Gateway Tools: Five Tools to Allow Teachers to Overcome Barriers to Technology Integration
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Having grown up immersed in technology, the students of today are digital natives, but many of their teachers are often playing catch-up because they are digital immigrants. Furthermore, although new teachers enter the profession comfortable with technology for personal use, they must still be thoughtful regarding the application of technology for instructional purposes. For the paradigm to shift in how technology is used in the classroom, teachers must become more comfortable with its usage and grow in understanding of its value within the classroom. The authors examine some of the identified barriers to technology integration in the classroom and offer teachers several tools to help open the gates to integration.

Introduction

Few teachers truly work in environments devoid of technology. Even in schools where limited funds prevent major technology purchases, tools for connecting, communicating, collaborating, and creating surround them. Students bring tools with them daily in their pockets, purses, and bags in the form of smartphones and other mobile devices. However, many teachers are left unsure about how to engage students with emerging technologies or how to embed technology effectively as a seamless part of instruction.

Today's students and many of today's teachers have grown up immersed in technology. However, when it comes to employing technology as a pedagogical tool, teachers often must play catch-up, while still acting as instructional guides. Often teachers perceive they cannot act as authority figures in their classrooms if they bring in tech tools. Teachers must be at least minimally comfortable with technology use and see the value that these tools can bring to their daily lives before they can consider technology integration as anything more than one more thing required of them. For true change to take place in the classroom, the paradigm shift must begin with the teachers rather than the students. In this article, we examine some of the identified barriers to teacher technology integration and discuss key tools that can provide teachers with the experiences necessary to open the gates for technology integration.

Research

For decades, education experts have heralded emerging technologies as the next big thing to revolutionize teaching. That revolution, however, has yet to arrive, and many classrooms
of today regularly resemble the classrooms of a century ago rather than 21st century centers of learning. Even as schools continue to be stocked with computers, interactive whiteboards, and other technology tools—and despite the fact that many stakeholders walk around with massive computing power in their pockets—the technology integration required to make substantial shifts in education is often lacking.

Belland (2009) defined technology integration as “the sustainable and persistent change in the social system of K-12 schools caused by the adoption of technology to help students construct knowledge (e.g., research and analyze information to solve problems)” (p. 354). Many researchers argue that true classroom technology integration relies on the development and implementation of student-centered learning experiences. Although teachers claim to utilize technology as part of instruction, classroom activities often remain primarily teacher-led.

What, then, causes technology integration efforts to fail? How can schools and districts design professional development to help ensure the integration of technology in order to promote student-led instruction? When adequate technology resources (hardware, software, and internet access) are available, two key factors hinder classroom technology

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use. First, educators are not always skilled beyond basic usage and, thus, must learn how to use the technology itself “as well as how to use it instructionally—a completely different skill” (Mishra, Koehler, & Kereluik, 2009, p. 49). This lack of skill and knowledge may translate directly to a lack of self-efficacy and an absence of the positive attitudes necessary to motivate teachers to use technology (Holden & Rada, 2011). Getting easy-to-use technology tools into the hands of teachers in order to support them in their daily professional tasks can increase technology self-efficacy and open the door to additional technology use.

Additionally, studies suggest that teachers’ value beliefs play a significant role in instructional decision-making, with Ottenbreit-Leftwich, Glazewski, Newby, and Ertmer (2010) arguing that teachers’ beliefs may be the largest barrier keeping teachers from using technology in the classroom. Teachers bring a variety of pedagogical beliefs to the classroom. Years of observation of teachers and administrators in school and of family members at home contribute to their notions of how teaching and learning work. These folk pedagogies (Bruner, 1996) stem from personal home experiences and from time as students in the K-12 classroom. Folk pedagogies and personal experiences develop a teacher’s habitus “or set of dispositions to appreciate or do certain things” (Belland, 2009, p. 356). Thus, an individual who grew up in a classroom without embedded technology may be unlikely to value technology integration in his or her own classroom.

According to Ottenbreit-Leftwich et al. (2010), professional development can transform habitus only if it is aligned with teachers’ value beliefs. Their study identified the following values:

1. Teachers value technology to improve parent-teacher communication.
2. Teachers value technology that allows them to customize instructional materials to target specific learning needs.
3. Teachers value technology that helps them address professional development needs and communicate and collaborate with colleagues and administrators.
4. Teachers value technology that helps to engage and motivate students.

Thus, tools that are likely to have the most success in transforming teachers’ practice must be aligned with these value beliefs.

**Benefits and Uses—Tasks and Tools**

For the past 8 years, we have participated in Master Technology Teachers, a professional learning group focused on technology integration. As participants in that group, we have worked with a wide variety of tools that have aided us in completing daily tasks. In mentoring other teachers who wish to begin utilizing technology, we have seen that exposure to tech tools for this purpose has the potential to build teacher confidence. The current demands of the profession require teachers to be content developers, behavior managers, and data collectors and analysts. By focusing on tools that help them become more efficient, teachers can first become familiar with the technologies. We recommend the tools below because they get technology into the hands of teachers to help them streamline common professional tasks and are tied directly to teachers’ value beliefs. Providing guidance for teachers in the use of tools such as these can increase their technology self-efficacy and change their habitus, opening the gates to further technology integration.

