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Table des matières

Table of Contents

Special issue on Web 2.0
Vivek VENKATESH, guest editor
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From disconnected to connected: Insights into the Future of Distance Education and Web 2.0 Tools in Higher Education

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Introduction

The integration of information and communications technologies (ICT) in higher education, especially in North America and Europe, has reached a tipping point, where one is hard-pressed to find a classroom utterly devoid of any digital technology. In the developing world, distance education models are increasingly being implemented in postsecondary schools, particularly to promote the development of professional skills. This special issue reviews some distance education models and sheds light on how the exponential growth of online social interactions via increased adoption of Web 2.0 technologies such as blogs, wikis, and purposeful games has impacted student learning and instructional strategies in post-secondary schools from an international perspective. We critique the most common theoretical underpinnings for distance education and report some empirical evidence of how Web 2.0 technologies are being employed to improve performance in higher education classrooms in Canada and abroad.

Below, we present some Canadian data for this special issue. We begin with a discussion of how Canadians use the Internet, drawing heavily on reports by the Association for Canadian Studies on Canadians' online reading habits and Internet use in order to supplement their knowledge of Canadian history. One of our objectives is to help strengthen connections between practitioners and researchers, while involving multiple stakeholders in conversations concerning Web 2.0 use in higher education. We then review the literature on ICT use in higher education to provide a solid empirical foundation for the manuscripts published in this special issue. Finally, we provide a counterpoint to opinions currently expressed in the popular media on the future of technology use in higher education by offering evidence from a recent study that examined students and instructors' attitudes towards effective technology use in universities across Quebec.

Canadians' Use of the Internet

The popularization of the Internet in the early 1990s grew exponentially with the development of software dedicated to democratizing information technology. The growing availability of high-speed Internet access and the rise of Web 2.0 technologies at the turn of the 21st century enabled individuals to create and publish their own online content, and this has spurred the evolution of social media. Understood as a "group of Internet-based applications that build on the ideological and technological foundations of Web 2.0," social media platforms "allow the creation and exchange of user-generated content" (Kaplan & Haenlein, 2010, p. 61). Included in this vast category of interactive technologies are social networking sites, which are a form of participatory social media. Boyd and Ellison (2007) describe these sites as:

Web-based services that allow individuals to 1) construct a public or semi-public profile within a bounded system, 2) articulate a list of other users with whom they share a connection, and 3) view and traverse their list of connections and those made by others within the system. (p. 211)

In Canada, 80% of citizens aged 16 and older use the Internet, and of these, 58% reported that they regularly use social networking sites (Statistics Canada, 2011). Notably, as of September 30, 2012, 52.7% of Canadians were Facebook subscribers (Internet World Stats, 2012).

Online Reading Habits

Data compiled by the Association for Canadian Studies (ACS) call into question the claim that_using the Internet to find information is changing reading habits, and thereby affecting the learning process. Their results challenge the widely held perception in Canada and elsewhere that the shift from paper to screen will result in a decline in reading. The ACS points to the findings of a 2012 survey conducted by Pew Research, which highlights that "While Americans enjoy reading as much as ever – 51% say they enjoy reading a lot, little changed over the past two decades – a declining proportion gets news or reads other material on paper on a typical day" (Pew Research Center for People and the Press, 2012, p. 4).

Pew Research notes that there has been a shift in reading from print to electronic platforms. In their survey, 29% of respondents said they read a newspaper the day prior to completing the survey, with 23% reading it in the print version. A somewhat larger proportion (38%) said they regularly read a daily newspaper, although this percentage has declined from 54% in 2004. Moreover, Pew Research revealed that in the past decade, the percentage of people reading a print newspaper fell by 18 percentage points (from 41% to 23%). It is worth noting that the figures for newspaper readership may not include certain people who read newspapers on websites that aggregate news content, such as Google News or Yahoo News.

In the last ten years, there have been smaller declines in the percentages of Americans reading magazines or books in print (6 points and 4 points, respectively) than for newspapers (Pew Research, 2012). Just as online newspaper readers make up an ever-greater share of all newspaper readers, so too are more readers of magazines and books abandoning the printed page for tablets, digital books, and other devices.

So, what is the digital readership situation in Canada?

In a series of telephone surveys of nationally representative samples conducted by the ACS from 2007 to 2012, 9% of Canadians who said they read a magazine the day prior to the survey, and 20% who read a book, read them in a non-print format. According to the Canadian Newspaper Audience Databank (NADbank), in 2011 about 22% of Canadians read a daily newspaper online each week, with readership highest in Ottawa (37%), Quebec City (36%), and Montreal (35%). The National Book Count (National Reading Campaign, 2012) found that in a typical week in January 2012, approximately 3.4 million books were bought and loaned, and 10% of English language book sales were in digital format. This finding puts English Canada near the very top of international estimates of e-reading.

Book sales and public library circulations were counted for the week of January 23 to 29, 2012 as a snapshot of a typical reading week in Canada: approximately 3.4 million books were sold or circulated that week. Compared with the findings for the previous year, English language print book sales for the week increased by 4% over 2011 among English language booksellers. Although no direct comparison can be made, publishers have reported a "significant" increase from 2011 in downloaded e-books, and the practice is fully expected to continue rising.

The Case of Canadian History

Elsewhere, data collected by the ACS indicate Canadians' knowledge of the country's history and the ways in which citizens use digital technologies to source information about their country. Promoting this kind of knowledge is widely seen as an effective way to foster citizenship. When asked to self-assess their knowledge about the country's history, Canadians generally give themselves high marks. When Canadians need information about the county's history, about four in ten go to the Internet, while one in four refer to books (see Table 1). Not surprisingly, there is a discrepancy between the oldest and youngest cohorts, with the majority of those under age 35 saying they use the Internet to obtain information about Canada's history compared to about 36% of those over 35.

Table 1.

Which is the Principal source you go to when you need information on Canadian History?

Age	18–24	25–34	35–44	45–54	55–65	65+	Total %
Internet	51	53	41	35	37	31	41
Books	18	24	23	28	28	32	26
Television	11	3	7	11	8	11	9
Radio/newspaper	3	3	3	5	7	10	5
I never seek information on this subject	13	13	21	18	19	15	17

Note. Data collected by Leger Marketing for the Association for Canadian Studies

Individuals aged from 18 to 24 who use the Internet to seek information about Canadian history were much less likely to have read a book about the country's history than those who used books as their main information source. Less than half of the youngest cohort surveyed who used the Internet as their main source of information on Canadian history had read a book on the subject in the past two years.

Not surprisingly, the more that people use the Internet, the greater the likelihood that they will use it to find information about Canada and Canadians. However, more frequent use of the Internet to find such information does not seem to heighten interest in Canada's history, geography, people, or institutions. Furthermore, although pride in Canada appears to be somewhat higher among heavier Internet users aged 16 to 21, this does not imply greater interest in learning about Canada. In fact, the lighter Internet users agree more strongly when asked whether they wanted to learn more about the country, and this was true for 16- to 21-year-olds as well as 22- to 30-year-olds.

Information and Communications Technology Use in Higher Education

In addition to Canadian citizens' consumption of web-based material for personally motivated learning, we are also witnessing a growing trend to incorporate increasingly sophisticated ICT tools in education. These may be signs of the future indispensability of ICT tools in education. Nevertheless, it would be foolhardy to imagine that student up-

take of technology is a foregone conclusion simply because of the presumed benefits.

Liu (2010) conducted a survey of 126 university students who used course wikis over one semester and discovered that wiki self-efficacy, or "a person's judgment of his/her capability to use wikis" (p. 55), perceived ease of use, perceived usefulness, and wiki use intention had a significant bearing on the students' wiki use. Wiki self-efficacy combined with online posting anxiety explained 76.4% of the variance in perceived ease of use. In turn, the addition of perceived ease of use to Davis' (1989) technology acceptance model explained 57.2% of perceived usefulness. Meanwhile, an impressive 82.5% of the variance in wiki use intention was explained by the aggregate combined variance of wiki self-efficacy, online posting anxiety, perceived ease of use, and perceived usefulness. Nevertheless, the proposed technology acceptance model predicted only 35.3% of actual wiki use. According to Liu (2010), factors such as enjoyment, social norms, and course grades may also contribute to predicting the use of such social media tools. In addition, Liu concedes that a more nuanced measure of wiki use may be required, whereby modification and use of wiki content are measured independently.

Part of Web 2.0 technology's appeal is that individuals can post their own content online, and in the case of wikis, edit the content of others. Nevertheless, Liu (2010) argues that online posting can produce feelings of anxiety, as illustrated by the practice of online "lurking," where users stealthily read the content of others but do not modify it or post content of their own. Whereas online posting anxiety was not found to be an issue in Liu's study, the particular course wikis used by the participants were not open to the general public. Had they been, Liu suspects that the results may have confirmed the hypothesis that online posting anxiety predicts perceived ease of use and usefulness in the classroom.

Liu (2010) makes a significant contribution to the currently scant literature on wiki use in higher education. Further studies are needed to specifically identify how wikis are used by students and teachers. Thus, whereas the purpose of the course wikis in Liu's study was to "discuss course materials, share resources, critique [students] and conduct group projects" (p. 59), we need to know the extent to which these are generally done by students, and not just at one university. Moreover, teachers' perceptions of wikis are noticeably absent from the discussion, yet common sense would dictate that they have a significant impact on students' use of wikis.

