Innovations in Curriculum: Technology Resources

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ABSTRACT

As the foundations of society change with new constructs and innovations in technology, so should the foundations of our educational systems. Technology has a place in every piece of the classroom, and should be creatively integrated. Practical ways to implement technology into the classroom exist for teachers at all levels of technological capabilities. The corporation of Google has created a myriad of resources that are student-friendly and encourage group collaboration on classroom tasks, from Google docs to Google drawings. Despite these technological advances for classroom curriculums, there are still challenges to the implementation of technology in the classroom, which include lack of professional development and lack of equitable access to technology across different school sites. Despite these challenges, technology is available for even the simplest uses within the classroom.

INTRODUCTION

The nature of technology and integrating new technologies into any working system is that the technology introduced will essentially change every aspect of that working system. According to Catherine Attard, "new technologies…change every aspect of…the way we communicate, calculate, analyze, shop, make presentations, and socialize" (Attard, C., 2011, p. 30). As new technologies are constantly changing the shape of our society and therefore changing the nature of our jobs and daily life, education should mirror this in order to better prepare students for life outside of school. Technology can be integrated into every core curriculum of the class, from Mathematics and Science to English and Physical Education. According to *Expanding approaches for understanding impact: integrating technology, curriculum, and open educational resources in science education*, "the students of teachers who showed the most variety in their use of [technology in science curriculum] had significantly higher learning gains" (Ye, L., et. al., 2015, p. 355). Technology makes learning applicable to students' lives, and appeals to their background knowledge as technology is most likely integrated into their social and home lives.

APPLICATIONS IN THE CLASSROOM

Technology has been identified as "one of the skills [and] behaviors and attributes identified as general capabilities that students need to succeed in life and work in the twenty-first century" (Attard, C., 2011, p. 30). This core belief is mirrored by most educational systems around the world as technology permeates every aspect of society. Research states that students who have access to consistent new technologies within the classroom engage more meaningfully with curriculum and retain information at a higher rate. "Recent research has documented that science teachers who engage deeply with curriculum to design meaningful

instructional activities using high-quality materials or resources available to them can

significantly enhance their students' learning" (Ye, L., et. al., 2015, p. 355). Technology makes

concepts relatable to students, and applicable to their lives. The use of technology in the

classroom can make learning hands-on and can capture students' interests and attention.

Technology can be used in creative ways within the classroom. In age-appropriate

classrooms where students have access to mobile devices, these mobile devices can be used to

integrate technology in a personal way. There are thousands of educational apps that students can

use on their phones in order to respond to group projects as well as individual learning situations.

 "[The use of] mobile technology provides evidence that student learning by hands-on interactive

designs can be expanded beyond a grade-level curriculum" (Kim, P., Suh, E., & Song, D., 2015, p.

576). One of the most practical and reachable applications for technology in the classroom

is Google. Google has made streamlined, simple computer applications that students can

learn and use for individual and collaborative tasks within the classroom. Teachers can

receive their Google Level I and II certifications, which makes them more marketable as a

collaborative educator. Additionally, Google resources include, but is not limited to, the use

of Google slides for group collaboration, Google sites for publishing student work, Google

docs for group research, Google classroom for parent-teacher communication and student-

teacher communication, and Google drawings for student posters or informational

graphics. All of these technology resources can essentially enhance the best practices of a

classroom, especially enhancing classroom collaboration.

Another practical technology resource is Padlet, which can be used essentially as a

digital wall. This technology can be used for posting finished work for group feedback, as a

formative assessment exit ticket, with thematic teaching, as a space for important

documents that students can easily access, and as an interactive "sticky note on the wall" response board, but with included pictures, videos, etc. Padlet is a technological resource that could even be used to create substitute lesson plans that are streamlined and simple.

Additionally, there are thousands of simple websites that integrate technology within specific curricular topics. For example, "formulator Tarsia…is a free software package that allows teachers to create mathematics puzzles based on jigsaws and domino activities" (Attard, C., 2011, p. 32) This is a simple way to integrate problem solving techniques within the mathematics standards. As far as access to California Content Standards go, there is even an app for teachers that makes navigating standards simple and straightforward. This app is called eStandards.

CHALLENGES OF IMPLEMENTATION

One of the greatest challenges of implementation of technology into educational curriculum is that there is not equitable access to technological systems across school sites. This, therefore, limits some teachers as to the types of technology that they can integrate easily into their classrooms. Ways to work around this challenge include applying for technology grants both site-wide and within the personal classroom. Oftentimes teachers will have the training and the will to integrate technology, but will have to fight to get their students access to it. This is a constant challenge for teachers who already have a lack of time and a lack of support within their classroom.

Another challenge of implementation is lack of time and professional development training given to teachers to learn about new technologies available, which makes teachers often have to learn technologies on their own time. "An individual may adopt a technology innovation when s/he decides that the innovation will have utility and can add value when

incorporated into activities-such as teaching" (Ye, L., et. al., 2015, p. 356). If teachers are not given the time to decide an innovation has utility, then that technology will not be added to the classroom. According to *Professional Development in Integrating Technology Into Teaching and Learning: Knowns, Unknowns, and Ways to Pursue Better Questions and Answers*, "Professional development is critical to ensuring that teachers keep up with changes in statewide student performance standards, become familiar with new methods of teaching in the content areas, learn how to make the most effective instructional use of new technologies for teaching and learning, and adapt their teaching to shifting school environments and increasingly diverse student population" (Lawless, K. A., & Pellegrino, J. W., 2007, p. 575). The importance of integrating technology must start with people in power who are able to give money to schools and teachers with the focus of professional development for technology training as well as coupling that with financial resources for technology within the classroom. Teachers need to advocate for themselves as well for professional development opportunities, and oftentimes must research the opportunities themselves.

CONCLUSION

    In conclusion, educational systems and educational curriculums need to match the changes of our environmental factors. One such environmental factor is the increase in the use of technology in every aspect of society, both personal and business. The increase of technology within our world must therefore be matched with an increase of the use of technologies within classrooms. Creative technologies increase student engagement and learning, and allow students to access content in ways that engage and challenge their background knowledge and experiences.

References

Attard, C. (2011). Teaching with Technology. *Australian Primary Mathematics Classroom*, 16(2), 30-32.

Kim, P., Suh, E., & Song, D. (2015). Development of a design-based learning curriculum through design-based research for a technology-enabled science classroom. *Educational Technology Research & Development*, 63(4), 575-602. doi:10.1007/s11423-015-9376-7

Lawless, K. A., & Pellegrino, J. W. (2007). Professional Development in Integrating Technology Into Teaching and Learning: Knowns, Unknowns, and Ways to Pursue Better Questions and Answers. *Review of Educational Research*, 77(4), 575-614. doi:10.3102/0034654307309921

Ye, L., Recker, M., Walker, A., Leary, H., & Yuan, M. (2015). Expanding approaches for understanding impact: integrating technology, curriculum, and open educational resources in science education. *Educational Technology Research & Development*, 63(3), 355-380. doi:10.1007/s11423-015-9377-6