TWG 2: Student Technology Experiences

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Introduction

This brief paper serves as discussion paper for Theme 2 of the EduSummIT 2011, in relation with the EduSummIT 2009 Call to Action
- to better understand the disconnect between the technology experiences of students in both formal and informal learning environments, in order to inform learning in formal settings.

Research update

The changing learners. Research has clearly shown that with the advent of digital technologies in the last 10 years primary and secondary students have changed the way they socialize and learn (Ito et al., 2008; Sefton-Green, 2004). Many students are immersed in out-of-school online activities. Students’ daily lives have changed:

- Constantly on the move (mobile).
- Constantly using technology (cell phones, texting).
- Have superb personal communication skills (social networking).

The changing ecology of education. We need to recognize a wider ecology of education which should acknowledge the importance of informal learning that takes place at home or in informal learning institutions (e.g., museum, library, clubs). Learning can take place in different settings, e.g., children can engage in learning when their parents take them to summer camps, museums, or when they travel overseas.

The changing learning culture. When using digital media, students engage in a new learning culture which is very different from what they have been enculturated in school. With digital technologies, they are able to create their own private world by blogging or twittering, and connect to friends by social networking technologies such as Facebook. This private world is separate from, but overlaps with, their family and school worlds (Lyman, 2004). Youth participate in friendship-driven and interest-driven online activities and they learn from their peers rather than from adults, although adult participation is also welcome in interest-driven activities (Ito et al., 2008).

Using technologies in informal settings is more motivating and engaging than using technologies in school settings. Informal learning often engages students in real life problems and uses community resources. In formal learning:

- Students sit in chairs.
Student must ‘check’ their technology at the door.
- Activities are geared toward facts, established knowledge.
- Activities become boring over time.
- Students are less motivated, feel less creative, come to like school less over time.
- Boys (especially) are dropping out at all levels.

Issues/unresolved questions/concerns

High dropout rates. One major problem for Millennials in formal schooling is the high dropout rates, especially for boys. For example, in the US, nearly one in five men between the ages of 16 and 24 (18.9 percent) were dropouts in 2007. That means, over a working lifetime from ages 18-64, high school dropouts are estimated to earn $400,000 less than those that graduated from high school. For males, the lifetime earnings loss is nearly $485,000 and exceeds $500,000 in many large states. Over their lifetimes, this will impose a net fiscal burden on the rest of society. (Left Behind in America: The Nation's Dropout Crisis.” Center for Labor Market Studies, May 5, 2009).

Technology can help in several ways:

- Technology can actively engage the learners and increase their motivation to learn:
  - Student attitude toward learning consistently increased in technology-rich environment (Sivin-Kachala & Bialo, 1994).
  - Real-world simulation software programs tend to be highly motivating for students (Means et al., 1993).
  - Student motivation is enhanced through projects that require online collaboration (Means et al., 1997).
- Technology can provide authentic, hands-on learning experiences.
- Technology can accommodate gender preference:
  - Elementary school girls enjoy computers as much or more than boys (Christensen et al., 2005).
  - High school boys (more than girls, 30% vs. 5%) prefer games as #1 free time tech use.
  - High school girls (more than boys, 46% vs. 27%) prefer social networking (Knezek & Christensen, 2009).
  - Laptops + middle school boys approaches or exceeds achievement of girls (Dunleavy and Heinecke, 2008).

How to tailor technology and pedagogy to the way Millennials (born after 1980) best learn? The preferred learning style of Millennials G² (Google Generation or Generation Z, born after 1995), which is assumed to be Whole Brain, may not be a good match for the currently dominant Left Brain (logical, orderly step by step) teaching style. Project-based learning (PBL), guided under the supervision of an adult, may cater to the cooperative, confident, high-achieving nature of Millennials while also providing the “problem-solving apprenticeship” some (eg, Stager, 2009) claim was largely missing for the original Millennials, G1. Technology has been shown to be especially effective for those with special needs, and those who are gifted. Technology may be more useful if its mission is altered away from bringing every child up to a minimal competency level, and instead targeted on an individual basis for each child’s unique development needs.
Digital Age learners are built for collaborative PBL

**Millennials Share in Common**
- Know they are Special
- Had Sheltered Lives
- Are Confident
- Are Team-Oriented
- Are Conventional (in thinking)
- Are Pressured
- Are Achieving

*Millenials Rising: The Next Great Generation*

**Elements of Effective Project:**
- Clear Purpose
- Sufficient Time
- Personally Meaningful
- Complex
  - Including serendipitous
- Connected / Interconnected
- Sharable
- Access to constructive materials *(Staeger 11/09)*

New way of thinking about learning. While lifelong learning has become a buzzword and a ubiquitous slogan in education in the last two decades, it is not at all clear how principals and teachers understand the concept of lifelong learning and what strategies they use to implement lifelong learning practices in schools to support students to become self-directed learners and to take up informal learning opportunities that are available on the Internet. It is important to design informal learning activities and make closer connection with community-based learning organizations (Xiao & Carroll, 2007).

**Students building knowledge.** With the emergence of globalization and the knowledge economy, it has become a priority to increase and democratize students' innovative capacity. There is a high demand for “ingenuity”, for good and powerful ideas that can help address the many social, economic, and environmental challenges that come with the knowledge age (Feinstein, Vorhaus, & Sabates, 2008; Homer-Dixon, 2006). This presents a huge challenge for education, as teachers will be required to shift their pedagogical beliefs and practices from supporting students to reproduce knowledge, to create knowledge, with the support of technologies. The key is to give more control to the students and to empower them to make decisions (Downes, 2010) as epistemic agents (Scardamalia & Bereiter, 2010).

**Internet addiction.** It has been reported in a recent US study that one in every 25 high school students had "problematic Internet use" and when these students weren't online they were “more likely to be depressed and aggressive and to use drugs than their peers” *(http://www.stuff.co.nz/technology/digital-living/5033614/How-many-teens-have-Internet-addiction)*. How are we going to support students who have lost touch with reality?

**Cyberbullying.** Similarly, cyberbullying has become a growing problem for students who use email, SMS, Facebook etc. to communicate with peers. For example, it has been reported in ScienceDaily (Feb 22, 2010) that about 10 percent of all the adolescents in grades 7-9 in Sweden are victims of Internet bullying.

**Digital Equity.** This important issue is discussed under Theme 4 - Global Awareness.

**Brief bibliography**


Sefton-Green, J. (2004). *Literature review in informal learning with technology outside school.* Available at: http://www.futurelab.org.uk/research/lit_reviews.htm