Tsai, Laffey, and Hanuscin (2010) obtained largely positive responses from pre-service K-8 teachers at a mid-western state university in the U.S. who shared an online course management system (NETwork) with alumni who were teaching students at the same level. After using the system for one semester, the student teachers' perceptions of social navigation, ease of use, usefulness, and the overall NETwork experience improved significantly. Moreover, interviews held during and after the semester revealed several perceived benefits. For instance, the students felt that the system supported their learning and boosted their teaching confidence. The more they participated in online discussions and activities, the greater their sense of community. Perhaps unsurprisingly, the student teachers wanted to remain members of the online community in order to continue broadening their insights into teaching with the input of in-service teachers. These findings are encouraging for advocates of Web 2.0 integration in university curricula. Nonetheless, the small sample size (n = 49) and conspicuous demographic imbalances (student n = 47, working professionals n = 2; females n = 46, males n = 3) call for further and more wide-reaching studies.

In a more recent study, Buckley, Pitt, Norton, and Owens (2010) modified the Approaches and Study Skills Inventory for Students (ASSIST) survey tool (Entwistle & Ramsden, 1983) to conduct a mixed methods study that examined students' perceptions of and proficiency with ICT use. A sample of 144 first-year undergraduate students completed a 52-item survey. Focus group interviews were also held to gather attitudes about blended learning, inclu-

ding networked technologies in the classroom. Eight items in the ASSIST addressed students' self-perceived concepts of learning; 52 items addressed deep, surface, and strategic approaches to learning; and eight items addressed students' course and teacher preferences. An instrument developed by Goodyear, Asensio, Jones, Hodgson, and Steeples (2003) called Judgments about Networked Learning (JNL) was used to collect data on students' attitudes toward computer-networked learning. In addition, 19 students were interviewed in five focus group discussions.

The results of Buckley et al.'s (2010) study showed significant positive associations between deep learning and perceptions of ICT use, as well as negative associations between a surface approach and perceptions of ICT use. Qualitatively, three themes emerged from the data. First, most students were aware of their own study approaches and strategies. Second, students were increasingly learning how to become independent learners based on their own strategies. Third, students still enjoyed the ability to express themselves in a live environment, regardless of their preference for specific ICT. Accordingly, Buckley et al. recommend that educators vary their pedagogical delivery before incorporating ICT in the classroom so as to help students select the approach and mix of learning strategies that would best suit their self-determined learning needs. The implications for a future that will be grappling to understand the role of Web 2.0 tools in higher education are multifaceted, and will require sustained theoretical and empirical research.

What does the future hold for Web 2.0 in Higher Education?

In 1916, the education philosopher John Dewey wrote, "If we teach today as we taught yesterday, we rob our children of tomorrow." Dewey's words seem to have influenced a number of recent dialogues and opinions in popular media addressing the future of higher education. In the digital age, curriculum designers are beginning to acknowledge that the use of interactive technologies, such as certain social media platforms, impacts both conventional notions of teaching and learning and learners' relationships to knowledge production and consumption (Haste, 2009). For example, it has been suggested that the arrival of massive online open courses and the economic benefits of online learning force us to reconsider the professor's role in and outside the university classroom. Elsewhere, opinion pieces in the popular media have exhorted university teachers to stop treating learners like "empty vessels," to do away with lecturing, and to make the shift to collaborative pedagogical models so as to encourage deeper, as opposed to surface, forms of learning.

For the record, we disagree with both Dewey and the above claims.

Allow us to explain. In February and March 2011, Magda Fusaro at the Université du Québec à Montréal and Vivek Venkatesh at Concordia University (Guest Editor for this special issue) co-led a province-wide study of over 15,000 students and 2,600 professors at 12 Quebec universities. Participants completed an electronic survey consisting of 120 items addressing their perceptions of technology integration, the instructional strategies used in university classes, and the overall effectiveness of the courses offered for that winter semester. The results, which were initially published in October 2012 by the Conference of Rectors and Principals of Québec Universities (Fusaro et al., 2012) and more recently in a focused analysis (Venkatesh, Croteau & Rabah, in press), were nothing short of surprising.

The results showed that university students overwhelmingly associated an effective course with one that emphasized lectures: yes, that good old traditional "sage on a stage" paradigm is highly predictive of an excellent student experience in a university course. In addition, students wanted these lectures to be intellectually stimulating and engaging, regardless of how technologies were used. Professors, on the other hand, believed that lecturing had a negative impact on a course's success, preferring instead to engage students in discussions and generally employing a more constructivist ap-

proach. These trends are not unique to Quebec: surveys of nearly one million learners who have taken courses at the Open University in the United Kingdom point to similar student preferences concerning pedagogical design.

Digging into the Quebec data set, Fusaro et al. (2012) found that learners and professors showed vastly different patterns of technology use during university courses. Instructors used the Internet to create and share content via blogs and wikis far more than students did, whereas learners used the Internet for reference purposes, and very rarely to share content. Additionally, content creation and sharing via social media usage was rampant, with more than 50% of Canadians using Facebook as a tool to build networks of online friends. Therefore, what the findings by Fusaro et al. and Venkatesh et al. (in press) tell us is that learners know what technologies they do not wish to use in their classes: they make a distinction between using technologies for pedagogical and communal purposes. The results of this large-scale study highlight the shortcomings of professional development programs for university instructors, which currently might be leaning too heavily on pedagogies that transfer cognitive responsibilities onto learners.

In light of the above studies, when it comes to implementing Web 2.0 technologies such as blogs, wikis, podcasts, virtual environments, and social networks in higher education, university instructors need not reject their previous teaching approaches. Instead, they could attempt to develop integrated pedagogical strategies that bridge the old-school instructivist lecturing and relatively newer constructivist styles. Several scholars have underscored the need to provide instructors with training on the best ways to integrate technology in their classrooms according to subject areas and teaching plans (Butler & Sellbom, 2002; Cuban, Kirkpatrick, & Peck 2001; Loveless, 2003; Mumtaz, 2000; Pelgrum 2001; Russell & Bradley, 1997; Subhi, 1999). Thus, instructors need more than professional development workshops to help them realize the full potential of these technologies. Studies are also needed to demonstrate the value of incorporating various technologies into learning environments and how these tools can be used creatively and effectively to instruct. If educators do not buy into the pedagogical value of these technologies, they will remain just fashionable add-ons to our curricula.

Marginson and Van der Wende (2007) emphasize that universities are more important than ever as mediums for continuous global flows of information and knowledge. Accordingly, this special issue of IJTHE presents five articles that address various aspects of Web 2.0 implementation in higher education. The eight international scholars who contributed to this issue come from a variety of social science disciplines, and they cover a wide range of topics related to technology implementation in higher education. They discuss the benefits and limitations of using Web 2.0 technologies in and outside university classrooms, for a thought-provoking contribution to the ongoing discussion on the use of ICT in higher education.

Article Outlines

In the first article titled "Social media in higher education: A look at participatory culture in graduate coursework," Davidson and Fountain propose two designs for piloted graduate-level education courses with embedded Web 2.0 technologies. These technologies are treated not only as add-ons in classroom practices, but also as part of the course rationale.

In the second article titled "Web 2.0 and its applications in higher education settings," Kumar and Leeman present a study that underscores the potential of connecting pre-service teachers to social media, professional networks, and communities of practice in order to provide them with real-world experiences and connections with experienced professionals.

In the third article titled "A parallel world for the World Bank: A case study of *Urgent: Evoke*, an educational alternate Reality Game," Waddington provides an analysis of an online alternate reality

game, *Urgent: Evoke*, which won the Direct Impact award at the 2011 Games for Change Conference. Waddington highlights the potential of integrating serious games that incorporate Web 2.0 tools into higher education.

In the fourth article titled "Impact of Web 2.0 technologies in Higher Education: Student evaluation of how teaching enhances faculty's professional development," McDonald highlights the role of Web 2.0 technologies and the nature of their interactive feedback by sourcing ongoing information from university students in an effort to assist faculty in their continuous professional development in order to enhance teaching and learning.

In the fifth article titled "Distance education in Africa: A longitudinal study of the perceptions of 2,416 students," Karsenti and Collin conduct an in-depth mixed methods study to gain a deeper understanding of students' perceptions of distance education programs in Africa. Karsenti and Collin's results can inform policy makers, decision makers, and practitioners about the potential and benefits of distance learning for developing a qualified workforce attuned to Africa's local and regional needs.

These papers provide an initial exploration of the benefits of incorporating distance education and Web 2.0 technologies in university courses from an international standpoint. This special issue should mark the start of a rich and productive exploration of this topic. We encourage you, our readers, to take up the ideas proffered in this issue and to continue pursuing this worthwhile investigation.

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Social media in higher education: A look at participatory culture in graduate coursework

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Abstract

Society has become fascinated with web-based social media. Recently, aspects of social media environments such as participatory culture, new media digital literacies, and connectivism have been increasingly investigated. However, current university policies often restrict, if not forbid, the use of social networking sites in class. For professors seeking to introduce social media into their teaching practice, these restrictive policies can make it difficult to teach with and about social computing and computer-supported collaborative work. This descriptive paper presents the experiences of two professors who integrated Web 2.0 practices into their respective graduate-level education courses titled Social Computing and Computer-Supported Collaborative Work and Web 2.0 = Pedagogy 2.0? and describes their underlying theories and concepts. Subsequently, the courses' rationales theoretical underpinnings, and teaching approaches are delineated, and implementation strategies are suggested.

