

PHILOSOPHICAL CONSIDERATIONS OF DIGITAL LEARNING

Isabelle Sabau
Northern Illinois University
isabau@niu.edu

and

Carmen Sabau
Argonne National Laboratory-Retired
CSabau@comcast.net

Abstract : The current generation entering university has grown up immersed in the digital and telecommunications technologies presently available. The growth of computers, the Internet and, more recently, social media and social networking sites provide exponential possibilities for global communication, collaboration and interaction. The shrinking of the physical size of mobile devices, coupled with increased sophistication of processing and application potential, has introduced numerous mobile applications: smart phones, PC tablets and the iPad, which fulfill the promise of continuous connection between individuals. Educational practice in the digital modern world is at the crossroads between traditional pedagogy and innovation, between increasing use of technology and the need for self-examination and self-reflection. The increasing use of technology in all aspects of life, especially in the domain of educational enterprises, requires careful consideration of epistemological issues concerning knowledge creation, truth and critical thinking along with ethical concerns for privacy, intellectual property and civil society. In this paper, we propose to examine the uses of such a myriad of digital technologies in the teaching and learning process and to investigate some of the paradoxes and concerns these technologies may create. Our analysis will emphasize some of the current trends in the application of technologies in the realm of online educational delivery and consider both new pedagogies and best practices.

1. Introduction

Today's educational environment pulses with the excitement produced by the 21st century's exponential proliferation of digital and mobile technology. The ubiquity of laptops, iPads and smart phones has enabled a global amplification of innovation and communication. The myriad of software and app developments have expanded the potential for creativity and invention. Educational institutions are enthusiastically embracing these advances, increasingly adjusting to the contemporary demands for flexibility and alternative delivery, in order to accommodate the growing diversity of needs and learning styles of the students. At the same time, novel domains and areas of study, closely related to technological progress, are revealing original ways of connections between ideas thereby magnifying our knowledge and understanding of the world. As the digital media prevails, traditional pedagogical practices are often questioned, giving rise to sophisticated technology-dependent approaches in teaching and learning practices. The main challenge for both educators and students pertains to the successful integration of the fundamental principles of critical thinking skills and self-reflection into the curriculum, which govern the learning process. Accurate research and logical analysis of arguments are paramount for evaluation of information and discovery of the connecting patterns that lead to further inquiry and the creation of knowledge. This paper proposes to explore and discuss the implementation of digital technology applications in the online environment and some of the important digital pedagogy practices that ensure the development of critical thinking skills.

The millennial generation, which is currently entering college and university studies, is also known as 'digital natives', a term coined by Mark Prensky [1] to distinguish them from the previous generations. This new generation has been completely immersed in the digital and telecommunications technologies currently available, which have become second nature to them. Computers, the Internet, social media, social networking sites and

the growth of mobile applications provide exponential possibilities for global communication, collaboration and interaction and fulfill the promise of continuous connection between individuals. In the US a full 88% of adults own a cell phone, and 55% of them use the device to access the internet [2]. Recent research conducted by EDUCAUSE, a nonprofit association for advancing higher education through information technology, has shown an 84% increase in the use of laptops in the past eight years, while the enrollment in online courses doubled in the last four years [3]. In the sphere of education the potential of delivering just-in-time content and reaching learners wherever they may physically be located promises the fulfillment of anytime, anywhere educational opportunities. In this paper, we propose to examine the uses of such a myriad of digital technologies in the teaching and learning process and to investigate some of the paradoxes and concerns these technologies may create.

2. Current Trends

Education encompasses a great variety of practices and methods, from interaction and collaboration to specific skills, from communication to critical thinking and job-related activities. The ancient Greek ideal of Paideia, which aimed at a holistic approach in the development of the individual by incorporating both critical thinking and ethical values, has been transformed into the vast dissemination of information coupled with the digital environment of continuous chatter and text messaging, media bombardment, and economic difficulties. The domain of education includes both formal and informal activities, continuous learning and even lifelong learning initiatives. The demographics of enrollment have also changed dramatically with the greatest increase in non-traditional, adult learners returning to universities and colleges, now at 42% and female students at 59% [4]. These dizzying and often rapid changes require careful scrutiny and new approaches to educational practice.

