

Engaging the Digital Mind: Strategies for Teaching and Motivating Today's Learners

Suzy Cox

Utah Valley University

Abstract: *It is often difficult for teachers to know how to engage learners in the digital age. This article addresses differences in the minds of modern adolescents and explores ways to use technology and teaching practices to promote higher order thinking and student engagement.*

Keywords: *Technology, digital age, adolescents*

Being an adolescent has never been an easy thing. We all remember the physical changes and emotional drama that accompanied that period of our lives, yet we still don't truly understand what adolescence is like in the digital age. Media portrayals of today's teens add to our confusion, as they often vilify adolescents and even go so far as to argue that they are somehow damaged or deficient. Yet this argument is nothing new. The Greek philosopher Plato is quoted as complaining, "What is happening to our young people? They disrespect their elders, they disobey their parents. They ignore the law. They riot in the streets inflamed with wild notions. Their morals are decaying. What is to become of them?" And in the eighth century, Hesiod stated:

I see no hope for the future of our people if they are dependent on frivolous youth of today, for certainly all youth are reckless beyond words... When I was young, we were taught to be discreet and respectful of elders, but the present youth are exceedingly wise [disrespectful] and impatient of restraint.

These statements sound an awful lot like what is being said about today's youth.

So are the problems we are experiencing with modern adolescents just another form of the ever-present generation gap? Or are elements of our culture truly impacting adolescent development, cognition, motivation and behavior? And is there anything that educators can do to engage the digital mind?

For many of us, today's complex and "always on" world is almost unrecognizable from the carefree days of our pre-technology childhoods. Yet this is the culture into which today's adolescents were born. Often referred to as *digital natives*, most of these students have spent their entire lives surrounded by and using technology (Prensky, 2001). A 2010 study by the Kaiser Family Foundation found that, on average, students 8 to 18 spend more than 7.5 hours a day engaged with computers, cell phones, TV, music, or video games. Additionally, 40% of kids in middle school and high school say that when they're on the computer, most of the time they're also plugged into other media (Rideout, Foehr, & Roberts, 2010). Perhaps even more concerning is the fact that this same report states that approximately half of that media time is spent watching television—a form of passive media consumption that does little to engage higher-order thinking.

In a 2011 blog post, esteemed Harvard educator David Perkins states that "Today's educators face a small world paradox: the smaller our common world gets, the larger and more

complicated our personal worlds become.” In other words, children are growing up in a time of unprecedented access to information and people, which has both drawn the world closer and made their lives infinitely more complex. And it shows. According to Twenge (2006), rates of depression and anxiety are significantly higher in today’s adolescents than in previous generations, perhaps due to their constantly connected culture. Twenge comments that, “Many teens feel that the world demands perfection in everything, and some are cracking under the pressure” (2006, p. 4). Emerging research is also starting to paint a picture of the relationship between anxiety and students’ use of common technologies such as texting, Facebook and smartphones (Lepp, Barkley, & Karpinski, 2014; Rosen, 2012).

We are also seeing significant changes in brain function in today’s adolescents. In his book, *iBrain*, Dr. Gary Small notes that the digital age has impacted everything from social skills to interpretation of language and symbols (2009). While some of these changes are positive, including increased visual acuity and mental flexibility, others are more worrisome. Small states that, “Our high-tech revolution has plunged us into a state of *continuous partial attention*...keeping tabs on everything while never truly focusing on anything” (Small, 2009, p. 18). The result is that today’s adolescents live in a heightened state of stress with little time to reflect or make thoughtful decisions. This prolonged stress in turn leads to changes in the memory and emotional centers of the brain. Digital natives also tend to have shorter attention spans (Rosen, 2012) and are experiencing structural changes that are associated with passive media consumption, including delayed frontal lobe development, potentially leading to losses in higher-order thinking skills and creativity (Greenfield, 2008; Small, 2009).

Meanwhile, respected researchers and leaders such as Howard Gardner and Charles Fadel are stressing the importance of developing the exact skills that are being lost in order for today’s adolescents to be successful. Gardner’s *Five Minds for the Future* emphasizes the need for thinkers and leaders with disciplined, synthesizing, creative, respectful, and ethical minds (2009). Additionally, Fadel’s Partnership for 21st Century Skills has worked to promote a focus on higher-order learning, communication, and innovation skills for today’s students (2011).

While research on the use of technology to promote these skills and reverse the negative changes in today’s adolescents is mixed, the *potential* of digital media is almost limitless. Technologies such as WebQuest (Abbitt & Ophus, 2008), digital storytelling (Ohler, 2008), and blogging (Drexler, Dawson, & Ferdig, 2007) have all demonstrated significant potential to have positive impacts on engagement, learning and cognition.

IMPLICATIONS

While technology has tremendous potential, the majority of young people’s technology use is not directed toward developing higher-order thinking or other 21st Century Skills. The digital natives have had few models of how to use technology in meaningful and productive ways and have, instead and unsurprisingly, usurped their digital devices for entertainment. As gifted education researcher Caroline Sheffield puts it, “Though adolescents may enjoy using technology and are comfortable with a variety of formats, they do not necessarily know the most effective ways to apply technology as a student and a thinker” (2007, p. 1). Adults have typically adopted the same purposes for their own devices—focusing on entertainment and personal productivity—with comparatively few parents and educators investigating potential higher-order uses of technology. While we can’t possibly keep up with the pace of technological development, it is past time for parents, educators, and leaders to embrace the vast potential of technology and help students learn to use it in ways that promote higher-order thinking, meaningful personal connection, reflection, and creativity.