Keywords

social media ; higher education; teaching-Web 2.0 ; technology integration; curriculum

Résumé

Il ne fait aucun doute que les médias sociaux soulèvent beaucoup d'intérêt au sein de notre société. Dans la dernière décennie, plusieurs chercheurs se sont penchés sur de nombreux aspects relatifs aux médias sociaux, tels que la culture participative, les littératies numériques et le connectivisme. Malgré cet engouement pour les médias sociaux et leur potentiel, les présentes politiques universitaires sont souvent restrictives à l'égard de l'usage des technologies de réseautage social dans la salle de classe. Pour les professeurs qui souhaitent intégrer les problématiques des médias sociaux dans leur pédagogie, les politiques restrictives tendent à contraindre les types d'enseignements qui peuvent être faits avec les médias sociaux comme le travail

collaboratif en ligne. Dans cette foulée, cet article décrit les expériences de deux professeures qui ont intégré des pratiques pédagogiques qualifiées de « pédagogie Web 2.0 » dans deux cours au cycle supérieur, soit *Social Computing and Computer Supported Collaborative Work,* et *Web 2.0 = Pedagogy 2.0?* Les fondements théoriques et pratiques des cours sont d'abord présentés et sont suivis des méthodes utilisées pour assurer une relation enseignement-apprentissage avec les étudiants. L'article conclut avec des suggestions pour utiliser les médias sociaux dans des cours universitaires.

Mots clés

médias sociaux; études supérieures; enseignement Web 2.0; intégration de la technologie; cursus

Introduction

The import and impact of social media are numerous. Growing numbers of researchers and practitioners in and outside the education field are examining the related issues, including information privacy (identity theft, data mining, public-private hybridity), online security (harassment, bullying, cyberstalking), behavioral changes (multiple or fragmented identities, social media addiction), and how we do and do not pay attention to media (continuous partial attention, multitasking). Given that social media are increasingly permeating many aspects of students' personal and professional lives, higher education must cast a critical light on these issues. Yet, despite the pervasiveness of social media, little is known about the integration of social media in higher educational contexts.

Some universities have policies in place to restrict, if not forbid, the use of social networking sites in the classroom. This poses critical problems for professors who want to introduce the issue into their courses. For example, in 2008, Concordia University blocked wired access to Facebook. As Michael Geist notes, the university's move was due to "concerns that the continuing reliability of the Concordia network could be compromised because of spam, viruses and leaks of confidential information related to Facebook use" (Geist, 2008). Meanwhile, according to a CBC article, professors remained divided on the wise use of such social networking sites in the classroom (Bowman, 2009). In this article Bowman cited Carleton Professor Tim Pychyl who claimed that Facebook was like a black hole, while Concordia Professor Ann-Louise Davidson argued that Facebook could be used wisely in the classroom. Such restrictive policies render teaching with and about social computing and computer-supported collaborative work extremely difficult . Yet research indicates that social media environments are the most effective (creatively and critically) when operated within open educational settings. This means classroom environments where students (both individually and collectively) identify the problematic, design the research project, and attempt to solve complex, often ill-structured problems.

Open Networks

It stands to reason—at least in terms of coherence—that social media, or openly designed participatory environments, would be most effective (creatively and critically) and perhaps most perilous, when operating within open educational contexts. Emerging learning theories such as connectivism and connective knowledge (Siemens, 2005) as well as research initiatives such as The Open Learning Network (http://www.olnet.org/), Howard Rheingold's Participatory Media Literacy Project (https://www.socialtext.net/medialiteracy/index.cgi),

and Project New Media Literacies (http://www.newmedialiteracies.org/) advocate an open networking approach outlined as follows:

Connected learning environments are designed around networks that link together institutions and groups across various sectors, including popular culture, educational institutions, home, and interest communities. Learning resources, tools, and materials are abundant, accessible and visible across these settings and available through open, networked platforms and public-interest policies that protect our collective rights to circulate and access knowledge and culture. Learning is most resilient when it is linked and reinforced across settings of home, school, peer culture and community. (Connected Learning, n.d.)

In open networks, learners work individually and collectively to identify the research question, design a project, and attempt to solve complex, often ill-structured problems. Often referred to as as L*earning 2.0*, this approach requires learners to acquire new skills such as transmedia navigation, prosumerism, curation engagement (Jenkins, Puroshotma, Weigel, Clinton, & Robison, 2009), wise public participation principles (International Association for Public Participation), and how to participate as if your presence matters (Jenkins, 2006; Noubel, 2004; Shirky, 2008, 2010). However, actualized learning through self- and group-regulated work using social media can be virtually impossible in higher education settings where restrictions create risks for those who break the rules.

In the first section of this paper, we briefly explain the term Web 2.0. We then examine how Web 2.0 can be integrated into higher education. In the second section, we describe two Web 2.0 oriented courses and explain the theoretical underpinnings of their design. We conclude with recommendations for professors who would like to start using Web 2.0 technologies in their university courses.

What is Web 2.0?

The term Web 2.0, first coined by Tim O'Reilly in 2005, denotes the emergence of evolving digital architectures as well as the use of these technologies by millions of knowledge producers, who create what is referred to as user-generated content (UGC) (O'Reilly, 2005). Some examples of these technological characteristics are online databases and services, which provide greater access to a larger variety and scope of digital content; simple architecture, which offers user-friendly interfaces; light applications for easy sharing of information via intuitive modular elements; participatory architecture, which encourages users to enhance the application while they use it; and mixable data with mash-up capability.

Web 2.0 is also defined by its social aspects, as it uses collaborative creation of content for and by the many. Content production is unfinished and ongoing, or in a state of "perpetual beta" and reiterative legitimacy built through repetitive linking via phenomena such as social categorization, known as folksonomy or tagging (O'Reilly, 2005). Web 2.0 is further characterized by voting practices and visitation frequency. One of the commonalities of these technological and social practices is that they are mitigated by the collective actions of online user communities rather than individual users (Shirky, 2008). Thus, Selwyn (2011) notes:

This sense of Internet use now being a participatory and collective activity is reflected in the language used to describe social media applications. Social media use is often described in terms of collaboration, conviviality and

creativity. Social media applications are seen to be open rather than closed, bottom-up rather than top-down. Social media users go online to share and rate, mashup and remix, friend and trend. The ways in which the Internet is imagined in 2012 is certainly very different to that of 10 years earlier – hence the coining of the label web 2.0. (p. 1)

Web 2.0 and Higher Education

An emerging literature of small-scale, empirical studies addresses the learning gains and benefits of social media. For example, Junco, Heiberger, and Loken (2010) demonstrated the positive effect of Twitter use on college student engagement and grades. A recent study by Hung and Yuen (2010) determined that social networking sites can engender "favourable feelings regarding learning experiences" (p. 703). As Selwyn (2011) notes:

Rather than being wholly good or wholly bad for higher education, social media are perhaps best understood in more ambiguous terms when one considers the complex and often compromised realities of the ways students actually use social media within educational contexts and in their wider everyday lives (p. 8).

The literature on higher education and Web 2.0 technologies suggest three ways of examining the potential significance and implications of social media in higher education. First, there is the changing nature of our students. The Net generation is used to networking, using the Internet as a repository of information that they can consult when constructing knowledge, and executing tasks collaboratively (Oblinger & Oblinger, 2005; Selwyn, 2011; Ulbrich, Jahnke, & Martensson, 2010). Second, learning through accomplishing tasks or exploring problems in networks is reflected in the notion of connectivism. The latter is an emerging learning theory which posits that decisions need to be made on information that might change: knowledge production will change depending on the group, and learners should be ready to make distinctions between valuable information and information that is unnecessary in the present context (Siemens, 2005). Similarly, Downes (2005) argues that, in a connectivist perspective, learners must learn to aggregate massive amounts of information, filter what they think is useful, and create some meaning with this information. Third, with the advent of social media, our conceptualization of the higher education classroom needs to change. As learners co-construct knowledge through social media, they are no longer passive consumers of information, such that learning becomes an authentic participatory process (McLoughlin & Lee, 2010). As Selwyn (2011) notes:

In this sense, tensions remain between those who believe that social media can be used to strengthen and improve the higher education institution in its current form, and those who believe that social media exist to disrupt (and ultimately replace) the university altogether (p. 4).

These three ways of looking at the changing relationship between social media and education support the need to examine to examine the relationship between social media and educational practice. Because the empirical literature on Web 2.0 integration in higher education is relatively sparse, a gap remains between the discourse pertaining to Web 2.0 and evidenced-based (empirical-foundational) research studies.

In an attempt to bridge this gap, we discuss the integration of Web 2.0 related theory and practice within two graduate courses. We subsequently offer suggestions as to how to begin

to integrate social media into higher education coursework. A glossary of terms used in this article is provided at the end of the text.

Walking the Talk in Two Graduate Courses

Course One: Social Computing and Computer-Supported Collaborative Work

The first graduate course, Social Computing and Computer-Supported Collaborative Learning/Work, emerges from two different yet interrelated research domains: educational technology and communities of practice. From a theoretical standpoint, educational technology is "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Association for Educational Communications and Technology, 2008, p. 1). Traditionally, educational technologists seek to improve learning and performance by designing instructional and non-instructional interventions. Under this traditional view of educational technology, the work can be done individually or in groups. This approach to group work fosters cooperation between members, but remains somewhat linear –that is, everybody must work toward the same goal. In past decades, some researchers tried to push the limits of group work by exploring different models designed to foster collaboration within communities. The term "communities of practice" (CoP) was coined by Lave and Wenger (1991). Wenger (2006) describes CoPs as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly". According to Wenger, there are three crucial elements in a CoP: 1) the domain, which refers to the shared interest of the group; 2) the community, or the activities and discussions during which the group builds relationships and learns from each other; and 3) the practice, which includes a shared repertoire of resources that the group uses to solve problems. With some effort, the two domains of educational technology and CoPs can be combined. In terms of course activities, social media tools can become both the bonding agent and the enabler between these two domains, providing a strong framework is used.

