Teacher-Friendly Technology Applications for the Twenty-First Century Learner

Jaime Coyne: Sam Houston State University

Jalene Potter: Sam Houston State University

Tori Hollas: Sam Houston State University

The purpose of this article is to present recent technology applications for teachers as well as share important techniques in setting up a classroom environment that will prepare their students as twenty-first century learners.

If our goal as an educational community is to prepare our students to be productive members of a society with prerequisites for advanced technological skills, it is imperative that we embrace technology and integrate it in our classrooms. Furthermore, it is essential that students be provided with opportunities to use technology to facilitate their own learning. A major barrier is the limited amount of professional development available for teachers in the realm of technology. Although technology is widely available, many teachers lack the knowledge for incorporating technology in their instruction with confidence and effectiveness (Pilgrim, Bledsoe & Reily, 2012).

Another added pressure for K-12 teachers is the implementation of new standards, specifically the Common Core State Standards. With this induction of new standards, there is an increase pressure for teachers to infuse technology in the classroom. The goal of the Common Core State Standards is to prepare students for a rapidly changing technological society (National Governors Association for Best Practices & Council of Chief State School Officers, 2010).

With the lack of knowledge of effectively incorporating technology in the classroom and the anxiety of learning and incorporating new standards, the stress level of teachers is substantial as teachers methodically balance these new territories. Though with recent technology applications, teachers can infuse technology to enhance instruction with ease and confidence.

Importance of Technology

Aside from the stress of incorporating technology in the Common Core Standards, it is imperative that students have opportunities to engage and learn how to use technology in their own learning. Termed as "digital natives" (Prensky, 2005), our students will be the technological leaders of the future. We already live in a society with a high dependence on technology for carrying out daily functions. Reflect back on the last time you forgot your cell phone at home. I can guarantee you felt lost the entire day. Prensky (2013) suggests that technology has now become apart of our mental activity and we use it as a tool to become more efficient to carry out daily tasks. But yet

surprisingly, very little technology makes its way in the classroom, suggesting a disconnect between the real world and the classroom. Some may even go farther and suggest we are leaving students behind with the lack of technology in learning in the digital age placing them at a disadvantage to compete globally. As teachers, it is crucial, perhaps our responsibility to provide opportunities for students to utilize technology in their own learning.

Not only will students increase their technology skills, it can transform their learning. Engagement and relevance are powerful motivators for incorporating technology in the classroom. Completely engaged with the nuances of social media, students text, facebook, instagram and tweet practically 24/7 outside the classroom walls-technology is relevant to our students. As teachers, how can we bring these powerful tools to our classroom?

With the purpose of increasing technology in the classroom, we reviewed numerous applications for educational purposes that teachers can both with confidence and ease incorporate in their classroom. Our criteria for selecting the potential application for this study was based on the following: a) user-friendly for all levels of technology users; b) aesthetic appeal for students; c) free or low cost; and d) utilization potential. As researchers and technology novices, we were pleasantly surprised at the number of available applications for teachers. See Table 1 for the list of featured applications.

Kidblog

Want to introduce your students to blogging in a safe environment? Created by and for teachers, Kidblog (http://kidblog.org) provides a platform for students to express and share their ideas while teachers maintain complete control. Among its many features, students can participate in classroom discussions, practice writing skills and create an electronic portfolio. In addition

students can embed videos, presentations and other work using other technology tools such as Storybird and Glogster. Students like Kidblog because it be assessed anywhere. A great feature is that students do not need email accounts. Teachers simply create a class providing a student code for student access. Though students' blogs are private by default, teachers have control to make certain posts viewable opening up collaborating opportunities with schools nationally and internationally.

In their study with fifth-grade students, McGrail and Davis (2011) discovered that blogging increased writing skills including student awareness of writing for an audience transitioning from self-centered writing to audience-driven writing. Furthermore, blogging helped increase motivation and confidence in their own beliefs as writers. In addition, within the classroom walls, blogging can build and foster a classroom community. According to McGrail and Davis (2011) blogging provides a vehicle for students to develop and refine ideas with the help of their peers building collaboration within a classroom.