The medieval curricula and the basic literacies of reading, writing and mathematics have been augmented and supplanted by digital literacies and software application skills. While the Internet has introduced increased democratization through access and individual expression, the overwhelming crush of information and websites easily drowns individual voices in a cacophony of competing media. The threat to privacy and authenticity is amplified through the increasing public arena of digital technologies in which nothing is ever erased and all materials can easily be altered. Copyright and plagiarism, identity theft, lack of personal control over private materials posted online coupled with the proliferation of social media, which allows the spread of misinformation across the globe at lightning speeds are creating a surreal world demanding heightened caution. All these developments draw attention to the imperative need for critical and higher order thinking skills. These skills increase in necessity as the overload of information can relegate the activity of reading to mere skimming and fragmentation, and individuals are forced to quickly scan the materials available on the Internet for specific bits of information. The demands for our attention overburden and fragment our focus and often result in multitasking behaviors, but studies have shown that this often leads to lowered grades and risky behavior [5]. New fact checking and research skills are required to discover relevancy, determine accuracy and evaluate importance in the millions of articles online. Today's mobile society with its' emphasis on individualism, relativism and increased materialistic concerns, often results in poor student attention spans and apathy to any field of study outside their personal or present interest. Community, social, and personal interactions in the real world have diminished as the boundary between the real and the virtual worlds is disappearing through the exponential growth of technology.

In the realm of education, new institutions have arisen, mainly businesses that are for-profit, promising to offer students quick and easy access to degrees and therefore better jobs and a better future. Unfortunately, these promises have remained largely unfulfilled and a large percentage of students found themselves burdened with defaults on extravagant loans and no means of repayment. For-profit educational institutions have spent millions of dollars on advertising campaigns and political donations to stop the federal government from cutting off funding for Federal student aid [6]. Furthermore, the business aspect of the educational practice has diminished and greatly strained the traditional emphasis on intellectual and critical thinking skills and has led to a fragmentation of knowledge, fueled by instant gratification, profit margins and a lack of self-reflection.

3. Technology use

Online education has benefited tremendously from course management systems that provide a portal through which participants of the course may interact, upload materials, view content, engage in discussions and receive feedback from both colleagues and professors.

Online education enables students to participate in educational activities without time or space boundaries, as geographical locations become irrelevant in the digital environment of the Internet. As digital software and mobile applications become ubiquitous and the learning curve diminishes, the time-consuming element of learning how to use them gives way to the ability for constructivist content creation and collaboration. The current pedagogies stress performance or deliverable content in the assessment process of learning outcomes and this in turn, has increased the potential for cheating, plagiarism and overreliance on technology. Often in lieu of academic research, students mistakenly rely on Google and Wikipedia and must be repeatedly instructed to utilize peer-reviewed journals and publications. Alongside this, individual works, teamwork and cooperation have been emphasized; oftentimes, online courses incorporate group work, which requires careful construction and management. Yet, while multimedia resources on the Internet need to be carefully scrutinized for accuracy and relevancy and thus demands new research skills, this can lead to the discovery of new ideas and novel ways of synthesizing information. Learning and knowledge depend on connections and pattern recognition for which digital technologies are best suited. Graphics software and concept mapping applications enable visualization of information and statistics and lead to novel means for understanding data. Presentation and audio-visual software increase the creative aspects of learning by enabling learners to create content integrating the course materials using their own constructive understanding of the information. Critical thinking skills can be amplified by including such creative projects and requiring learners to create their own interpretations. These types of projects must be carefully set up to guide the students in their search for academic content and prevent them from becoming enthralled with the flashy visual technology.

At the same time, hyperlinking may lead to the desire for increased instant gratification and tangential browsing leading individuals astray from their immediate task. Since online education is mediated through a digital screen, feelings of isolation have been counteracted by the increased use of social media. Social networking sites such as Facebook or Twitter give the impression that one is continuously connected with friends, family and colleagues. While the potential for increased political involvement via the social networking sites has brought greater attention to global events and has even encouraged people to vote [7], the academic impact of the use of these sites remains questionable. Some applications allow for cooperation across geographic distances and GPS devices increase the potential for sociological and urban research. Students can be further motivated with Web Quests, various educational games, and even treasure hunts, while polls and surveys can quickly assess progress.