Critical theory via Freire

In the *Pedagogy of the Oppressed* (published in Portuguese in 1968, then translated to English in 1970), Freire (1970) argues for an education that fosters *conscientização*, also referred to as critical consciousness, conscientization, or consciousness raising. Freire despised the oppression he witnessed in education and what it did to students. He saw people feeling so dehumanized that not only did they fear freedom, but they also internalized the image of the oppressor to the point of thinking that oppression itself was normal (i.e., a norm). The oppressed either tend to feel that they must be oppressed (remain in their position) or that they must break out of the shackles by becoming the oppressor (switching positions). However, Freire argued that the oppressed can recognize the causes of oppression, and that they should contribute to the quest for a better humanity. The key question that Freire then asks is: How can the oppressed participate in the pedagogy of their liberation? This participatory appeal becomes even more significant in the case of education based on what Freire calls the "banking concept of education," by which the students must be obedient. They are to listen, memorize, and repeat. In this receptive mode,

students become collectors and cataloguers of the knowledge that they acquire. They can then present themselves as knowledgeable to those who do not possess this knowledge. According to the Freirian perspective, one way to liberate students is to make education "dialogical," and to present problems that learners need to solve in order to overcome their stance as oppressed persons.

In line with Freire's critical, participatory posture, this course was designed to ensure that the students would be faced with and participate within relevant on-line community problems. To become contributors with respect to solving real, in this case on-line problems, the students enrolled in this course were asked to reinvest what they learned in class (theoretical aspects of on-line stewardship) into their on-line community. As evidence of their on-line participation, they had to come to class with the problems they were facing in their on-line community. In addition, they had to explain how they were collaboratively developing potential solutions, as a participant rather than in the position of a knowledgeable expert.

In this course, the role of the professor was to ensure that students knew they had to come up with solutions with others, and that answers were not going to come from the professor. Rather, "results" would come from their own engagement in line within a particular community.

Overall, the modus operandi of the course was to look at the production processes of co-creating solutions within a group, to develop awareness of these processes, and to give power over to the learner (so they could take control of their technological stewardship). The foundational claim is that production processes and relevant knowledge development therein have to happen in context.

The Underlying Theoretical Rationale for This Course

The question underlying the course was: How can we, as educational technologists, help design solutions to problems that are relevant for online communities? In this course, co-designing relevant solutions with online communities was grounded in Wenger's work on CoPs.

How the course worked. To provide students with opportunities to enhance their computing skills and their understanding of educational theory, students were to develop the competency of what is called technological stewardship –that is, offering to help on-line communities facing problems that require concrete technological solutions (Wenger, Smith, & White, 2009). To develop their technological stewardship, students had the choice of participating in an on-line community of practice or of engaging in what is referred to as legitimate peripheral participation, which means to simply lurk within an on-line community of practice (CoP) and observe the domain, the community and its practice (Wenger, 2006).

During the first week of the course, students were encouraged to join online communities with which they shared similar interests, not necessarily in education. Students joined communities interested in various aspects of life, including new motherhood, heavy metal music, jade trading, instructional design, tele-obstetrics, Chinese cooking, pedagogical integration of technology in Ecuador, community theater, immigrant parents, literacy, global peace, and so on. Students were required to keep detailed notes on what occurred in the online communities for at least six weeks. These written reports gave the students a substantial information base from which to begin understanding and designing solutions to various problems. However, according to the principles

of technological stewardship, solutions were not to be proposed from the outside in. Therefore, the students had to design solutions in collaboration with the community. In order not to be been seen as experts, the students did not present themselves as tech stewards. Instead, they presented themselves as members of the community who were inquiring into collaborative design solutions.

Using a problem-solving approach to education, students were asked to write a mid-session analytical and reflective report of their activities within the online CoP, in which they demonstrated insight into how problems could be solved from within the community. The idea was to shed light on how the community problems they encountered might be solved from the perspective of a lurker or tech steward. In addition, students offered recommendations for others who might want to become tech stewards in similar communities.

The final assignment challenged students to produce a model of social learning in Web 2.0 and to create a visual representation of the interactions that took place in their community. Students had to justify their own learning according to their interpretation of these interactions.

At the end of the course, the students collaborated on a Pecha Kucha presentation that enjoyed great success at the Education in a Changing Environment 2011 conference in Salford, England. The Pecha Kucha presentation reported the collective experience of the social computing class. The presentation (Davidson et al., 2012) described the research question identified by the professor and the students, analyzed the content as well as the results of the assignments, provided directions for reflection on authentic pedagogy by the students, and offered transferable lessons beyond the specific social computing course. In addition, many of the students who took the course disseminated their coursework at local student symposia and national education conferences.

Course Two: Web 2.0 = Pedagogy 2.0?

Web 2.0 is often discussed in terms of differing relationships, or relationships in which power is said to operate differently, notably more horizontally. These horizontal Web 2.0 relationships are often referred to as horizontal assemblages, P2P, many-to-many, or participatory culture. According to Castells (2010), the network character of Web 2.0 exchanges and interactions "is enacted, as a matter of fact devised, decided on and implemented by social actors" (p. 415). In a networked society, one of the key foci is:

> [...] on the user — and specifically on the collaboration among users. These collaborators are now empowered to create content and services themselves, and are literally defining the kind of information that they want on the web and what services they want websites to provide. Content owners now share, socialize, network, and engage in e-commerce as they see fit (Dialogic, 2012).

The principal objective of the graduate course Web 2.0 = Pedagogy 2.0?, was to enact a Web 2.0-like investigation around the question of whether and how the then (2010) emerging term of Web 2.0 might necessitate new educational practice, or a Pedagogy 2.0. Web 2.0 was both the course end and it's means. The overall goal was to collaboratively inquire as to what changes, if any, were occurring on the Web and to examine if change claims were a matter of degree (change as nuance), or rather, a change in kind (change as a different entity).

Presumably the potentially differing scales of change associated with Web 2.0 practice might invite corresponding scales of change in pedagogy.

The Course Question

The theoretical underpinning of the course was social constructivism enacted via collective and connective problem posing using generative questions. An appeal to generative questions is often associated within learning approaches such as "active inquiry", "inquiry based learning" or "open learning". In active, open inquiry questions tend to play a different role than they typically might usually do : in open, active inquiry questions are not necessarily posed to get answers. According to an article "The Power of Questions" by the Co-Intelligence Institute, active inquiry is not so interested in getting answers and it is certainly not interested in getting the "right" answer. "The main point is that well-crafted questions elicit new awareness and feelings of empowerment. Any answers that emerge are icing on the cake. Often a powerful question changes the questioner, as well."

One way to portray the enhancement of empowerment via collective problematisation supported by technological open architectures is that of a triple network knowledge ecosystem. According to Community Intelligence Labs (2000) a knowledge ecosystem can be understood as : "a people network of conversations creating a knowledge network of recorded insights and information supported by technology networks of hardware/software that produces value to the organization and its stake holders". The idea of "technology as actant"- as seen in Connectivism and Actor Network Theory- , is integral to both conception, design and analysis.

This course-related quest towards the producing of value began with providing a single, unexplained, unfounded question: "Web 2.0 = Pedagogy 2.0?" The meaning of this question—whether it was relevant, and how it might be explored—was left entirely up to the students. The only guidelines were that their investigations be based on Web 2.0 applications and principles. Web 2.0 applications are said to facilitate interactive information sharing, user-centered design, and collaboration on the World Wide Web. Web 2.0 type collectives are said to uphold the following principles (Tapscott & Williams, 2008):

a) Openness, or crowd sourcing
b) Peering, or horizontal organization, whereby users are free to change and develop productions and make them available to others
c) Sharing, or freely sharing some ideas (General Public License) while maintaining some degree of control over others (Creative Commons License)
d) Acting globally, in terms of a global network: "...we have a vital role to play in strengthening the links between community organizations working for human rights and peace, and supporting and shaping the emerging concepts and institutions of global governance" (Charter of the Global Greens, 2001).
e) To participate as if your presence matters (Shirky, 2008, 2010).

To be coherent with such open, linked, learner centered attributes and principles , the methodological investigative practice suggested to students was that of Participatory Action Research (PAR). PAR involves endeavours to involve all relevant parties in actively examining

t current state of affairs, to articulate what they deem as problematic and to coelaborate a working plan. For exemple, in terms of what might constitute a problem PAR participants "critically reflect on the historical, political, cultural, economic, geographic and other aspects of a given problem" (Wadsworth, 1998). PAR is not research followed up by action: "it is action itself, which is researched, changed and re-researched, within the research process, and by the participants" (Wadsworth, 1998). PAR is not simply an "exotic variant of consultation", "nor can it be used by one group of people to get another group of people to do what is thought best for them" (Wadsworth, 1998). PAR follows a "genuinely democratic and non-coercive process whereby those to be helped determine the purposes and outcomes of their own inquiry" (Wadsworth, 1998).

