Educational Technology as a Changing Culture

Alicia M King

Purdue University

ABSTRACT

Students are being shaped by their diverse environments every day. For most students, this includes more access to electronic devices than their parents ever had and at a younger age, which in turn creates digital natives. However, in education we are noticing a trend with our teachers as well. Some teachers are trying very hard to keep up with this shift in the type of learners entering their rooms by increasing the amount of technology tools in the classroom, or they are not making any effort to keep up and instead are teaching in their preferred, old-school, comfortable method with chalk on the blackboard. There is a discord between the teacher's instruction methods and the student's needs as learners. There needs to be a cultural shift from our educators to be accepting and understanding of these digital natives. This paper will attempt to further explain how our schools should be changing to better embrace educational technology as a culture.

INTRODUCTION

Students are changing. Technology is changing. Our culture outside of the classroom is changing. We should be changing with this culture. Unfortunately, as Marc Prensky (2010) states the biggest educational changes are happening everywhere but our schools. Culture is defined by the Merriam-Webster online dictionary as "the set of shared attitudes, values, goals and practices that characterizes an institution or organization" (Merriam-Webster Online Dictionary, n.d.). Educational technology needs to be a culture in our schools. It is already a growing culture to our digital natives. Students already have their own online language, they have their own way to conduct social interactions, and have their own practices on how to share media. As described by Marc Prensky (2010), students leave school and then immerse themselves in a world full of games, social media, instant access and in the process, are learning massive amounts of information in the solitude of their rooms, but still come across as resistant in a school setting. If the culture of educational technology is promoted positively, it could be one of the best ways to promote learning by accessing the interests and skills of our digital natives. However, educators, all educators from beginners to experienced, are stressed when it comes to change (Hall and Hord, 1987). Some teachers are using modern technologies, but not in line with curriculum. The goal of this paper is to describe three areas that we need to focus on to create successful students moving into the 21st century. The three areas that are crucial to bringing cultural change in educational technology include the role of the teacher, the use of web 2.0 tools and the school level support available for technology integration.

ROLE OF THE TEACHER

To better align with this shifting culture, we must first examine teachers. An older style of teaching would include worksheets, lectures, textbooks and homework and a terrible cycle of

these items that teachers can fall into. Educators are often taught to follow Basal readers and how to design paper units with multiple choice assessments. These once successful techniques do not align well with our digital native's learning habits (Prensky, 2010). Research from Zhu and Zeichner (2013) included a phrase that could be transformative enough on its own: "Teachers do not begin as novices and end as experts" (p.24). This simply explains that a teacher cannot perfect the art of teaching, but must always be changing. Zhu and Zeichner (2013), acknowledged that there is pressure in teaching due to the process of teaching and learning hardly being smooth and hardly predictable. Teachers then become less optimistic and overtime will lose hope when they come across those who have no desire in learning, media criticism and lack of balance in personal life. Now imagine throwing ever-changing technology stress into the scenario. Teacher burnout mixed with ever changing technologies is becoming more relevant in school systems. To describe lecturing teachers, the phrase "The sage on the stage" is currently used. However, many are challenging this method and instead suggesting the students have more control of their learning and the teachers in turn become the "guide on the side". This new partnering pedagogy is praised and demonstrated in the book by Marc Prensky called, "Teaching Digital Natives". This book challenges old teaching strategies and instead transforms teaching into passion driven, student led, 21st century approved methods. Prensky (2010) explains that partnering is the opposite of telling, and that teachers should not be telling at all. Instead of lecturing, a teacher should only give students questions to be answered and tools to help them in several different creative ways. Teaching like this would shatter some of the older methods that are still in classrooms today. Pushing teachers to teach in this method will be uncomfortable at first. It will be terrifying. However, this cultural change is needed.

Pradhan (2011) agrees that it is time for teachers to break away from traditional paradigms to benefit our digital natives, and understands that knowledge is no longer fixed. Not only does educational technology call for a change in teaching, but in understanding of learning as well. London and Hall (2011) compare adaptive learning to generative learning. Adaptive learning is linear and the participants are viewed as students. The opposite, would then be generative learning which includes uninhibited learning experiences that are socially constructed and active by nature. Generative learning is also collaborative and multilinear. London and Hall (2011) conclude their article by stating "Generative learning, whether online or in person, deepens the learning experience, increases leaners' control over their own learning, and promotes collaboration, idea sharing, and community building in the process. Web 2.0 technologies are particularly suited for generative as well as adaptive learning" (p. 772). The teacher's new role in this cultural shift in educational technology is to create these learning experiences using modern technologies and then present them in a delivery method that is appropriate for our digital natives.

