

Learning in the digital world

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Abstract: Education in the digital modern world is at the crossroads between pedagogy and innovation, between increasing use of technology and the need for self-reflection. This paper proposes to analyze some of the current trends in the application of technologies in the online educational world and consider both new pedagogies and areas of concern in their application.

1. Introduction

The 20th and 21st centuries have been witness to the most progressive evolution in both science and technology from the macro-world of exoplanets and the micro-world of the Higgs boson – to the biological advances of DNA, genetics and medicine as well as computers and increased telecommunications. While these advances have unraveled new ways for understanding the world and have facilitated further developments and innovations, the socio-political sphere has lagged behind in meaningful assimilation leaving various struggles and difficulties unresolved throughout the world. Nevertheless, since ancient times, education has provided the opportunity and hope for great social and civic improvement. The escalation of digital technology coupled with telecommunications has proven the value of information dissemination, collaboration and instantaneous relay of news and events to motivate change and action. Educational enterprises have seen acceleration in technological applications from hybrid or blended courses to fully online offerings utilizing course management systems and the more recent introduction of social media networking in the learning process. Along with these developments, life-long learning is the new goal of education as students must be able and willing to continuously upgrade their skills and

certificates and even change professions. This paper proposes to investigate the role and implications of some of the emergent technologies and their use in educational settings.

Two important questions will guide this study:

First - What are the prevalent digital and telecommunication technologies used by educational institutions and what are the applications and best practices for these technologies.

Second - What are the greater implications and consequences of the proliferation of technologies for teaching and learning and what philosophical difficulties do they introduce.

Grounding this investigation is a general definition of education as a process, both formal and informal, which encompasses a great variety of practices and methods, from interaction and collaboration to specific skills, from communication to critical thinking and job-related activities. In addition to professional achievement, education also includes an ethical and metacognitive dimension of reflective judgment, along with a practical and pragmatic approach to the discovery of solutions for various problems and the development of moral character and civil society.

From the first Portable PC's in the 1970's and 1980's to the Tablets and Smartphones of

today (1), the evolution of digital technology skyrocketed and new applications are being created every day for both commercial and social engagement. On the positive side of this evolution is the increased speed for conducting research and information gathering, greater possibilities for visualization of data and proliferation of global collaborative engagements. However, caution is necessary as the change from in-depth reading and analysis of material is supplanted by skimming and browsing. The growth of data mining and statistics has expanded multidisciplinary studies but often the synthesis of material becomes fragmented and superficial, as the sheer amount of data becomes overwhelming. Privacy concerns arise as web surfing is tracked by the various providers of internet sites under the auspices of targeted advertising. Other types of software include e-portfolios, which enable students to analyze their progress and conveniently gather their projects for display and even job-hunting, while wikis, blogs and journals enable cooperative approaches to discussion and resource sharing. Graphic programs assist in design and experimentation as well as novel uses of creativity. Speech-recognition programs facilitate writing and may promote the application of critical thinking skills. All these digital developments accelerate speed and productivity, but may also increase the drive for instant gratification, hinder perseverance and diminish patience as the quickness of data processing becomes transferred to frenzied human activities and aspirations.

As the digital universe expanded, educational institutions enthusiastically adopted the various devices and software including course management systems for blended, hybrid and online course offerings. Course Management Systems enable both professors and students to enter a portal and log into their courses to participate, review materials, submit projects, complete exams and even collaborate – all conveniently located in

the same virtual space. These systems have promoted online or e-learning enabling wider access to education for previously underserved populations and non-traditional learners. Mobile devices have also enjoyed an ubiquitous growth with 91% of adults in the United States owning a cell phone and employing the device for a variety of activities from Internet access, text messaging, email, video and audio downloads and more(2). Currently mobile formats, accessible from Smartphones or Tablets, are introduced for these Course management systems literally fulfilling the promise of anytime, anywhere learning and education (3). Unfortunately, the growth of for-profit institutions, through their aggressive advertising and recruiting (4) coupled with unfulfilled promises, has brought into question the quality of such offerings. At the same time, these entrepreneurial enterprises pressured established Colleges and Universities to compete for students with their own online courses and programs in an effort to prove that the quality of online learning is compatible with face-to-face courses even as the delivery methods differ. Nevertheless, in order for quality to remain a paramount priority, online courses require the same dedication and participation as traditional learning. Yet the perception of learners is frequently disconnected from the reality of a demanding curriculum, as the widespread belief that online learning is easy or fast or less demanding than traditional courses prevails, often leading to disappointment and even failure. Research has shown that students appear to entertain some important myths about learning (5), which may hinder their success such as the idea that learning is composed of discrete and independent fragments and that natural talent rather than hard work produces success. These myths permeate the educational landscape including the online environment where they are combined with a more detached attitude to the ownership of one's own learning as students often 'forget' to log in and participate

in the class. In addition, the lack of face-to-face interaction was a caveat for online learning – but audio-visual materials, podcasts and videocasts as well as chat functions, along with asynchronous discussions and collaborative possibilities have greatly diminished these concerns. Today many lectures are available through iTunes or YouTube as these social media proliferate opportunities for sharing and cooperation.