Participant researchers

Twenty-three graduate students (http://fr.curriculumforge.org/PagesPersonnellesWeb-2Péd2Hiv10) at varying stages of graduate studies in a variety of education programs (most of whom were not studying educational technology, and therefore knew little about Web 2.0) collaboratively addressed the initial course question "Web 2.0 = Pedagogy 2.0?"

Technologies used

Throughout the fifteen-week course, three main technologies were used:

1. *Wiki.* A Wiki was the main Web 2.0 application used. The students' asynchronous "wiki work" is located at the following address: http://fr.curriculumforge.org/Web2P%C3%A9dagogie2Hiv10
2. *CmapTools*. To organize, analyze, and synthesize Web 2.0 research information, students constructed interactive concept maps using CmapTools. These interactive concept maps are also available on the aforementioned wiki site.
3. *Google documents.* The students' final collaborative text was produced as a Google document. Google documents allow learners to work synchronously on a shared text. The text was subsequently published online. Additional information on their work is available at: http://www.netpublic.fr/2010/09/web-2-0-pedagogie-2-0-cours-et-synthese-collective/.

All the students signed ethics release forms affirming that their collective work could be published under a Creative Commons License.

Evaluation. For the evaluation, students were asked to carry out two tasks:

a) *Produce two texts.* Students had to produce a text in which they presented and justified their contribution to the course investigation, and a second text in which they provided individual descriptions of their understanding of and positioning within the problem (their individual answer to the question: Web 2.0 = Pedagogy 2.0?).

b) *Reflection.* Students reflected on their experience in terms of the highly social constructivist nature of the course during a videotaped interview conducted by their course colleagues. The students' differing experiences of the course are available at the following address: http://fr.curriculumforge.org/VideoWeb2P%C3%A9d2YouTube.

Lessons Learned

While the rewards of enacting this "Web 2.0 coursework" were noteworthy (extensive concept maps and a 65-page text of this breath and depth would have been impossible for any one or even several students, especially given the time constraints), so, also, were the difficulties. Three difficulties will be briefly outlined –and somewhat addressed below.

First, graduate school demands for individual autonomy in light of increasing calls for collaborative practice (digital or otherwise) are creating tensions. For example, one of the tensions in such collective networking is the often unequal relationship between any given participant and the emerging level of the group, referred to as Holopticism. "Small World Networks," which are characterized by being both densely and sparsely connected at different scales, offer an interesting starting point to address this issue when operationalizing a collective "working-of-the-net." Shirky (2008) notes: "You let the small groups connect tightly, and then you connect the groups. But you can't really connect groups – you connect people within the groups. Instead of one loose group of twenty-five, you have five tight groups of five" (Shirky, 2008, p. 215).

Second, co-elaborative coursework (course design created for-and by-the group) evokes extremely important psychosocial issues. Given the dynamic, destabilizing psychosocial aspects of enacting collective creative processes (again, in terms of both what is to be created, how, why and by whom) should be highlighted throughout the course. Piirto (2010) outlines five core attitudes (Naiveté, Risk-taking, Self-discipline, Group Trust and Tolerance for Ambiguity), seven I's (Inspiration, Insight, Intuition, Incubation, Improvisation, Imagery, Imagination) and other core ideas to begin considering how students may -and may not- be experiencing-and able to enhance a creative process.

Third, introducing "horizontal assemblages" in higher education course-work may help bring oppressive and productive - and extremely dynamic - power operations to the foreground. Introducing power analytics, i.e., how power is both exerted and contested, can be examined in terms of Tuckman's model of the stages of group development. The model focuses on five stages of power analytics: 1) forming, in which participants identify the boundaries of both interpersonal and task behaviors; 2) storming, in which participants emotionally resist group influence and task requirements; 3) norming, in which resistance is overcome, in-group feelings and cohesiveness develop, and personal opinions are expressed; 4) performing, in which group energy is channeled into the task, structural issues have been resolved, and structure can now become supportive of task performance; and 5) adjourning, which entails the termination of roles, the completion of tasks and the reduction of dependency (Tuckman & Jensen, 1977). In short, Tuckman et al. (1977) maintain that a group must pass through these five stages in order to grow and achieve its collective goal.

Concluding Remarks

The reader should keep in mind that the courses described in this paper are not meant to serve as examples of best practices. However, they were designed with various theoretical ideals in mind, including Freirean pedagogy, participatory action research, and collaborative Web 2.0 work. Students had to become well versed in the use of various technologies

and learn to navigate through their functions with ease. They also had to engage as critical consumers of information, as well as active producers of information. Moreover, they had to engage in creating and maintaining artefacts. In other words, they had to learn how to make their efforts useful to the community that could benefit from them, and how to ensure that what they learned could be reusable and maintained. This suggested, as Shirky (2008, 2010) mentioned, that learners needed to participate as if their presence mattered. This was the only way to create user-generated content, a criteria that O'Reilly (2005) considers to be the most important of Web 2.0.

In addition, the format of our courses was a good fit with the underlying postulates related to exploiting Web 2.0 in higher education. It was a good fit in terms of letting "net generation" learners construct knowledge by consulting the Internet and working collaboratively to execute tasks and solve problems, as stressed by Ulbrich, Jahnke, and Martensson (2011) and Selwyn (2011).

The assumptions were that students should learn through a network. In the first course (Social computing and computer-supported collaborative learning/work), the network consisted of online communities outside the classroom. Students began with legitimate peripheral participation, as suggested by Wenger (2006), and gradually became part of the core group, as active members of the communities in which they exercised their technological stewardship skills, as Wenger, Smith, and White (2009) suggest. In the second course (Web 2.0 = Pedagogy 2.0?), the network itself was studied. This is consistent with the assumptions of connectivism, as described by Siemens (2005). Moreover, both courses required students to filter information, aggregate it, and decide how to reuse or repurpose it. This is consistent with Downes' (2005) description of connectivism. We noted that when students were deeply focused on their tasks, the use of social media did not disrupt classroom functioning. Instead, it became a medium for meaningful learning, contrary to the concerns raised by Selwyn (2011).

The authors wanted to share their experiences so that other researchers and practitioners might be encouraged to test the potential of Web 2.0 technologies to potentially improve learning. Participatory culture in higher education needs more professors 2.0.

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Glossary

Connectivism: "The thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks." (Downes, 2012, p. 9)

Curation engagement: How to become invested in collecting, annotating and archiving data for self as well as others.

Holopticism: "The link between individuals and the whole -- provide players the capacity to operate in a sovereign, independent way because they know what to do for the sake of the whole and the sake of themselves. Therefore there is not only horizontal transparency (perception of every other participants), but also a vertical communication with the emerging Whole." (Noubel, 2004, p. 8)

Learning 2.0: Notably, interdisciplinary, creative, global collaboration skills that systematically, read architecturally, empower those who have access to the WWW.

OLnet: "An international research hub for aggregating, sharing, debating and improving

Open Educational Resources (OER). The aim of OLnet is to gather evidence and methods about how we can research and understand ways to learn in a more open world, particularly linked to OER, but also looking at other influences. We want to gather evidence together, but also spot the ideas that people see emerging from the opportunities." (OLnet, n. d.)

PechaKucha: "A presentation methodology in which 20 slides are shown for 20 seconds each (six minutes, 40 seconds in total)." (Wikipedia, 2013)

Power: According to Foucault (1980, p. 98), "Power must be analyzed as something which circulates, or as something which only functions in the form of a chain. Power is employed and exercised through a net-like organization. Individuals are the vehicles of power, not its points of application." According to Balan (2010), "This way of understanding power has two key features: a) power is a system, a network of relations encompassing the whole society, rather than a relation between the oppressed and the oppressor; b) individuals are not just the objects of power, but they are the locus where the power and the resistance to it are exerted" (p. 35) "Web 2.0" is supposedly created for-by the people (caveat: those with access and digital literacy skills).

Technology stewards: "Technology stewards are people with enough experience of the workings of a community to understand its technology needs, and enough experience with technology to take leadership in addressing those needs. Stewardship typically includes selecting and configuring technology, as well as supporting its use in the practice of the community." (Smith, 2006)

Web 2.0: Whether the "Web 2.0" actually exists as a singular entity (as opposed to "Web 1.0") is not in question here. For the purposes of this text the term Web 2.0 refers to discursive phenomenon whose attributes vary since the terms initial use by O'Reilly (2005) in 1994. To see what are considered some Web2.0 design patterns, consult a list by Christopher Alexander presented on O'Reilly's web site (O'Reilly, 2005). For a more complete description of Web 2.0 and its uses, see "Learning, Teaching, and Scholarship in a Digital Age" (Greenhow, Robelia, & Hughes, 2009)

Wiki: "A wiki is a collection of web pages that can be edited by anyone, at any time, from anywhere." (Learning Commons, n. d., p. 1)

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Connecting Pre-service Teachers and Experienced Educators: Social Media for Lifelong Learning

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Abstract

Beginning teachers often feel isolated and either lack role models or find it difficult to reach out to more experienced teachers. An educational technology course connected beginning teachers with experienced educators using social media. An analysis of pre-service teachers' (n=15) reflections indicated that online interactions with experts had provided them with resources, role models, best practice examples, and skills for technology integration and lifelong learning. The results underscore the potential of social media, professional networks, and communities of practice to provide pre-service teachers with real-world experiences and connections with experienced teachers.