Educreations

This tool can be utilized on both computers and iPads but works optimal on the latter. Educreations (http://www.educreations.com) is an interactive whiteboard recording ideas, pictures and voice. With a built-in classroom management tool, teachers can create student accounts and access them in a teacher dashboard. Another cool feature of Educreations is the utilization of teacher sharing. Teachers share their ideas and lessons creating a learning community. It is also great for a tutorial for your students who would benefit from a reteaching opportunity. Have a student absent missing critical information? Record your lesson using the whiteboard feature and simply upload it for student access.

Table 1 Recommended Applications for Teachers

Application Recommended	Website	Features
Kidblog	http://www.kidblog.com	Kidblog provides a platform for students to share ideas while teachers maintain complete control. Students can participate in class discussions, practice writing skills and create electronic portfolios.
Educreations	http://www.educreations.com/	This tool can be utilized on both computers and iPads but works optimal on the latter. Educreations is an interactive whiteboard recording ideas, pictures and voice. With a built-in classroom management tool, teachers can create student accounts and access them in a teacher dashboard.
Socrative	http://www.socrative.com	Socrative is a smart student response system that allows teachers to assess students through a variety of engaging exercises via smartphones, laptops and tablets.
Popplet	http://popplet.com/	Popplet allows students to visualize and display ideas providing opportunities for students to create graphic organizers, time lines as well as other visual tools. This is great for helping students organize and categorize ideas on scientific topics.
Storybird	http://storybird.com/	As a "digital storytelling" tool, Storybird features premade pictures that students can add their text creating an interactive book.
Glogster	http://www.glogster.com/	This interactive tool allows students to upload videos, text, and photos to an online poster format turning the typical science lab report into a technology masterpiece.

Want to flip your classroom? Flipping is the latest craze sweeping across classrooms from the K-12 level to the college level. Using Educreations, you can prepare the lesson ahead of time and send the link to your students, followed by opportunities to apply what they are learning and demonstrate their understanding during actual class time. The beauty of flipping your classroom, it is emphasizes class time for student-centered learning (Sams & Bergman, 2013). Exploring real-world problems while building twenty-first century skills such as collaboration, critical thinking and communication (Buck Institute for Education, 2013), project-based learning provides a natural platform for flipping the classroom. With this constructivist model, students are posed open-ended driving questions followed by opportunities to gain knowledge and understanding through electronic resources (e.g. Educreations video). Then students collaborate with their classmates applying their knowledge working through these driving questions. At the conclusion of the unit, students present their findings with the class or educational community.

Socrative

Want a fun, quick and engaging assessment tool with real-time data? Socrative (http://www. socrative.com/) is a smart student response system that allows teachers to assess students through a variety of engaging exercises via smartphones, laptops and tablets. Teachers simply log in using their email address. Then they are provided with a "room number" that students can use to access their classroom. Teachers can utilize a series of formats including multiple-choice, true-false and exit slips. The system even sends a report via email of the students' data saving valuable time spent on grading. Socrative is a great and free alternative to the costly "Clickers" that most teachers can only dream of using.

Since this application is relative new, there is not empirically research on the benefits of utilizing Socrative in the classroom. Though other types of classroom response systems including Clickers have shown to have a positive impact in the classroom (Roush & Song, 2013; Stowell & Nelson, 2007). In their study with elementary and high school students, Roush and Song (2013) found that the use of Clickers improved both student interest and academic performance.

Popplet

Researchers have long cited the benefits of graphic organizers such as timelines and concept maps on students' learning specifically in organizing ideas and the reducing cognitive load (Novak, 2005; Robinson & Kiewra, 1995). Furthermore, the educational community has long argued that creating a collaborative learning community benefits student learning. Rooted in Vygotksy's socio-cultural theory (Vygotsky, 1998), learning is a result of social interaction of students at various performance levels working together toward a common goal. Imagine marrying the two, utilizing graphic organizers and technology, in a perfect partnership using and sharing graphic organizers in real-time opening

up a world of collaboration opportunities for students. Collaborative learning naturally lends itself to technology, especially with arrival of new technological applications such as Popplet (http://popplet.com) making virtual collaboration possible.

