deciding it was too costly to purchase class sets of a new elementary-level social studies curriculum text, instructed its teachers to take a single copy of the text, scan the sections students were required to read, and project them onto the classroom’s Smart Board. Students would then read the text together. This is certainly the sort of technological marvel the modern age can enable; it is also, as any educator should be able to discern, ineffective pedagogy.

The danger of a vicious cycle is not only that it is vicious; those captive to it are prone to simply throw up their hands in despair and resignation. “It’s always been this way,” goes the standard reaction—and the viciousness of a given cycle is relational to the degree of cynicism it engenders in those trapped within it. With new standards and new expectations, the pressure for educators at all levels is at a new level. While the current state of technology in instruction may not qualify as dire, it is concerning, especially for those—like me—who imagined a different reality two decades ago.
Are There Solutions?

One unpleasant fact of life—at least, for teachers—is that students, in spite of our best efforts, sometimes just do not like school. More than that, they often do not like the subjects we teach, and their negative affect tends to mitigate the positive impact of any new technology. It may be exasperating, but it is no less true that students, when presented with a topic they find boring or difficult, will avoid it if they can, no matter what tools or resources we use (Heafner, 2004, p. 44).

This fact should leaven our expectations about technology’s miraculous impact on learning. In truth, the gee-whiz factor that was so prevalent in the early 1990s is, it seems, less present now. None of our students will be surprised by touchscreen technology, or wireless connectivity, or any of the features of technology that, once so astonishing, are now commonplace.

Despite the encouraging signs in the early days of the Internet, teacher preparation programs still have difficulties successfully integrating and modeling effective practices. Brush and Saye (2009) pointed out that few universities have “solid theoretical frameworks that focus on preparing teachers to leverage technology in ways that enhance teaching methods” or that “align technology with discipline-specific pedagogy” (p. 46). Frankly, if our programs do not effectively model the integration of technology in instruction, graduates unlikely will be able to do it, as is true with any strategy or skill (Doppen, 2004, p. 251).

Yet, many young teachers feel equipped to teach effectively with technology. A study of young elementary teachers by Franklin and Molebash (2007) found that 100% of them claimed to be “very well prepared to use technology” by their preparation programs (pp. 163-164). Thieman (2008) found that a “vast majority” of the preservice teachers he studied used technology, even in spite of inadequate support or resources (p. 366).

According to Freidman (2006), teachers faced with impediments in using digital tools still remained positive about the impact and potential of such technology. Since it seems that these intrinsic factors—belief, motivation, and a strong sense of efficacy—are the strongest indicators of a teacher’s ability to use technology effectively, finding effective solutions and applying them in our preservice training is vital (Hew & Brush, 2007; Sheffield, 2011, p. 283).
I teach at a small private university in central New Jersey, at which teachers have been educated for the last century. Rider University, like most teacher preparation programs, has struggled with finding an adequate balance between discipline-specific content and pedagogy, as well as finding effective ways to integrate technology into both (Waring & Torrez, 2010, p. 303). In all of our education courses students are required to create products and assignments using a variety of technological tools, including virtual portfolios, ePortfolio, and Taskstream.

All of our student teachers are required to take at least three credit hours of instructional technology (though most tend to take more), in which they are trained in programs like Skype, Google applications, SMART Boards, iPads, website creation, digital photography, and ePortfolio. Recently, we have begun to approach the uses of social media like Facebook and Twitter; though, as in much of the educational community, there is still consternation about the appropriate role and value of such tools in the classroom. In light of CAEP’s new demands, Rider’s concerns are shared by many universities.

Like many programs, Rider tends to approach technology as a subject separate from content, and it relies on individual professors to integrate these tools into their courses without a coordinated strategy or integration throughout the entire program (Molebash, 2004). Kay (2007) identified collaboration with other users, exploratory learning, and the use of authentic tasks as vital for effective technology training formal instruction in the technology itself. Rider, like most teacher education programs, has elements of these requirements throughout its classes, but not systematically and not everywhere.

Universities, of course, rarely must deal with the structural impediments and obstacles that limit the use of technology in K-12 schools. This is, strangely, more than a little encouraging—since it means that many of our difficulties can be dealt with by adjusting curricula, rather than wholesale infrastructure. Rock and Passe (2004) pointed out that advocates of technology often do not know a great deal about curriculum reform, seeming to rely overwhelmingly on pushing technological alternatives to traditional elements of instruction, rather than considering how models of curricular change could more effectively achieve their goals.
Hew and Brush (2007) identified three barriers to successful integration of technology in the schools: the lack of technology skills, teachers' beliefs about technology, and their perceptions about barriers to the successful integration of such resources. While the latter factor is determined in large part by a teacher's practical experience, the previous two issues are well within the scope of a standard teacher education program to address.