Keywords

social media ; higher education ; teacher ; technology integration ; curriculum

Résumé

Les enseignants débutants se sentent souvent isolés et soit manquent de modèles, soit trouvent difficile de faire appel à des enseignants plus expérimentés. Un cours de technologie éducative a mis en contact des enseignants débutants et des enseignants plus expérimentés à l'aide de médias sociaux. Une analyse des réflexions d'enseignants en formation (n = 15) a indiqué que les interactions en ligne avec des experts leur ont fourni des ressources, des modèles, des exemples de meilleures pratiques et des compétences pour l'intégration des technologies et l'éducation permanente. Les résultats soulignent le potentiel des médias sociaux, des réseaux professionnels et des communautés de pratique pour offrir aux enseignants en formation des expériences pratiques et des liens avec des enseignants expérimentés.

Mots clés

médias sociaux ; études supérieures ; enseignant ; intégration de la technologie ; cursus

Introduction

In the United States, the National Education Technology Plan (NETP) of the United States Department of Education (2010) states that students have to be proficient in creating and sharing content, and in connecting with others through the use of online social networks. Education should use technology to "create engaging, relevant, and personalized learning experiences for all learners that mirror students' daily lives and the reality of their future" (U.S. Department of Education, 2010, p. 8). Teacher technology preparation and technology integration into education have been consistent themes in policies and reports in the last decade (Culp, Honey, & Mandinach, 2003; Groth, Dunlap, & Kidd, 2007), accompanied by the development of standards to prepare teachers for 21st century schools. Two examples of such standards are the Interstate New Teacher Assessment and Support Consortium (INTASC) standards and the National Education Technology Standards for Teachers (International Society for Technology in Education [ISTE], 2008) of the National Council for Accreditation of Teacher Education (NCATE). Teachers have to be able to use new technologies to create learning environments that mirror the ubiquitous use of such technologies in our lives and provide students with digital literacy skills.

Although technical skills and student attitudes have been the focus of many teacher technology preparation courses in the past (Zhao, Pugh, Sheldon, & Byers, 2002), the importance of subject matter and pedagogy when using technology, also termed technological pedagogical content knowledge, has received increased attention in the last decade (Mishra & Koehler, 2006). In addition to structuring curricula and teacher education programs to connect subject matter, pedagogy, and technology, educators and policymakers have called for the inclusion of informal learning opportunities and social media in teacher education (Bull et al., 2008). The NETP suggests that educators should "leverage social networking technologies and platforms to create communities of practice that provide career-long personal learning opportunities for educators within and across schools, pre-service preparation and in-service educational institutions, and professional organizations" (U.S. Department of Education, 2010, p. 16). Likewise, Bull et al. (2008) assert that informal learning experiences, where teachers communicate with other teachers in their own subject matter area, or in other subject matter areas, "offer a potential bridge between social media and academic content" (p. 102).

This paper reports on the redesign of a required educational technology course for pre-service teachers of social studies, the goals of which were to facilitate the appropriate use of social media for a) teaching, learning, and student engagement in social studies and b) networking, peer support, and lifelong learning.

Teacher Technology Preparation and Integration

Teachers' inadequate skills in the use of technology for teaching, their skepticism and negative attitudes towards technology, their low self-efficacy and high anxiety with technology use, and the influence of their own learning experiences on their teaching beliefs are recurring themes in the literature of the 1990s (Ertmer, 1999; Ertmer, Evenbeck, Cennamo, & Lehman, 1994; McInerney, McInerney, & Sinclair 1994; Office of Technology Assessment, 1995). Lack of exposure to technology in general, and in prior learning experiences in particular, are often cited barriers to beginning

teachers' technology use in the classroom. In the current age of ubiquitous computing, however, it can be assumed that beginning teachers and pre-service teachers aged 18 to 24 years in the United States have grown up with digital technologies (Tapscott, 1998). They use new technologies to communicate, collaborate, find information, create online identities, and rely on technology as an "essential and preferred component of every aspect of their lives" (U.S. Department of Education, 2004, p. 19). At the same time, several researchers have pointed to undergraduates' lack of sophisticated use of technology or educational technologies, their use of technology for more social than academic or professional purposes, and their inability to apply technology for their own learning (Kumar & Vigil, 2011; Lei, 2009; Smith, Salaway, & Caruso, 2009; Voithofer, 2009). Despite their increased exposure, positive attitudes, and confidence in using or trying new technologies in the new millenium, beginning teachers often struggle to integrate content, technology, and pedagogy into their teaching (Brush, Glazewski, & Hew, 2008). Although technology is increasingly being integrated into higher education, pre-service teachers still lack exposure to technology use and models of technology use for teaching in teacher education programs (Angeli & Valanides, 2005; Buckenmeyer & Freitas, 2005; Koehler, Mishra, & Yahya, 2007; Niess, 2005). Similarly, once they begin teaching, they often also lack support or role models who could help them integrate technology into their classrooms.

A further problem is the use of subject-specific resources or technologies that could be integrated into teaching. Teacher preparation programs often include a generic educational technology course that is valuable, but does not usually target the subjects that pre-service teachers are likely to teach when they enter schools. An increased focus on subject-specific content or technologies that work particularly well for a specific subject can help them meaningfully integrate technology, pedagogy, and that content. The NETP (U.S. Department of Education, 2010) and Bull et al. (2008) suggest that social media should be leveraged to connect pre-service teachers, inservice teachers, and professional organizations. Bull et al. (2008) point to the National Technology Leadership Coalition (NTLC), the National Technology Leadership Summit (NTLS), and the ISTE as areas where dialog can occur between teachers in specific subject matter areas and across subject matter areas. Providing pre-service teachers with specific online resources and mediated communities where they can communicate with other beginning teachers, experienced teachers, and teacher educators about the use of technology to teach their disciplines can benefit them not only during their teacher education programs, but throughout their teaching careers.

Teacher Technology Preparation in Social Studies

Social studies teaching and learning has traditionally been teacher-centered and characterized by teacher-guided lectures and passive listening on the part of students (Doolittle & Hicks, 2003). However, many in the field have promoted a shift toward constructivist, learner-centered pedagogy, better suited for the development of the "dispositions required of students to be active and engaged participants in public life" (National Council for the Social Studies [NCSS], 2010). A great deal of consideration has been given to the role technology can play in supporting learning opportunities for students that move beyond the mere memorization

of content and enable students to engage in critical thinking, problem-solving, inquiry, collaboration, and civic discourse (Cornbleth, 2010; NCSS, 2010). Yet while many acknowledge the potential for technology to support powerful social studies teaching and learning (Mason et al., 2000; NCSS, 2006), the unrealized potential of technology to revolutionize teaching and learning in the social studies has been well documented (Bolick, Berson, Coutts, & Heinecke, 2003; Chai, Koh, & Tsai, 2010; Swan & Hofer, 2008). Pahl (1996) found that many social studies educators remain apprehensive about integrating technology into their practice. This apprehension may stem from the fact that many social studies teachers lack the understanding and knowledge required to engage students through interactive technologies (Berson, 1996; Doolittle & Hicks, 2003; Ehman & Glenn, 1991).

Research has shown that teachers' ability to support social studies pedagogy with interactive technologies largely depends on the strength of their pedagogical reasoning skills and their ability to conceptualize how technology might support various pedagogical methods (Chai et al., 2010; Doolittle & Hicks, 2003; Koh & Divaharan, 2011). When developing pre-service teachers' ability to support social studies pedagogy with interactive technologies, consideration must be given to their past experiences as learners of social studies content. Similar to other disciplines, pre-service teachers of social studies hold preconceived notions of how teaching and learning should occur in classrooms based on their own experiences as students (Hammerness et al., 2005). Because the use of instructional technology in K-12 social studies classrooms is inconsistent and often lacks complexity (Harris, 2008; Keeler, 2008), pre-service teachers have not traditionally experienced learning the subject with new and emerging technologies (Chai et al., 2010; Keeler, 2008; Niess, 2011). They have few representations of social studies pedagogy that utilizes the power of technology, and they struggle to conceptualize how technology can be applied to various pedagogical methods of practice (Koh & Divaharan, 2011).

Therefore, it is critical that pre-service teachers have the opportunity to interact with expert teachers in the field who successfully use technology to enhance their instruction (Brush & Saye, 2009). In the past, it has been difficult to bring these two groups together due to a limited pool of experienced teachers in a geographical area who model effective uses of technology to support social studies curricular activities. However, teacher education programs are no longer limited by the number of quality expert teachers in a local area or the resources available in local schools. Online professional social networks and communication protocols make it possible to connect pre-service teachers to a global network of social studies educators focused on integrating technology into their instruction.

Context of the Research

The context for this research is a Master of Education program in which social studies pre-service teachers take one required course in educational technology. Students (pre-service teachers) in the educational technology course explore new technologies that could be useful for teaching social studies, participate in online and classroom discussions where they are expected to think critically about teaching with those technologies, and create a unit plan that integrates new technologies into the social studies curriculum. In a prior offering of

the course, students reported their satisfaction with the course but expressed concerns and anxiety about effectively integrating technology into their teaching once they get teaching jobs. Their feedback included concerns about how they would stay abreast of the latest technologies while trying to be effective teachers, make decisions based on access to technology in their future classrooms to engage learners, and appropriately scaffold their students' interactions in the 'real world' online, for example, using social media. Social media can be broadly defined as virtual platforms that allow users to create, share, and discuss content online.