Popplet allows students to visualize, display and share ideas providing opportunities for students to create graphic organizers, time lines as well as other visual tools. Students can collaborate with peers on projects sharing and brainstorming their ideas.

A blank page can be daunting for anyone, especially for our students. Students everywhere are plagued with the epidemic of writer's block. In an effort to minimize its effects, a teacher started her Writer's Workshop with a mini-lesson on "ideas for writing". Using Popplet, she created a graphic organizer full of potential writing ideas that can be used a resource throughout the year. As a tool for collaboration, students are encouraged to add to the Popplet with their own ideas promoting a learning community.

Storybird

As a "digital storytelling" tool, Storybird (http://storybird.com) features premade pictures that students can add their text creating an interactive book. Students have an option of publishing their book online or printing out a hard copy. With a plethora of designs and illustrations, students have the opportunity to present their finished product to the class virtually. They can also publish a hard copy or create a portable data format (PDF). This is the perfect tool for writers who start out with pictures first to write their story or who struggle with drawing (Olthouse & Miller, 2012).

Storybird can transform the writing classroom into a publication machine. Students of all ages will be captivated by this tool. In fact, one of our college students used Storybird to illustrate

Bandura's Social Learning Theory by creating a story with a fictional character, a monkey named Sam who fell victim to the struggles of peer pressure. Indeed, Storybird lends itself to a multitude of possibilities and will be virtual hit in your classroom.

Glogster EDU

Want to jazz up students' typical writing assignments, taking the drab paper into technology masterpieces? Glogster EDU (http://www.glogster.com) is interactive tool allows students to upload videos, text, and photos to an online poster format. Looking for a new spin on students' book reports? Glogster EDU takes the publication process to a brand new level. From The Scarlet Letter to The Hunger Games, students can rewrite an alternative ending or record and post a book review embedding video, pictures and text assessing student understanding and providing a platform for creativity. Students will be captivated by this interactive tool as they explore new heights with technology.

Recently, high school teachers used Glogster EDU in their study of poetry. Focusing on males' perspective, in an effort to increase male awareness, they found that the boys had an increase in motivation and engagement when using Glogster EDU as tool for expressing their feelings toward their poetry (Carroll & Edwards, 2012).

At the elementary level, a fifth grade teacher incorporated Glogster EDU in her Writer's Workshop. Her students were working on biographies on influential individuals in their lives. The students turned their finished product into an interactive presentation featuring text, pictures and even videos of their interviews. No longer are the times when publication meant stories were limited to be written on paper. Opportunities are endless and students should have the opportunity to employ technologies tools to share their writing.

**Tips for Incorporating Technology
in the Classroom**

Incorporating technology in the classroom can be both intimating and daunting for even the most tech-savvy teacher. With a little practice and experimenting, you can transform your teaching reaching new technology heights. Here are a few tips to help get you started.

Start Small

Rome was not built in a day. Don't try to be a technology expert in a day either. Start small with trying at least one to two new applications per semester. It is important for you to feel comfortable in using the application as a teaching tool. The more comfortable your feel using the application, the more likely you will incorporate it in the classroom. Don't let it be like the fancy high heel shoes that sit in your closet because they are too uncomfortable to wear. It should be like your comfy ballet shoes that fit like a glove and are your "go-to" shoe for all occasions.

Practice

When I first purchased my new computer in 2001, I was so worried that I would mess it up. So needless to say, it sat on my desk for days still it its Dell box. To make a long story short, the valuable lesson I learned was you have to mess with technology to learn how to use it and to learn about all the cool features. When I am learning about a new application, I always create a demo student account for the sole purpose of figuring out how to best use it. I was the only person who could see the demo account so I didn't feel embarrassed or anxious. A word of advice is don't be afraid to think-outside-the-box. Let your imagination go wild! I would use the demo student to try out new ideas before I incorporated them in the classroom. Do not let the lack of technology skills inhibit your potential. Like wine, as with anything, it gets better with time.