CHANGING THE USE OF WEB 2.0 TOOLS

Web 2.0 technologies are defined by Brown (2012) as a range of software applications that focus on social interactions and are interactive, adaptive and dynamic in nature. The focus of Web 2.0 tools is content creation rather than consumption of information. These tools are necessary pieces in the culture change because they will aid the teachers in revitalizing education. A common problem in some classrooms includes how to utilize these resources. There are so many Web 2.0 options for educators to use in their classroom that it can seem overwhelming to teachers who are not necessarily excited by technology (Prensky, 2010). Some Web 2.0 examples would include tools such as video sharing platforms, blogs, and social media

websites. Today's Web 2.0 tools give students the ability to publish, connect and create in ways that gives the students more power in their learning.

However, a problem is appearing with teacher burnout associated with lack of teacher education on how to properly use tools. Teachers need to be aware that it is not their responsibility to know every tool or even how to use them. Instead teachers need to give their students the ability to explore these tools (Prensky, 2010). Hao and Lee (2015) conducted a research project exploring teacher's concerns with integrating web 2.0 tools in the classroom. They focused on seven stages in the integration process ranging from 0 (awareness)- "I don't even know what Web 2.0 means", 1 (informational), 2 (personal), 3 (management), 4 (consequence), 5 (collaboration) and stage 6 (refocusing)- "I'm concerned about my use of web 2.0 tools". Hao and Lee (2015) found that 62% of the teachers studied had the highest concern in regards to using the tools during stage 1 (informational)- "I have a very limited knowledge about Web 2.0". So how do we eliminate teachers from gaining stress at stage 1 as presented in this study? We change our professional development to teach educators how to align the tools with curriculum and not just the basic functions.

Another study by Sadaf, Newby and Ertmer (2012), researched pre-service teachers and their concerns regarding integration of Web 2.0 tools in the classroom. They focused on three areas to determine the likelihood that these teachers would integrate their knowledge of tools in a lesson plan. These areas included: Attitude, Subjective Norm (external influence) and Perceived Behavior Control (perception of difficulty of a task). They found that subjective norm or teacher influence did not play a significant role at all on a pre-service teacher's intention to use web 2.0 tools, most likely because they have not been exposed to working with a grade level team yet. Instead attitude played the biggest role in their intentions. However, it was also revealed in the

study that "Although, preservice teachers felt very confident using Web 2.0 technologies themselves, they seemed less confident in their abilities to integrate technology into their lessons." (Sadaf, Newby and Ertmer 2012, p. 184). Sadaf, Newby and Ertmer (2012) conclude with a very powerful message that speaks to the changing culture of educational technology, "Teacher education programs should not be on teaching 'how to use the tool, 'but rather how to use the tool to teach particular subject matter content according to the age level that a preservice teacher intends to teach" (p. 189). To ensure that we continue to change the culture of technology in the classroom, specifically with the use of Web 2.0 tools, we need to make sure we are understanding teachers' level of confidence when integrating these tools. Tailoring professional development to support teachers will encourage schools to strive towards the goal of preparing students to be functional, global citizens (Hao and Lee, 2015).

SCHOOL-LEVEL SUPPORT

These changes will not happen on their own and instead need to be supported at the school-level. However, a large challenge can become present. Teachers have a certain level of concern when integrating technology tools (Hao and Lee, 2015). If these concerns are not addressed with a mentor this could prevent teachers from developing and maintaining a growth mindset (Mindsets, 2012). A growth mindsets is defined by Carol Dweck as a form of thinking that supports that the idea that an individual's abilities and skills can be enhanced through positivity, learning and perseverance. This is opposed to a fixed mindset which is a form of thinking that one's abilities and talents are fixed and cannot be improved over time with learning (Mindsets, 2012). Patricia and George (1997) made a point in favor of mindsets in their research on quality assurance in education. They state that some believe that professional development is enough to assure quality teaching will take place. However, if the educators do not engage in further professional development, the continued increase of quality teaching in the classroom

cannot be assured. "Developments in study skills training, IT provision, new programs and

courses are all dependent on the commitment and the developing skills of staff" (p. 212). If the

teachers do not have a growth mindset in the first place, the change will not occur.

      Barriers to the cultural change in educational technology within schools unfortunately

exist. A study done by Wachira and Keengwe (2010) presents several barriers that are common

in urban schools. The most common barriers include lack of time, technology leadership,

reliability on technology and accessibility to internet and devices. These barriers are holding

back teachers from integrating technology the way it should be integrated. The teachers reported

in this study that in classrooms where technology was available, teachers still felt a lack of

confidence. Lacking confidence was a leading cause reported by teachers as to why it was being

underutilized (Wachira and Keengwe, 2010).