Barrios (2004) distinguished between learning “from” technology and learning “with” it, labeling the former as “akin to the old ‘sage on stage’ notion of teaching,” in which technology “is used solely to deliver or broadcast information to the students” (Banas, 2010, p. 6). The latter concept, “learning with,” indicates the use of technology to “empower” students, allowing them to practice critical thinking skills and problem solving. Banas (2010), in a study of new teachers, found that the majority were using some form of technology in the classroom, but in general, that use would be typified as “learning from,” rather than “learning with.”

In some ways, perhaps, the distinction between “learning from” and “learning with” may no longer be useful. The world of instructional technology, circa 2004, has changed radically in the last 9 years. Franklin and Molebash (2007) noted that many new teachers, despite feeling confident in their preparation to use instructional technology, were feeling quickly passed by, as new tools and resources appeared for which they were not trained (p. 164).

The nature of our technology has changed. Facebook, after all, was launched in 2007 and now, in terms of usage, has the third largest population of any nation in the world (Fletcher, 2010, p. 32). While the uses of social media may seem to run contrary to what is traditionally thought of as instructional technology, surely the line between with and from is blurred in the comparison.

Still, universities clearly need to reconceptualize how they approach technology in their course design, and one area that is especially encouraging is the concept of “technological pedagogical content knowledge,” later dubbed “TPACK” (i.e., technology, pedagogy, and content knowledge) by its advocates (Koehler & Mishra, 2008, 2009). TPACK is an understanding of the relationship between teaching, learning, content knowledge, and available technology, in particular, the “constraints and affordances of technologies and the contexts within which they function” (Koehler & Mishra, 2009).
From a practitioner’s perspective, this amounts, ultimately, to the kind of common sense that every veteran teacher needs to have, to determine what tools match the job in question. The value of TPACK is the degree to which it focuses on the need for “fluency” in technology. This value is reflected in the new CAEP (2013) standards, which call for teacher preparation programs to provide “multiple forms of evidence to indicate candidates’ developing content knowledge, pedagogical content knowledge, pedagogical skills, and the integration of technology in all of these domains” (p. 9).

A major impediment to concepts like TPACK is the development of teacher efficacy in the use of technology (Franklin & Molebash, 2007, p. 168). When teachers feel confident in technology’s utility and in their own ability to use that technology effectively, then they will more likely achieve our goals. The very practical resistance that educators may feel to new tools must be addressed. Once teachers are in the field, professional development is necessary to promote the desired fluency. Before that, though, educators’ efforts should focus on preservice education (Oncu, Delialioglu, & Brown, 2008).

Taking a practical view of how educators might promote TPACK and technological fluency in teacher preparation programs is worthwhile, since it seems to be the best answer to the increased querulousness of accrediting entities like CAEP. Lee (2008) identified a series of guidelines for incorporating TPACK into methods courses, the most ubiquitous classroom experience for preservice teachers. He recommended making use of the Internet’s collaborative capacities among students, using the “presentational capabilities” of online environments to engage classes, and “facilitating students’ work in nonlinear environments” (p. 130).

Similarly, Rock and Passe (2004) offered sage advice in planning for technology integration into a methods class: Keep an eye on “social political, and economic trends,” consider the role of the state in curriculum design, anticipate the resistance of colleagues who do not share similar views, and “consider whether current trends are likely to persist, and develop strategies for when those trends die out” (p. 320).

Brush and Saye (2009), extending these concepts, described changes they implemented in a social studies methods course to promote technological integration and TPACK with their students. The authors helped design the Persistent Issues in History Network
(www.pihnet.org), a website that contains a “wise practice video case database” of 20 classroom cases, each between 20 and 40 minutes long.

Although simply having student teachers view the clips might seem, at first glance, to be little more than “learning from” technology, the approach here requires preservice candidates to analyze the classroom scenarios from a technological perspective—what issues might be important to consider? How did the technology displayed add to the lesson’s effectiveness? (Brush & Saye, 2009, p. 48).

Similarly, preservice teachers in this program are required to make technological issues a primary consideration in their field experiences—they must complete a “technology needs assessment” of their placement schools, in order to “examine critically the resources available” and to “determine the level of support available to teachers and how teachers access that support” (p. 53).

