Cool Tools, Tough Times: Maintaining a Focus on Technology Infusion

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Nationwide the effects of the current economic situation are trickling down to impact our schools. School transportation options are narrowing, the housing market is impacting property taxes, and efforts in technology are at a stand still (Bobkoff, 2009; Hopkinson, 2009; Mummolo, 2008). Simultaneously there is a need for schools to meet society's twenty-first century needs (Christensen, 2008). One such need is the ability of schools to facilitate the education of our students within a globally networked society (Palfrey & Gasser, 2008). In this article we present thoughts on how no-cost technology can keep schools moving towards a vision of engaging and purposeful technology infusion during tough economic times.

Understanding how Technology Can Engage Students for Learning

The North Central Regional Educational Laboratory (NCREL, 1994) articulates that student engagement for learning occurs when students take charge of their own learning and interact with content in ways that are meaningful to their lives through social inquiry. Furthermore challenging, authentic, and interdisciplinary tasks further student engagement for learning. While operationalizing student engagement is difficult, a wide research base supports that students who are engaged have greater retention and improved academic achievement (Dickinson, 1994; Dowson & McInerney, 2001; Ewell, 1997; Rumberger, 2004; Voke, 2002).

Over twenty years ago researchers maintained that the newness of computers in the classroom impacted student engagement through their physical presence alone (Fish & Feldman, 1988). Today however, computers have such a strong presence in our society (stores, homes, libraries, etc.) that engaging students with technology may necessitate more than having them physically available for student use. According to Prensky (2001) the ways in which K–12 students today process information is fundamentally different from previous generations. In 2008, Project Tomorrow found that students use of interactive Web 2.0 tools (i.e., gaming, media downloading, social networking, and digital communications) outside of school, but within school, students use technology for writing, research, checking grades, and creating products. The growing difference in how

students and teachers use technology may demonstrate a longitudinal impact on student engagement. That is, if engaged students achieve greater academic success and students in today's classroom engage with technology in interactive ways outside of the classroom, then to continue student engagement we must seek out new ways to integrate technology for active engagement.

With the use of Web 2.0 tools replacing traditional software (Rubcion, 2007) the new habits of students might just provide an opportunity for schools to continue technology innovation in tough economic times and open a door to expand student engagement with technology in our classrooms. We suggest that a place to save money is by utilizing these tools and postponing hardware and software purchases until there is a curricular mission driven by teacher creativity and fueled by improved student engagement. By providing model no cost tools we implore the reader to think about how he or she can advance their technology vision at no cost by reshaping their approach to technology integration and redesigning technology systems within schools to empower, not restrict learning.

Cool Tools for Tough Times

Innovation is never simple, and as school leaders, tough times often challenge our habits and traditions. Britten (2007) defines a digital leader as a person who (1) knows the possibility that technology innovation creates for our classrooms; (2) understands the balance we must achieve between technology and human interactions; (3) is committed to building learning environments that allow digital native learning to occur; (4) acknowledges their own limitations with understanding; (5) explores boldly and models with courage the use of new technologies; and (6) develops partnerships that bring innovation to life. With these facets in mind the following tools are offered as opportunities to continue efforts to infuse technology in meaningful new ways for today's learners, with no cost solutions for schools.

Google Docs

Google Docs is a free, web-based word processing, spreadsheet, and presentation application provided by Google. This application found online at www.google.com/docs would allow schools to, when possible utilize this application in place of licensed software for simple document or presentation preparation. In addition, due to the web-based nature of the application students can securely store their work, and share their work with others in real time. Using the collaboration tools within the application, teachers, parents, peers, and other stakeholders can view student work and contribute if the student so chooses. Any computer with an Internet connection and a web browser can access Google Docs, there are no software requirements. The storage is immense so students can save work samples over

time and use the folder structure to organize their materials. In addition, collaborators (like teachers) can view each edit made to a document. This web-based application allows for a no cost solution to our most basic form of technology integration—word processing and document preparation.

Ma.gnolia

Social Bookmarking provide a means for users to save, share, organize, and manage their Internet bookmarks or favorites. In this system teachers can create an account. Once the account is created teachers can create a private repository of bookmarks or they can create countless groups of special bookmarks that are housed under a unique URL (www.ma.gnolia. com/groups/name of group). In addition, students can create their own accounts and groups. This allows for sharing of resources, and the tools allows users to link their bookmark groups with social networking systems like Facebook making it possible to connect academic tasks with the social environment of students. Due to the ability of Ma.gnolia to allow users to submit a title, link and summary the tool can allow the development of an annotated bibliography in digital form. This tool provides an opportunity for teachers and students to share resources and tie their research to a community of learning. This no-cost solution can help teachers begin to build a bridge between the more traditional means of gathering resources and those that may be more engaging to today's learners. No cost strides can be made to improve how we use technology for exploring the learning process instead of creating a new means for developing a learning product.

Jing

Utilizing digital video in the classroom setting offers complex challenges for storage and sharing of media. The taxing nature of digital video on a school's infrastructure often necessitates additional disk space, checking and rechecking of software, and necessary bandwidth for streaming video. However a no-cost tool will allow teachers to prepare videos for class and access them either through the web or via a small storage devise similar to a Flash drive with no cost software and a secure safe environment. Jing by TechSmith is software that allows for instant screen capture in photo or video format including sound (Jing can be downloaded online at www.jingproject.com). Jing also provides for easy saving via disk or sharing via web, Instant Message (IM), or email. If a math teacher wanted to demonstrate for students how to solve a complex problem, they could work the problem on their computer and capture their voice over and screen actions via Jing. When the teacher was ready to walk students through how to solve a problem, they would then be able to access the video for whole group, small group, or individual instruction or reteaching. Jing also has the ability to take the technical skill instruction into a more asynchronous medium. That is, a teacher could create a video screencast of how to create a

PodCast and share that via disk or web with students. This would allow more content instruction time and provide technology skill instruction.