Institutions of higher learning have also increased their use of social media by offering easy applications, online discussions with counselors and advisers, along with increased advertising of their respective Alma matters. Another means by which various institutions,

especially educational ones, have incorporated technology is for advertising and tracking of potential candidates and alumni. Even the Pope pioneered the use of social networking, specifically Tweeter, to attract attention to both religious ideas and ancient languages – in his case Latin [8].

Although these exciting new opportunities are only limited by the imagination of the users, the darker aspects of the digital world loom in the background. The younger generation is continuously reminded of the dangers of public exposure on the Internet not only due to various predators such as identity thieves, but also from the fact that digital media is never truly lost no matter how often one might delete uploaded pictures, videos or posts. The lightning speed of digital dissemination has created a new global viral phenomenon. Gullibility is on the rise as the re-posting of tweets or videos supplants the admonition for skepticism and fact checking. Greater individualism couples with increased use of social networking sites, which potentially ushers in indifference, narcissism [9], self-centeredness [10] and anxiety [11]. These developments remind us that the technology is not neutral, but depends on the users and thus innovations and advances require careful balancing between increased attention to social, moral and even political responsibility in the digital world and individual freedom. Yet, recent political events across the globe have shown that social media has the potential to be democratizing, to promote multiculturalism, and to enable greater awareness of global political and social events that can lead to mobilizing people for action. Once again, critical thinking skills become paramount in determining both accuracy, proper posting of materials and scrutiny of the communications that bombard individuals on a continuous scale.

4. Online applications

Online learning requires diligent time management skills but the rise in multitasking often gives the false impression that the brain is capable of effectively conducting more than one task at a time. Studies have shown that this is not the case, since the process of multitasking is actually one of switching one's attention quite rapidly between different tasks [12]. This requires a heightened state of concentration and yet studies have shown that the attention span is diminishing due to the constant fragmentation of interest as smart phones, Internet websites and other activities tax the awareness of the student.

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. While the potentials of online education are growing, enabling a larger population to participate in the educational process, erasing geographical boundaries and facilitating higher levels of cooperation, great care is required to ensure that online courses personally engage students and increase their interaction with both colleagues and content, while stressing critical thinking skills. The modern smorgasbord of educational offerings

needs to be combined with coherent course of study and administrative support. As the role of both teacher and student increasingly evolve, it becomes necessary for academic institutions to incorporate a team of designers, content experts, professors and administrative staff for the creation of courses that will benefit future generations. Audio-visual content materials need to be both engaging and keep the learner focused on the course without degrading into the realm of 'edutainment'. The emphasis of online practices should be inquiry and exploration of the content as well as the means of communication between participants, and less emphasis should be placed on 'deliverables' that simply amount to busy work. The intellectual virtues pertaining to both theoretical and practical reason, that Aristotle describes in Book VI of the *Nicomachean Ethics* need to be more clearly addressed and carefully integrated into the materials and assignments of the course, to ensure that learners become independent thinkers and informed decision makers.

While education is certainly linked with professional achievement, job skills and employment related activities, it is necessary to remember that education should also include an ethical and metacognitive dimension of reflective judgment along with a practical and pragmatic development of solutions for various problems. To this end, courses must be designed with the cognitive dimension that involves conceptual understanding as well as connectedness to other fields and subjects. The relevancy of a particular course to the contemporary world must be included to help students in the application of their subject mastery to their everyday lives. 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 quest of educational practice should be life-long learning based on the joy of knowledge and inquiry.