Provide Opportunities for Students

How many of you implement a new instructonal tool such as a new technology application in your teaching, but worry that your students will not understand how to use it on their own? As teachers, we want to be "Superman" and monopolize complete control. We don't give our students enough credit. By golly, these students are "digital natives". Technology is second nature. In fact, what takes us as digital immigrants (Prensky, 2005), kids today can learn it in half the time. But most importantly, the purpose of incorporating technology is to provide an opportunity for students to learn how to use this important aspect in their own learning.

Share & Steal Ideas

Pinterest is a major hit for teachers. Why? Because we love to share and steal ideas! If you have discovered an awesome lesson idea that integrates technology, share with your colleagues! In addition, there are many great resources and websites designed for teachers that provide a multitude of the "latest and greatest" applications that your students are guaranteed to love! Be a trailblazer and create your own Pinterest page for technology. Before you know it, people will be stealing your ideas!

Final Thoughts

It is our hope that this article provided teacher-friendly technology applications (technology novice approved) that will help transform your instruction for twenty-first century learners. To help get you started, we have included lesson ideas that can be incorporated in Social Studies/History, Mathematics, Science and Reading/Language Arts that will propel your classroom into the digital age.

References

Buck Institute on Education (2013). Projected based learning for the 21st Century. Retrieved from http://www.bie.org/about/

Carroll, J., & Edwards, B. (2012). Boys, ballads, and Glogster: Techno-poetry in year 7. Literacy Learning: The Middle Years, 1, 16-19.

McGrail, E., & Davis, A. (2011). The influence of classroom blogging on elementary student writing. Journal of Research in Childhood Education, 25, 415-437.

National Governors Association for Best Practices & Council of Chief State School Officers (2010). Common Core State Standards for English language arts and literacy. Washington, DC: Authors.

Novak, J. (2005). Results and implications of a 12 year longitudinal study of science concept learning. Research in Science Education, 35, 23-40.

Olthouse, J., & Miller, M. (2012). Teaching talented writers with web 2.0 tools. Teaching Exceptional Children, 45(2), 6-14.

Pilgrim, J., Bledsoe, C. & Reily, S. (2012). New technologies in the classroom. The Delta Kappa Gamma Bulletin, 78(4), 16-22.

Prensky, M. (2013). Our brains extended. Educational Leadership, 70(6), 20-27.

Presnsky, M. (2005). Listen to the natives. Educational Leadership, 63(4), 8-13.

Robinson, D., & Kiewra, K. (1995). Visual argument: Graphic organizers are superior to outlines in improving learning from text. Journal of Educational Psychology, 87(3), 455-467.

Roush, C., & Song, L. (2013). The impact of using Clickers technology on classroom instruction: Students' and teachers' perspectives. Canadian Journal of Action Research, 14(1), 21-37.

Sams, A., & Bergmann, J. (2013). Flip your studnets' learning. Educational Leadership, 70(6).

Stowell, J., & Nelson, J. (2007). Benefits of electronic audience response systems on student participation, learning and emotion. Teaching of Psychology, 34(4), 253-258.

Vygotsky, L. (1998). The collected works of L.S. Vygotsky. New York: Plenum.

Authors Note

Jaime Coyne is an Assistant Professor for Curriculum and Instruction at Sam Houston State University in Huntsville, Texas.

Jalene Potter is an Assistant Professor for Curriculum and Instruction at Sam Houston State University in Huntsville, Texas.

Tori Hollas is an Assistant Professor for Curriculum and Instruction at Sam Houston State University in Huntsville, Texas.