Social networking is a 21st century phenomenon that has taken the globe by storm and continues to mushroom exponentially. Current statistics indicate that “YouTube topped one billion monthly users with 4 billion views per day, and launched paid channels to provide content creators with a means of earning revenue...Facebook user total climbed to 1.11 billion...Twitter had 500 million registered users, with more than 200 million active...”(6). According to the Pew Internet Research 73% of adults are now engaged with some type of social media, the most prominent remaining Facebook, but newer sites are emerging (7). While social media has entered the mainstream, enabling people to communicate and connect globally, numerous concerns have also arisen especially in the realm of privacy, security and data mining possibilities. Although identity theft, stalking, cyberbullying and a host of other ethical challenges prevail in all media, the social networking sites, due to their high engagement level seem to be the hardest hit forcing their providers to continuously monitor activity and introduce novel protection means. Educators must be vigilant and schools are incorporating countermeasures to avoid tragedies caused by these cybercrimes, but today’s learners must also be careful and great efforts are undertaken to increase awareness and prevention. Of further concern is the encroaching reach of proposed legislation intended to increase security but suffering from vagueness as to the limits of surveillance needed for such endeavors (8). Thus, education must include

media literacy in the curriculum together with in depth discussions about the use of various media, which should be addressed in all courses along with critical analysis and higher order thinking skills. Numerous books, articles and websites are dedicated to ‘best practices’ and advice for incorporating projects to address critical thinking skills. In order to develop critical thinking skills one requires analysis, examination, and evaluation of ideas and information, culminating in self-examination and self-reflective practices that enable the individual to make informed decisions. Online discussions are most conducive at increasing critical thinking skills and deepening inquiry since follow-up questions to various assignments can guide and direct the students to apply their learning to contemporary situations. Discussions can be coupled with group assignments and research projects as well as case studies, simulations and problem-solving activities.

The downside of this burgeoning material is the high risk of distraction as learners confidently assert that their multi-tasking skills are abundant. However, the research reveals the opposite (9,10), as the fragmented attention and frequent switching between websites, email and other media, in addition to the constant bombardment with audio-visual stimulation seems to diminish attention span and the power of concentration. Dr. Dimitri Christakis, who studies the impact of technology on the brain and is the director of the Center for Child Health, Behavior and Development at Seattle Children’s Hospital, remarked that the heavy technology use “makes reality by comparison uninteresting” (11) leading to further concerns about the blurred line between education and entertainment. The millennial generation currently entering college and university studies, also known by Marc Prensky’s term, ‘digital natives’(12), having grown up and having been completely absorbed in the digital and telecommunications technologies currently

available, feels compelled to be immersed in the online world at all times(13). The virtual world has become second nature to them and the distinction between the virtual and the real is becoming increasingly challenging for them.

The exciting electronic world with its myriad of applications is limited only by human imagination but as the brief description above indicates, various philosophical questions and concerns arise requiring continued research and dialogue along with scrutiny and consideration.

References

- [1] Evolution of Computers – Info-graphic, retrieved from <http://www.itok.net/static/blog/evolution-of-computer.jpg>
- [2] Pew Research – Cell Phone Activities 2013 retrieved from <http://www.pewinternet.org/Reports/2013/Cell-Activities.aspx>
- [3] Blackboard Mobile systems at <http://www.blackboard.com/platforms/mobile/overview.aspx>
- [4] Top For-Profit College Spenders (2011), retrieved from <http://www.nytimes.com/interactive/2011/12/10/us/top-for-profit-college-spenders.html?ref=politics>
- [5] Chew Stephen (2014), “Helping Students to Get the Most Out of Studying.” In V.A. Benassi, C.E. Overson & C.M. Hakala (Eds.). Applying science of learning in education: Infusing psychological science into the curriculum. Retrieved from the Society for the Teaching of Psychology web site:<http://teachpsych.org/ebooks/asle2014/index.php>
- [6] Curtis Anthony (2013), A Brief History of Social Media, Mass Communication Dept., University of North Carolina at Pembroke, Retrieved from <http://www2.uncp.edu/home/acurtis/NewMedia/SocialMedia/SocialMediaHistory.html>
- [7] Brenner Joanna (2013), Pew Internet Social Networking, Retrieved from <http://www.pewinternet.org/Reports/2013/Social-Media-Update/Main-Findings/Social-media-matrix.aspx>
- [8] Cyber Security Legislation, <https://www.eff.org/cybersecurity>
- [9] Sanbonmatsu D. M., Strayer D. L., Medeiros-Ward, N., & Watson, J. M. (2013). Who multi-tasks and why? Multi-tasking ability, perceived multi-tasking ability, impulsivity, and sensation seeking. PLoS ONE, 8, 1-8. Retrieved from <http://www.plosone.org/article/uri=info%3Adoi%2F10.1371%2Fjournal.pone.0054402&representation=PDF>
- [10] Sana, F., Weston, T., Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. Computers & Education 62, 24–31. Retrieved from <http://bama.ua.edu/~sprentic/695%20Sana%20et%20al.%202013-laptops.pdf>
- [11] Richtel Matt (2012), Technology Changing how Students Learn, Teachers say, Retrieved from <http://www.nytimes.com/2012/11/01/education/technology-is-changing-how-students-learn-teachers-say.html?pagewanted=all&r=0>
- [12] Prensky Marc, What makes a Digital Native – interview for Frontline – Digital Nation – Life on the Virtual Frontier (2010), retrieved from <http://www.pbs.org/wgbh/pages/frontline/digitalnation/living-faster/digital-natives/what-makes-a-digital-native.html?play>
- [13] WGBH Educational Foundation, Frontline, “Digital Nation – Life on the Virtual Frontier” (2010), <http://www.pbs.org/wgbh/pages/frontline/digitalnation/living-faster/digital-natives/>