Based on student feedback as well as prior research that has highlighted the benefits for teachers of participation in online teacher communities and interactions with peers (Hur & Brush, 2009; Lieberman & Mace, 2010; Schlager, Farooq, Fusco, Schank, & Dwyer, 2009), the course was redesigned to include opportunities for learning that went beyond university classrooms and resources and helped connect students with experienced educators. The redesigned 14-week course met on-campus for ten of 14 sessions. Similar to the previous version of the course, several new technologies (e.g., Google Earth, Glogster) pertinent to the teaching of social studies and the searching, evaluating, and integrating of primary sources (oral histories, digital histories) were modeled throughout the course to encourage analysis, evaluation, creation, and sharing of content using new media (Lombardi, 2007).

Four of ten classroom sessions included 45-minute real-time Skype sessions with experienced social studies teachers around the United States. Four further classroom sessions included in-class presentations by experienced teachers. Students prepared questions for the experts based on pre-work, and students' interactions with these experts outside of the classroom comprised Twitter interactions and follow-up discussions on the experts' blogs. During the four online weeks, students participated in subject-specific Nings, contributed to educational blogs, and followed teachers on Twitter, all within the context of prescribed guidelines. The National Council for Social Studies Ning was suggested to students as an appropriate forum where they could follow current discussions about the integration of technology in their discipline. A list of experienced social studies teachers who tweeted and blogged was provided to students, from which they selected four to follow. Students were further requested to find one blog on their own that they considered a useful resource for beginning teachers interested in integrating technology into the social studies curriculum.

At the end of the course, the students synthesized what they learned from the interactions with experts and the impacts and provided evidence for their claims using online links and excerpts. They also created an online artifact and an accompanying unit description for a K-12 social studies classroom demonstrating the application of new technologies and primary sources to create authentic learning experiences for K-12 students. This paper focuses on the students' learning and interaction with experienced teachers using social media during the classroom and online activities in the course.

Methodology

Students were asked to maintain ongoing notes about their interactions with experts during the course. At the end of the course they were asked to submit a summary reflection on their understanding of technology integration into the social studies curriculum. Students were requested to use references from the readings and examples of resources, and to provide excerpts of interactions or links to these interactions online as evidence for their claims in their written narrative. Students' (n=15) synthesis reflections submitted at the end of the course were analyzed to answer the question, "What are students' perceptions of learning from interactions with experts using social media?" The reflections were collected and first open coded (Charmaz, 2006) for themes that emerged. The smallest unit of analysis was one sentence. Two researchers open coded three students' reflections separately using HyperResearch software, then met to discuss their codes and determined 88% agreement. Several codes were semantically similar, for instance, "unknowing" and "lack of awareness," "thinking shift" and "changes in thinking." They then coded the rest of the transcripts with 80% agreement and collapsed the final 13 codes into six larger themes.

Findings

The analysis of student reflections highlighted many different aspects of their learning about technology integration during the course activities. The findings are organized here according to students' prior experiences with technology, their perceived learning from the course as a whole, their perceived learning from interactions with experienced teachers, and their intended or initial application of the learning from the course in their practica or teaching experiences. Excerpts from students' reflections are included in each section.

Prior experiences with technology.

In their reflections on what they had learned from the course, seven of 15 students reported that they had been unaware of many of the technologies that were introduced and used in the course. Students were familiar with Word processing, PowerPoint, and online searches using a browser, but were unaware of many new technologies that could be used for teaching social studies. They provided specific instances of their learning about and with Smart Boards, Glogster, Voicethread, WebQuests, digital histories, ThinkQuests, and so on. One student stated, "Prior to this course I had little experience with technologies other than Microsoft applications, Internet research and social networking. As far as using technology in the classroom I had only been exposed to PowerPoint presentations and online research," while another wrote, "I was extremely unaware of all of the technologies available to be utilized as a teacher."

Five students reflected that they had only been exposed to traditional methods of technology use such as lectures that used PowerPoint in their learning experiences before this course, as revealed in one student's comment, "I had never been exposed to the new and exciting technological means in which a teacher can engage and motivate his/her class and make learning more fun." Eleven of 15 students claimed that the course helped familiarize them with how these new technologies can be integrated into classroom teaching. For example, some students had used Twitter, Facebook, or blogs in

the past but were not aware of how these could be used in a teaching environment to help students learn.

Perceived learning from the course.

All 15 students stated that they had learned how they could teach with new technologies during the course. Students gave multiple examples that demonstrated their understanding of teaching with technology and how technology could benefit student learning. Smart Boards, blogs, Glogster, and VoiceThread were the new technologies most mentioned by students, followed by Google Earth, wikis, Twitter, virtual field trips, social studies games, and primary sources such as oral or digital histories. Glogster and VoiceThread were topics included in student-run presentations, but Smart Board integration was presented by two guest speakers, and students learned about blog use by following the blogs of experienced teachers and interacting with them online. The following are two examples of student comments:

> I had never even heard of Glogs or WebQuests before this course. I think Glogs provide a concise and effective way for teachers to include interactive material, such as videos, graphics, and audio clips, to a lecture. I think students gain more educationally when they engage in activities like creating Glogs and participating in WebQuests. These activities can be extremely fun and are much more effective than simply completing worksheets or listening to a mundane lecture.

> I learned how I could use those technologies in a social studies classroom, for example, creating Facebook or Twitter accounts of historical figures, or using Skype to bring in classroom experts, or Google Earth as part of a virtual field trip. I was also exposed to technologies and techniques I had never heard of: the virtual field trip, VoiceThread, online timelines. I was able to interact with these technologies, see real examples of their use for classroom instruction and student learning, and learn how to use them to contribute to meaningful learning, both in terms of pure content instruction and in the creation of service learning projects.

Thirteen of 15 students asserted that they had learned different ways of integrating technologies into their teaching, using phrases such as "teaching methods," "methods for teaching with technology," and "successfully integrate technology in a social studies classroom." One student explained, "I started out thinking I knew everything about technology, but learned how I could use it in an educational setting and as a way to foster students' educational growth," while another wrote, "I truly learned so many ways of how to successfully incorporate technology into a social studies classroom: many more than what I had originally thought were possible." In their reflections, students demonstrated their understanding of how several technologies can be used for administration, student engagement, and student motivation in social studies, as follows:

For example, a blog can simplify my life by giving me a place to post information regarding class and a place to direct both students and parents when they have questions about our class

Probably the most important insight that I was able to gain from this course is the usefulness of social media in terms of student motivation, which everyone tells me is the biggest obstacle to achievement in most cases. The idea of writing for a potentially infinite online audience instead of just for the teacher was very fascinating to me, and it really did seem to affect student motivation when we implemented a class blog in our practicum experience.

For example, with blogs, podcasts, voice threads, etc., I can 'flip' the classroom by having my lecture or content for the students to listen to at home with their computers or smartphones. With blogs the students can post content, status on projects, receive announcements, and communicate with one another outside the classroom. Students can assume the role of a historical figure and make a 'mock' blog. Google docs are a great way for the class or group to collaborate with one another and have instantaneous poll results. It also provides the teacher with a great way to see who contributed what with an assignment.

Learning from expert interactions

Prior versions of this course encompassed exposure to new technologies and time for students to explore these, along with examples of best practice. However, the key change in this version of the course was their exposure to experienced teachers in their discipline (social studies), who shared successful teaching experiences with the students. Four experts made presentations on-campus on teaching with Smart Boards, educational gaming, and fair use of online materials, while four others discussed the use of social networks, blogs, online collaboration, and geocaching over Skype. Additionally, students interacted with these and numerous other social studies educators using social media. A theme that emerged in 12 of 15 student reflections was their learning from these interactions with experts during the course. Students' self-reported learning from their interactions with experts fell into two categories: exposure to successful working examples of teaching, including appropriate use of technology, and exposure to online networking and online resources.

Exposure to successful working examples of teaching

Students stated that the examples, best practices, and challenges presented by the eight expert teachers increased their understanding of how new technologies can motivate and engage K-12 learners, help them to be active instead of passive learners, and help them monitor and "own" their learning. Six students stated that they were now comfortable using the Smart Board and creating lessons on the Smart Board, or that they had a "strong foundation and a solid understanding of its capa-

bilities." Individual students highlighted their exposure to educational uses of gaming and the appropriate use of new technologies in K-12 environments. In general, students praised the Skype sessions and the teachers as "wonderful examples of the type of teachers we should aim to be." One student wrote,

> One thing that I thoroughly enjoyed about the course was that we explored working and successful examples for almost all of the technologies addressed. It was extremely beneficial and motivating to see how real teachers utilized technologies in their modern-day classrooms and were successful at doing so. I feel that if I had not seen how current teachers actually productively use and implement these technologies, they would have seemed more foreign and less obtainable for my own classroom. Instead, because we did explore so many working examples of these technologies, I know how and why they can be utilized so successfully.

In addition to learning from the content of the presentations, students also acknowledged the value of Skype and similar communication protocols for their future classrooms:

The other technology that I now plan to use in my classroom is Skype. Skype gave our class the opportunity to speak with experts from all over by eliminating travel expenses, lost time, and many other factors. My views changed on Skype from it being for personal entertainment to something that is very powerful in a classroom. I can have my students speak with international students, experts in different states, and even another class in a different part of town.

Exposure to online networking and online resources.