Although this approach to field placement is encouraging, it is hardly widespread. According to one study of preservice teachers and their professors, only 21% of the faculty members surveyed believed their students had access to adequate technological resources for their field work, and approximately the same percentage reported that “they try to insure their students are placed in technology-rich schools for their field experiences” (Bolick et al., 2007, p. 184).

Hilburn and Maguth (2012) also argued for changes in methods course curricula, advocating collaboration between student teachers in their social studies methods courses, including “microteaching opportunities, digitally mediated student reflection, and a synchronous technology that would allow all students...to discuss issues central to the field” (p. 309).

These courses provide multiple paths for preservice teachers to learn with technology on a regular basis, taking advantage of an online world where “sharing ideas and activities has become instantaneous” (Blanchette, 2012, p. 6). This sharing, of course, is the strength of Web 2.0 that Berson (2000) noted over a decade ago—that successful education “depends on building or strengthening existing social networks and support systems” (p. 123), and the tools to accomplish this goal have now come into view.

While changing the scope and sequence of methods courses is a positive step, teacher educators can take other steps to effect greater technological integration. During my transition into higher education, I
have been warned several times about the danger of the “academic silo,” which afflicts most disciplines. In teacher education, I have become aware of a similar divide—the gap between practice and theory, or between practitioners and scholars.

Recently, I attended a workshop at a gathering of social studies teacher educators, during which one of my colleagues bemoaned the fact that classroom teachers seemed to be willfully ignoring recent research advocating best practices and cutting-edge resources. I agreed that teachers did not often take scholarly advice, but that was not necessarily willful. It was often due to a much more unsettling reason—many classroom practitioners are unaware such research is being done in the first place. Given the constellation of demands and pressures teachers must work through and under, it cannot be surprising to the higher education community that our advice goes largely unheeded.

As Lee and Hicks (2006) pointed out, a little ruefully, “The reality of scholarly work is that many scholars do not engage in active and meaningful discourse about scholarship outside of the closed communities of their classes and conferences” (p. 414). It seems that one way to address the lack of technological integration in schools is to strengthen the connections between those who research pedagogy and those who practice it.

Finally, teacher educators should consider how they approach the purpose of technology in their methods instruction. Crocco (2001), somewhat presciently, wrote about the ability of technology to “leverage constructivist approaches to the teaching of social studies,” to move the discipline away from “passive, teacher-dominated approaches emphasizing recall and regurgitation toward active, student-centered forms of learning.”

The value of technology should be found in its ability to promote such change, and thus, our preservice program’s curricula should be adjusted toward that end. Social studies educators have been advocating curricular change like this for decades, dating back to the New Social Studies of the 1960s (Hammond & Manfra, 2009), especially the value of pedagogy that allows students to “show what they know,” a skill for which technology is especially suitable.
The Value of Optimism

When I was young, I became obsessed with a short-lived TV show that was produced in the wake of much more successful examples of science fiction, like Star Wars. In Space: 1999, the plot revolved around a human base on the moon that was conveniently blown out of Earth’s orbit by an accident of some kind and went drifting through outer space, encountering alien species and doing what seemed requisite in science fiction—flying in spaceships, shooting laser pistols, using technological tools beyond my wildest imaginings. I recall thinking often, “Things are going to be amazing in 1999!”

I was a bit off—and we still do not have a moon base—but the stunning advances in technology have astonished educators for the last two decades and convinced most of us of the apparently limitless potential these resources present.

In truth, the value of technology is largely determined by teachers, who effectively control the articulation of all curricula (Thornton, 1991). Their ability and willingness to do so is heavily influenced by their sense of efficacy and optimism in the value of such tools—all of which is a function of how they are trained. The new CAEP standards present technology as a sine qua non of quality education, and most educators would likely agree. Our enthusiasm needs to be tempered with realism, however. In this case, I do not intend that term to reflect a cynicism about the power of technology to effect change, but instead issue a warning about the amount of change we envision.

The CAEP (2013) standards seem to understand this: “The essence of technology is rapid change.” Although “the current possibilities are insufficiently exploited,” the Council also noted that “the future [is] beyond current forecasting ability” (p. 22). It is patently difficult, therefore, to know how teacher education programs should proceed without moving too fast, too soon, in ineffective directions.

Some factors, though, are clear. In preservice teacher education, it is important to consider the real impediments to effective technology integration and to address how we might better design our programs, as well as how we might change our own perceptions. As Michael Wesch will attest, technology cannot replace what makes good teaching; but its ability to supplement and improve our best practices should be the factor that encourages us and pushes us forward.
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