      There are several interventions and solutions we can take to support our teachers. A

solution to these problems are suggested through Wachira and Keengwe's (2010) research.

Teachers should be given time during school hours through professional development that is

content-specific, whether that is teachers working together or with an integration specialist, to

increase knowledge of tools, devices and their uses. If this is not available, workshops and

summer trainings should be encouraged and made well-known to staff. The Yanoff and Weiner

(2011) research, as well as research from Wachira and Keengwe (2010), suggest that educators

be allowed to be a part of the decision-making process when considering new technology. This

collaboration will demonstrate to teachers that administrators are supportive of their use of

technology in their classrooms. An article named, "Reinventing the role of the 21st-century

teacher" by Yanoff and Weiner (2011), elaborates on this helpful intervention. Their research

states that it is important to encourage teachers to engage with others differently and in-turn

revitalize their career, build culture and hold teachers more accountable. They state that a teacher can easily become a lone wolf and often struggle alone as well. Their studies also show that teachers are beginning to work with their administrators more than ever. Yanoff and Weiner (2011) state that this blossoming collaboration has brought about distributed leadership, collaborative partnerships and more involvement with community, other teachers and of course administration. This shift now encourages the teacher to become a partner and drop the lone wolf label. Staying engaged with building staff and creating personal learning communities with fellow teachers is also a solution that creates accountability and support among the teachers (Wachira and Keengwe, 2010).

Another necessary intervention to add to the change of educational technology culture in our modern classrooms is a curriculum upgrade (Prensky, 2010). Pradhan (2011) suggests that creating "creative curriculum that support project assignments and innovation will eliminate the idea "everything is predefined" and maintains that "everything is developing" (p. 19). Switches in well memorized, very dry units will also be an uncomfortable change for teachers who enjoy everything being laid out ahead of time. However, our students are beginning to not respond to these methods (Prensky, 2010). Instead our current curriculum needs to embrace the social Web 2.0 tools that are familiar to our students. Until a true 21st Century curriculum is released, teachers need to graft these skills into existing curriculum as best as possible (Prensky, 2010). This will come by exposing teachers to tools and methods through the help of an instructional designer or technology integration specialist.

CONCLUSION

In conclusion, it can be understood that technology is changing constantly. Prensky (2010) states that students are changing and so must our approaches to these students. Knowing technology is not enough, but the application of technology, specifically of Web 2.0 tools, to

create interactive, collaborative lessons is what our students are waiting for. Teaching is not a systemic profession. Lesson outcomes and student outcomes might not always be certain. Teachers are experiencing burnout already due to these factors and yet are also becoming stressed about this ever-changing world of educational technology (Hao and Lee, 2015), but teachers know that this is the future. Teacher revitalization is important. The role of the teacher needs to be changed to fit the needs of these students.

Pradhan (2011) recognizes that the bombardment of new technologies can be overwhelming. The change of teaching styles, use of Web 2.0 technologies, and teacher roles to include these types of 21st Century learning techniques is vital for our students, for the system and for our teachers. Web 2.0 tools can reach audiences as well as fellow collaborators. This is the new future of technology in the classroom. Educational technology is past basic projectors and displaying movies in the classroom. Educational technology is even past basic content retrieving digital tools. Instead, students are expected to create and publish content to demonstrate understanding and to be functioning global citizens (Prensky, 2010). Web 2.0 tools allow students to reach further than previous technologies have allowed students before. Before long Web 3.0 tools will become mainstream and educators must be ready when that day approaches (Prensky, 2010).

Web 2.0 tools are at the heart of educational technology, however if not paired with the right teaching styles and a motivated educator, you will have an incomplete approach to teaching digital natives in today's world. Support is important for these teachers. Encouraging growth mindsets should be encouraged when introducing new technologies or any change within a school setting (Mindsets, 2012). Administration should be responsible for including teachers in decision making processes as well as encouraging teachers to establish a personal learning

community to support each other during these changes in the culture of educational technology. Support from a school's technology staff should also strive to be timely and knowledgeable to also support educators in their move to integrating technology in the classroom (Wachira and Keengwe, 2010).

RECOMMENDATIONS FOR FUTURE RESEARCH

Future Research is recommended in regards to community involvement within the changing culture of educational technology. Due to certain limitations, community involvement could not be covered in this study, but is highly suggested for others studying educational technology as a culture. This research would be beneficial for administrators, teachers and instructional designers alike to better collaborate with invested community individuals and organizations. This collaboration between schools and community has a great potential to benefit the continuing process of preparing students to become global citizens. These opportunities of collaboration should be researched in depth to determine how they can embrace the educational technology cultural change past brick and mortar walls of a school.

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