We must also recognize that technology is only a small part of the answer of how to engage the digital mind. An examination of the skills that are declining and the mental struggles that are increasing in today's youth reveals that the development of intrapersonal and interpersonal skills must also be a priority. Additionally, the marked increase in learner diversity—from learning disabilities to cultural differences—suggests a strong need for more visual and active learning approaches in our classrooms.

RESEARCH INTO PRACTICE

TECHNOLOGY

Though educators have been integrating technology into their classes to some degree for decades, the digital age and the Common Core both require that we examine our uses of technology and adopt those that help students develop critical 21st Century Skills. The era of “technology for technology's sake” is long past, and educators must become informed advocates for technologies that help students reach core objectives and think and communicate effectively. Students must learn to use technology to discover, synthesize, represent, and present information. And though the tools we might use change on an almost daily basis, those skills and objectives remain the same.

Technologies to help them do these things vary from simple tools to complex models of instruction. As mentioned previously, WebQuest—an inquiry-based model of instruction dating to 1995—has tremendous potential for engaging the digital mind. Research on the WebQuest model has been mixed, as most technology integration research is, but a meta-analysis of numerous studies demonstrates that this approach can increase motivation, improve collaboration, and promote higher-order thinking, when done thoughtfully and correctly (Abbitt & Ophus, 2008). Effective WebQuests should include an authentic task, question, or problem, leverage outstanding online resources, incorporate face-to-face discussion and collaboration, emphasize synthesis and reflection, and promote creativity through a real and meaningful project.

The Flipped Classroom model, originated by classroom teachers Jonathan Bergmann and Aaron Sams, is also beginning to show some promise. This model *flips* the lecture-in-class/homework-at-home model of traditional schooling. Instead, students engage in instructional activities at home, typically in video form, and complete homework and projects in the classroom. The idea behind the Flipped Classroom model is that it allows teachers to actively engage with students in the classroom rather than stand at the podium transmitting information. These two models can also be blended together, using the WebQuest structure and online components as the *flip* and saving class time for collaboration and creation with active support from the teacher.

Blogging has shown tremendous potential as a tool for collaboration, writing and reflection, all of which are vital and endangered skills for digital learners (Drexler et al., 2007). Podcasting, vidcasting, and wikis also show similar promise and have the added bonus of providing differentiation opportunities for students who are not strong writers or who benefit from collaborative communication. And digital storytelling has proven itself as an extraordinarily powerful medium, both for demonstrating understanding and for developing interpersonal understanding (Ohler, 2006; 2008). For example, a recent study revealed that the use of digital storytelling as part of a unit on stereotypes and labeling significantly increased students' empathy (Bayles, 2013).

The exact tool that an educator uses to create a WebQuest or Flipped Classroom, or to have his or her students create a blog, podcast, vidcast, wiki, or digital story, doesn't matter.

What matter are the skills that students develop through these instructional and assessment methods and the increases in engagement and motivation that can arise when they are used.

PERSONAL LEARNING ENVIRONMENTS

While technology can be a motivating factor in the classroom, adolescent egocentrism also dictates that they are most highly motivated when the content being presented is relevant to them. Personal Learning Environments (PLEs) provide students with the opportunity to learn in a way that works best for them. PLEs can take many forms, from individually paced required content to free exploration of topics of interest. Some schools are embracing a 90-10 or 80-20 model that allows students some time each week (10-20%) to choose and pursue individual learning topics, for example. There are numerous resources available to support such innovative approaches to learning (Renfro, 2013).

ADDITIONAL STRATEGIES

While technology and PLEs are excellent avenues for engaging today's learners, we must also remember that traditional classroom pedagogies are still extremely important. In order to combat students' declining emotional intelligence and social skills, instruction must incorporate opportunities for interpersonal interaction, including group work, team-based learning, class discussion and debate. We must also be careful, however, to allow time for personal reflection. In order to improve students' metacognitive and self-regulatory abilities, and to engage our more intrapersonal learners, we need to integrate activities like journaling/blogging, task analysis, goal setting, personal application and self-assessment. Today's learners also respond more strongly to active and visual learning opportunities, which emphasizes the need for both teacher- and student-created imagery to reinforce course concepts as well as in-class activities that allow students to move and/or engage with concepts in a hands-on/minds-on learning environment.

Finally, we must remember that our students' social and cultural environment seems to contribute to increases in anxiety, and that they are in a period of brain development that can often result in a struggle to engage with the more abstract content found in middle and high school classes. While we in no way want to lower the expectations we have for our students, we may need to provide more support for students' learning. When students have appropriate support, they are able to achieve more and their anxiety is reduced. Technology can help us provide this support, as we can post information and resources on class websites, use a flipped model to allow us to scaffold students' in-class efforts, and even create individual learning environments. Of course, there are a lot of traditional supports that are extremely beneficial, as well, such as peer mentoring, clear assignment descriptions, and differentiated instruction.

CONCLUSION

So how do we engage digital minds? It may be surprising to note that a lot of the suggestions for motivating and teaching today's adolescents look a lot like good teaching. While digital minds seem to demonstrate some differences from their pre-technology counterparts, they are not completely unrecognizable. Therefore, interaction, reflection, active learning, and scaffolding are all still extremely important. Technology is simply another tool that we have to do all of these things, but teachers must embrace it and explore how it can best be used with their content and their students to promote higher-order thinking and creativity.

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