SlideShare

Slideshare is a no-cost system where one can post, view, and share a document created in presentation software such as PowerPoint. SlideShare can be found online at www.slideshare.com and has two unique components. First, teachers can post their presentations online so they can access the materials from any location. This enables teachers to have the freedom to access materials from any location without placing burden of storage space on a school or placing the responsibility for carrying around a storage device onto teachers. In addition, this online storage allows teachers to work from any location supporting the notion that teachers are more apt to utilize technology that they can access it anytime and anyplace (Clausen, Britten, & Ring, 2008). Second, teachers can choose to share their slides with their own network of individuals. This feature enables teachers to develop presentations that could be shared across departments, schools, or even among colleagues outside of ones home district. By sharing presentations in this format, teachers can begin to explore the idea of shared resources in a Web 2.0 environment.

In addition to offering teacher-side benefits, Slideshare would also make it possible for students to share their presentations among peers. For example if a teacher employs the jigsaw strategy (Aronson, 1970) they could integrate technology by asking students to build presentations that could then be shared with their peers that would emphasize the keep points they want to convey. Students could use Google Docs to create a presentation, edit collaboratively, and when complete, post and share via SlideShare.

Capzles

Capzles (online at www.capzles.com) is a social networking and digital story telling site that allows users to capture moments overtime in audio, video, graphic, image, or text format and then sequence those moments into a digital timeline that can be developed over time, shared with users privately or publicly, and at no-cost. Capzles is a highly interactive tool that allows the user to connect with whatever media they find most intriguing. The timeline interface allows teachers and students to generate content while allowing the end user the freedom to explore in a non-sequential manner. The user is able to customize themes, text, and upload files. They are also able to store materials they have created. One of the unique features of Capzles is the new widget. A widget by nature is a tool that can be applied to simply the integration of one system into another. In the case of Capzles, their widget allows the user to integrate their timeline into a blog, web space, or perhaps a course management system.

While many teachers may opt to purchase digital storytelling software or

use static tools such as a word processing/presentation document for timelines Capzles provides a more dynamic and user friendly way to share information in a secure and cost-free environment. Utilizing tools like Capzles in the classroom allows teachers to comprehensively think about the curricular function of digital storytelling without going to the expense of purchasing software. Again, this brings our initial focus back to how we will use the technology for learning.

Good Teaching, Good Budgeting, Good Technology

With regard to technology in schools we often allow the priority to be first on hardware and purchased software, then on security, and then on learning. The authors argue that by placing learning and student instructional use at the end of the adoption process funds are often times misspent. In addition, this costly and low impact approach may need to be revised to meet the needs of digital aged students.

At one point school systems may have adopted the practice of "controlling" what technology is used in schools and disallowing access to systems that while vetted, were not supported. Given the learning dynamics of today's students this top down approach to technology planning may be contradictory to the interactive nature of student, technology, and learning. The tools that are described in this article place an emphasis on the process for learning not the product of learning. If technology is acquired
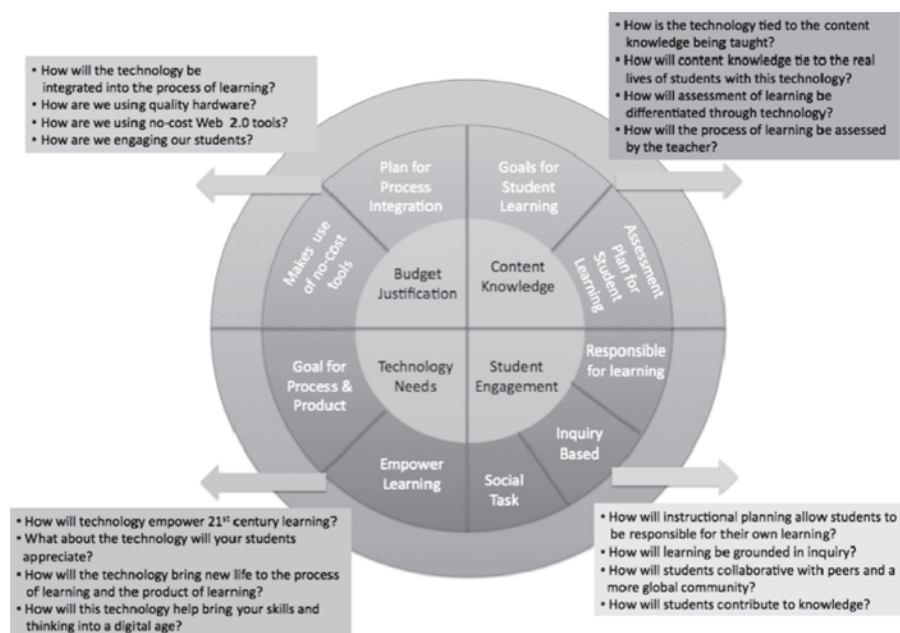

Figure 1.

based on the question of "what will students be able to do with it" answers often focus on the product (i.e., write a paper, prepare a report, create a project). However if the technology acquisition focuses on the question of "how will students learn with it" answers necessitate more complex thinking with regard to integration and student use (i.e., the process of learning). Using a somewhat backwards design (similar to that described by McTighe & Wiggins, 2004) schools can have the opportunity to utilize good technology with good teaching, and may equate to changing systems and lower cost. As shown in Graphic A the process of technology planning can be empowered by refocusing on learning.

Through seeking out purpose and opportunity for our students to engage with technology that is interactive and social by nature we may provide one means to continue strong leadership with technology infusion even in tough economic times.

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