**Dropbox for resource management and collaboration.** Dropbox (http://www.dropbox.com) is a cloud storage service that allows for easy access to files, so teachers can utilize their resources and plan instruction from anywhere. Additionally, the tool facilitates
file sharing and can aid teachers in collaboration and sharing of resources. Available on a variety of platforms including Windows, Mac, iOS, Android, and Blackberry, free membership in Dropbox currently comes with 2GB of space, although paid subscriptions offer up to 100GB and users may also earn more space by inviting students and colleagues to use Dropbox and by participating in other promotional activities.

**Class Dojo for student behavior management.** Class Dojo (http://www.classdojo.com/) is a free classroom behavior management tool that allows teachers to provide on-time feedback to students regarding individual and group behavior. The program, which can be operated from a computer or mobile device, makes it simple to keep a class motivated and focused by providing students with instant feedback (positive or negative) in class by awarding or subtracting points for specific behaviors. Teachers can customize the program with badges, avatars, and behavioral characteristics specific to their courses. Because students receive feedback immediately, this tool helps maintain student engagement and aids teachers in developing a positive and productive classroom-learning environment. Additionally, Class Dojo can serve as a system for tracking positive behavior intervention and support and can be used for communicating student behavior to parents and administrators.

**Evernote for data collection.** Evernote (http://www.evernote.com) bills itself as the free tool that allows users to capture anything, access it anywhere, and find things fast. It allows teachers to create digital notebooks that help to organize all aspects of classroom life. Within these notebooks, teachers can create notes, tag them for easy access, save files for planning and student documentation, clip webpages, and more, thus creating one resource for housing everything from student data notes to lesson planning materials. Like Dropbox, Evernote allows teachers to access files and notes whenever and wherever they may need them.

At a time when individualized instruction and documentation of student progress are essential, Evernote can be a lifesaver. This tool can replace cumbersome data notebooks or paper-file systems and provides sharing options for easy collaboration and communication among colleagues. It is advisable, however, to have an acceptable use policy to help guide this method of collecting and sharing notes and to ensure privacy protection.

**Social bookmarking for resource management and collaboration.** Collection and curation of online resources for instruction can be overwhelming, but social bookmarking—storing and sharing favorite sites via the cloud—can make this process easier. Free tools such as Diigo (http://www.diigo.com) allow teachers to save their favorite links in the cloud for access anywhere and to share these links with others. Diigo is an abbreviation for *Digest of Internet Information, Groups, and Other stuff*. Diigo creators describe their tool as "two services in one—it is a research and collaborative research tool on the one hand, and a knowledge-sharing community and social content site on the other" (www.diigo.com). In addition to saving and sharing, Diigo users can also tag their links, so collecting, organizing, and accessing lesson-specific resources and other content is easy. Once registered, new users can simply drag and drop a bookmarklet (a JavaScript applet that runs directly in the browser) onto the toolbar in their Internet browser and begin storing and sharing resources.

**Edmodo for content management and communication.** Edmodo (http://www.edmodo.com), a free walled garden social networking site specifically designed for education, can help teachers stay organized and assist teachers who wish to go paperless. Many school systems limit the connections among teachers and students via social media, but Edmodo
is one of the safest alternatives to these limitations. It offers a safe, secure, and easy way for classes to connect and collaborate, allows students and parents to access homework and grades, aids users in sharing content, and provides teachers with a method for notifying students about important information. With Edmodo, students can have access to all their classes in one platform, which promotes student learning any place and at any time, and those familiar with course management systems such as Blackboard and Moodle will find Edmodo user-friendly and inviting.

Registering for an Edmodo account takes moments. Once signed up, teachers can create a group for each class. To join a group, each student must create his or her own account and then enter the code for the group he or she wishes to join. The teacher maintains complete administrative control over the group. In addition to allowing students to complete daily class assignments online, Edmodo also offers quiz and poll features. Students may access Edmodo any time via computer, tablet, or smartphone.

Edmodo is also an outstanding tool for professional development. Numerous professional learning communities are available for teachers to join based on their content areas and professional interests. These communities are great places to exchange information and resources, ask questions, and carry on professional discussions. Teachers can also connect to their colleagues and other teachers they may know on an individual basis.

Concluding Thoughts

It is important to remember that tech tools are just that—tools. They are not the ends in and of themselves but rather the means for assisting teachers in making instruction better. Additionally, the gateway tools presented here are just representatives in a substantial and growing pool of online offerings. As stated in the introduction, we believe that for change to take place in the classroom, the paradigm shift must begin with the teachers rather than the students. When teachers see the value of technology and the impact it can have upon their classroom practices, such awareness opens the gates for further technology integration.

For teachers new to the profession and teachers new to technology, employing tools that streamline professional tasks, such as the ones mentioned above, may act as the springboard to further technology use for classroom learning. Integrating tools such as the ones mentioned in this article and participating in ongoing professional development, formal or informal, will help to build teacher confidence, will demonstrate the value of technology in the classroom, and will increase the use of technology by the teacher. Such integration may help set the stage for students to reap the benefits of technology-embedded instruction well into the future.

References


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