Appendices

Appendix 1: Suggested Ideas for Featured Technology Applications in Social Studies

Application	Lesson Idea
Kidblog	**Hot Topics & Current Events** Students research and share current events followed by their response on a "hot topic". For example, for a presidential campaign year, the students could share their personal viewpoint on who they feel would be the best candidate for Presidency. In addition, students can share read and respond to their classmates' blogs fostering a collaborative learning community.
Educreations	**Want to see the World?** Students create presentations using Educreations featuring places around the world including upload pictures, sharing population information and points of interests.
Socrative	**Space Race** Want to test students' knowledge with an interactive game? Space Race is a fun feature that allows teachers to assign students to teams. Teachers can upload History/Social Studies questions and the fun begins!
Popplet	**Collaborating on a Research Project.** Working in groups, students can brainstorm and share their ideas using one of Popplet's many graphic organizers virtually.
Storybird	**Rewriting History with Storybird** Students can share their research a historical period of time and create a book using Storybird to share with their classmates.
Glogster EDU	**Digital Historical Posters** Students can transform their historical poster to an interactive digital poster embedding pictures, text and even video. Students can dress up like historical figures they are researching, reenact an important period in time and upload their performance creating a class interactive museum.

Appendix 2: Suggested Ideas for Featured Technology Applications in Mathematics

Application	Lesson Idea
Kidblog	**Blogging for Math Reflection.** After lessons, have students blog about their understanding of what they are learning. The teacher can pose questions to propel their thinking. For example, "How can I use this information in the real world"? or "What is an area I am still have difficulty in understanding? Not just is a great assessment tool for teachers, it is helps students self-regulate their own learning!
Educreations	**Virtual Math Learning** Want to increase collaboration? Have students teach their own Math lesson and share with the class! Or give students a mathematical problem and have them use Educreations to show how they solved it.
Socrative	**Quick Assessment at your Fingertips** Need a quick assessment in math that students will enjoy? Socrative features quizzes that are multiple choice, short answer and true-false and emails the data to your email.
Popplet	**Math Vocabulary Word Wall** Students can create a virtual word wall using the concept mapping tool featuring mathematical terms with their definitions and pictures of examples.
Storybird	**Math Storytelling** Students can create their own story mathematical problems using Storybird illustrations. Students can share their story problems with the class as well as solve other classmates'.
Glogster EDU	**Connecting Mathematics to the Real World** Learning about fractions? Have students create a Glog featuring how fractions are used in our daily life.

Appendix 3: Suggested Ideas for Featured Technology Applications in Science

Application	Lesson Idea
Kidblog	**Science Blogging** Students can share reflect on their own learning in Science using Kidblog after hands-on experiments.
Educreations	**Science Learning in the Digital Age** After a science experiment, have students use Educreations to record and share their hypothesis, data analysis and conclusion with the class propelling science learning into the Digital Age.
Socrative	**Exit Slips** Teachers can utilize this cool feature to assess students' understanding. This is great for assessing students after participating in hands-on experiments.
Popplet	**Digital Concept Mapping** Students can use the graphic organizer feature to organize their scientific ideas.
Storybird	**Using Storybird in Writing to Learn** Students can use Storybird to illustrate scientific theories. Studying famous scientists? Have students use Storybird to create and publish biographies.
Glogster EDU	**21st Century Science Learning** Students can take their Science research and transform it into the 21st Century with text, video and pictures.

Appendix 4: Suggested Ideas for Featured Technology Applications in Reading/Language Arts

Application	Lesson Idea
Kidblog	**Classroom Newsblog** Students can create a classroom newspaper that is private by default and control by the teacher. The newspaper can feature classroom news, weather, and special events.
Educreations	**Making Vocabulary Digitally Meaningful** In studying vocabulary, have students upload a picture or take a picture demonstrating the meaning of the word. Students can also record its definition.
Socrative	**Let's Get the Discussion Started** Pose a question to ignite your students' thinking. For example, you are doing a book study on The Great Gatsby, ask questions to propel student thinking about Gatsby "Do you think Gatsby is a strong character? Does he live up to being "great"? Students share their response opening up a class discussion.
Popplet	**Virtual Writing Tools-Organizing Ideas** Students can create a concept map to organize their writing ideas. Want to encourage collaboration? Students can also collaborate on writing projects with their classmates.
Storybird	**Storybird in the Writing Workshop** Students can use Storybird to illustrate and publish their writing. Students can share virtually or printout a PDF of their finished product. This is perfect for sharing during Open House!
Glogster EDU	**Author Study** Students can participate in an author study featuring book reviews, collection of book titles and more deepening students' appreciation and love of literature!