The quest for truth and dignity remain at the core of educational practices and although each learner is encouraged to create their own content and expression, essential components of an educated person must incorporate both self-motivation and self-responsibility. Social media sites can provide a means for participants in a course to form a community based on shared goals and practices and exchange information about the content of the course and its relevance and meaning. One important aspect of learning is 'meaning construction', which can be accomplished through communities of practice. Discussion boards, chats or other social media can increase engagement on the part of the students and professors in the shared enterprise of content creation, while the Socratic method of dialectic can be successfully employed in discussion boards and through social media to increase reflection and promote further questioning for a variety of ideas. The skills of inquiry coupled with the emphasis on honesty and integrity must provide the overarching goal and outcome of any educational practice

or learning experience. As the existential experience between the public and the private areas of life, between the real and virtual, between the physical and the digital worlds becomes obscured, the humanities and humanism can help us return to the important values that ensure freedom, democracy and a meaningful life. To paraphrase Shakespeare the modern world is but a collection of bytes mediated through a digital screen and yet we remain firmly entrenched in our physical and organic realities.

5. Conclusion

The digital and telecommunication revolution of the 21st century has significantly transformed all aspects of modern life, especially in the areas of social, political and educational enterprises. Online learning has opened new doors and opportunities for inquiry and collaboration as well as increased global educational participation. New approaches to pedagogical practices require greater attention to intellectual development and critical thinking skills to promote independent thinking, informed decision-making and civic engagement for the global population. While sophisticated digitally-enabled materials and content may heighten motivation and engagement in learning, rigorous and diligent scrutiny of technology implementation must be subordinated to the purpose of the course curricula. As mobile technologies proliferate, further inquiry will be necessary to ensure successful application of these developments in educational practices that will harmoniously balance job-related skills with individual integrity and lead to heightened democracy, freedom and a more peaceful future.

6. References

- [1] Prensky Marc, *What makes a Digital Native* – interview for Frontline – Digital Nation – Life on the Virtual Frontier, February 2, 2010, retrieved from <http://www.pbs.org/wgbh/pages/frontline/digitalnation/living-faster/digital-natives/what-makes-a-digital-native.html?play>
- [2] Smith Aaron, Cell Phone use 2012, Pew Research Center, retrieved from <http://pewinternet.org/Reports/2012/Cell-Internet-Use-2012.aspx>
- [3] ECAR Study of Undergraduate Students and Information Technology, 2012, retrieved from <http://net.educause.edu/ir/library/pdf/ERS1208/EIG1208.pdf>
- [4] National Center for Education Statistics, Institute of Education Sciences retrieved from <http://nces.ed.gov/fastfacts/display.asp?id=98>
- [5] Burak Lydia, *Multitasking in the University Classroom*, International Journal for the Scholarship of Teaching and Learning Volume 6, Number 2, July 2012, retrieved from http://academics.georgiasouthern.edu/ijstl/v6n2/articles/Acc%20Art_Burak/index.html
- [6] Top For-Profit College Spenders, December 9, 2011, retrieved March 2012 from <http://www.nytimes.com/interactive/2011/12/10/us/top-for-profit-college-spenders.html?ref=politics>
- [7] Ehrenberg Rachel, Facebook peer pressure gets out the vote, Web edition : Wednesday, September 12th, 2012, retrieved from http://www.sciencenews.org/view/generic/id/345048/title/Facebook_peer_pressure_gets_out_the_vote
- [8] O’Leary Naomi and Heavens Andrew, Hoping to revive an ancient tongue, Pope tweets in Latin, retrieved from <http://www.nbcnews.com/technology/technology/hoping-revive-ancient-tongue-pope-tweets-latin-1B8040228>
- [9] Twenge, Jean M et al. “Egos inflating over time: a cross-temporal meta-analysis of the Narcissistic Personality Inventory.” *Journal of Personality* 76.4 (2008):875-902; discussion 903-28.
- [10] Buffardi Laura E. W. and Campbell Keith, Narcissism and Social Networking Web Sites, retrieved from http://www.academia.edu/335108/Narcissism_and_Social_Networking_Web_Sites
- [11] Fernandez Katya C., Levinson Cheri A., Rodebaugh Thomas L., Predicting Social Anxiety From Facebook Profiles, retrieved from <http://spp.sagepub.com/content/3/6/706.full>
- [12] Bannister Frank & Remenyi Dan, Multitasking: the Uncertain Impact of Technology on Knowledge Workers and Managers, 2009 retrieved from <http://www.ejise.com/volume12/issue1/p1>