Following their online interactions with numerous educators in blogs, Twitter, and Nings, eight of 15 students expressed their surprise at the ways in which "like-minded" educators connect online, request information, and share lessons, resources, and stories about integrating technology into their teaching. They were also surprised at how approachable educators were online, their willingness to share their resources with beginning teachers, and the support that could be available to them during their first year of teaching. Students recognized the value of online networks for staying up-to-date with new technologies and their use in classroom, as reflected in the following excerpts:

> Finally, I learned that technology can not only help students, but teachers as well. There is a myriad of technological resources available to teachers that can aid them in their classrooms. These come in the form of blogs, wikis and podcasts which may provide lesson plans or classroom management strategies. To utilize these resources to the fullest, it is extremely beneficial for the teacher to network. I am sure that I will never know all there is to know and offer in terms of technology. However, I can help myself by following experts on the topic on Twitter or Facebook and constantly educating myself about the latest and most engaging technological tools for education

> Now, I follow, and am being followed, by a vast number of social studies teachers around the country. For example, last weekend was the NCSS conference in D.C., and my Twitter was full of people who were there and what they were

> learning about. I have found that the teachers who are active on Twitter are usually highly progressive when it comes to integrating technology into the classroom. Following educators such as these is a great way to network, share, and learn. Asking for help is as simple as mentioning them in a Tweet or using a # with appropriate title.

Application of learning from the course to teaching experiences

Five of 15 students reported that they had integrated technologies that they had learned in the course into their practicum experiences. Students created a glog, a blog, a WebQuest, and a Twitter account for their teaching sessions and were happy with the ways in which their classes engaged using those tools. According to one student,

> I created a fake account using Twitter for George Washington. In that account, I created tweets about various historical events in the first president's lifetime and followed other Twitter accounts that related to George Washington (i.e. John Adams, Thomas Jefferson, Betsy Ross etc.). This proved to be an extremely effective method of conveying the material while also tapping into the students' interests with Twitter.

Two students attributed their application of technology to the guest speakers. One student wrote, "This is something that simply would not have occurred to me had we not listened to that guest speaker talk about how much her students were excited about their class blog," while another reported confidence in using the Smart Board based on the expert presentations.

Discussion and Conclusion

Teachers in a specific discipline often feel isolated and find it difficult to reach out to other teachers in similar situations or to more experienced teachers. Similarly, teacher educators who wish to provide pre-service teachers with models of quality technology integration in a specific discipline do not always have access to role models locally. This article presents one approach to providing pre-service teachers with online networking resources beyond the local environment and skills for lifelong learning using social media. The limitation of this research is that it is based on a small sample in one course and on an analysis of students' reflections maintained during the course. However, students were required to provide online links and excerpts as evidence of their online interactions, lending credibility to their assertions, and students' self-reports can provide insight into their perceived learning. The 'real-world' online interactions using social media described in this paper resulted in students' increased understanding of teaching social studies with technology as well as existing online networks, resources, and experts in their discipline. Students enjoyed the opportunity to interact with experienced teachers, perceived some of the experts as role models, and built a professional network that they can leverage in their career as social studies teachers. The potential of social media, professional networks, and communities of practice for teachers in a specific discipline are often insufficiently leveraged in teacher education. The presumption is that pre-service teachers, especially those that have grown up with the Internet, will find such resources on their own. However, pre-service teachers should first be provided with role mo-

dels and such interactions should initially be scaffolded, following which they can be encouraged to find their own resources. Given that teachers' understanding of technology integration and its benefits for learning are precursors to teaching with technology in prior research, exposure to role models and working examples of technology integration are crucial.

Similar to the course described here, educational technology courses often succeed in helping pre-service teachers gain an understanding of how new technologies and social media can be used appropriately in K-12 classrooms. However, this approach was unique for three reasons. First, students did not use social media to interact with one another, as is common in educational technology courses, but interacted in real time with non-students, that is, experienced educators in social networks. Such interactions can help students understand both the benefits and challenges of using social media to learn and teach in the real world. Second, students interacted with experienced teachers who used new technologies in innovative ways, and more importantly, either currently taught or had previously taught social studies. Thus, students had an opportunity to observe, experience, or hear about how new technologies are currently being used in K-12 social studies classrooms, ask questions about challenges faced by teachers, reflect on these teachers' practices, and interact with them in real time about their practices. In addition to being discipline-specific, this approach differs from a passive review of existing online materials or lesson plans, which albeit valuable, does not always offer a rationale or explain challenges that teachers face. Students in this course, for instance, had many questions for the experts about how they interacted with technology specialists and parents to get permission to use certain technologies and what kinds of grants they could apply for to pay for certain online or classroom technologies. In the next version of this course, a couple of technology specialists from K-12 environments will be included in the expert interactions. Third, several students expressed surprise in their reflections about how experienced teachers "put themselves out there," shared their materials, and did not hesitate to ask questions. Their real-life interactions on blogs, Nings, Twitter, and other virtual spaces provided them with workplace skills that will help them after they graduate, because they now know they can reach out to educators with more experience, and are aware of venues where they can get information from other teachers.

Prior research reveals a focus on inservice teacher participation in online networks and communities, and on how pre-service teachers interact with each other in online networks and communities (Hur & Brush, 2009; Schlager et al., 2009). Further research is needed on the potential of social media and new communication protocols such as Skype and multi-user virtual environments to connect pre-service and experienced inservice teachers. Areas of research can include the analysis of online interactions between pre-service and inservice teachers; the benefits, learning, and impact of such interactions for not only pre-service but also experienced teachers; the ways in which such interactions can be scaffolded and modeled for maximum learning; and virtual spaces that are most useful for such interactions. The collaborative nature of social media and their ubiquitous presence in our lives offer tremendous potential to enculturate pre-service teachers into existing professional communities that will help them stay current with new

technologies for teaching and decrease their teaching in isolation in their classrooms.

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A Parallel World for the World Bank: A Case Study of *Urgent: Evoke*, An Educational Alternate Reality Game

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Abstract

In 2010, the World Bank launched *Urgent: Evoke*, an alternate reality game. Conceived in response to the demands of African universities, the game was designed to promote the World Bank Institute's vision of positive global change through social innovation, and made substantial use of Web 2.0 tools such as blogs, personal profiles, and social networks. This article offers a case study of *Urgent: Evoke*, divided into four sections: first, the potential to use video games as citizenship education tools is discussed; second, the unique game genre (alternate reality games) into which *Evoke* falls is explained and some possible uses of this genre in higher education are examined; third, the functioning of the *Evoke* game world is explained; and fourth, the results of the *Evoke* educational project are assessed. The case study concludes with some commentary on *Evoke*'s ideological message, which those less sympathetic to capitalism may view as problematic.

Keywords:

alternate reality games; Web 2.0; higher education; educational project; evaluation

Résumé

En 2010, la Banque mondiale a lancé *Urgent Evoke*, un jeu en réalité alternée. Créé en réponse aux demandes d'universités africaines, le jeu a été conçu pour promouvoir la vision de l'Institut de la Banque mondiale d'un changement mondial positif par l'innovation sociale. Il fait un usage important des outils du Web 2.0 tels que les blogues, les profils personnels et les réseaux sociaux. Cet article est une étude de cas d'*Urgent Evoke* en quatre parties : premièrement, le potentiel d'utilisation des jeux vidéo comme outils d'éducation à la citoyenneté est évoqué; deuxièmement, le type unique de jeux (jeux en réalité alternée) dans lequel se classe *Evoke* est expliqué et les utilisations possibles de ces jeux dans l'enseignement supérieur sont examinées;

troisièmement, le fonctionnement de l'univers du jeu *Evoke* est expliqué; et quatrièmement, les résultats du projet pédagogique *Evoke* sont évalués. L'étude de cas se termine par des commentaires sur le message idéologique d'*Evoke* qui peut apparaître problématique à ceux qui sont moins favorables au capitalisme.

Mots clés

jeux de réalité virtuelle; Web 2.0; etudes supérieures; projet pédagogique; évaluation

Introduction

In May 2010, the World Bank Institute, the capacity-building arm of the World Bank, spent $500,000 to launch an online alternate reality game, *Urgent: Evoke* (Sutter, 2010). Originally created in response to the demands of African universities, the game, which unfolded in "episodes" over the course of ten weeks, was designed to promote the World Bank's vision of positive global change through social innovation among a global audience (Evoke, 2010a). *Evoke* made substantial use of Web 2.0 tools—blogs, personal profiles, social networks, and leaderboards were all major components—and the game also drew on social media tools. Crafted by leading game designer Jane McGonigal, *Evoke* was generally warmly received by bloggers and critics, winning a Direct Impact award at the Games for Change conference in 2011 (Gamesforchange.org).

This case study of *Evoke* unfolds in four sections: first, I discuss the potential of games as citizenship education tools; second, I explain the unique game genre (alternate reality games) into which *Evoke* falls and discuss some possible uses of this genre in higher education; third, I describe how the *Evoke* game world functioned while it was up and running; and fourth, I assess the results of this educational project. I conclude with some remarks on the ideological message conveyed by *Evoke*, which those less inclined to be sympathetic to capitalism may find problematic.

Games as Citizenship Education Tools

As a prelude to a discussion of alternate reality games, it is worth briefly reviewing the scholarly context in which educational games like *Evoke* are situated. On first inspection, the significance of a game like *Evoke* for higher education may not be evident: currently, games occupy only a marginal place in university classrooms. Yet there is reason to believe that games may play an increasingly significant educational role, and one of the strongest arguments for this hypothesis is that games are now universally present in the lives of young people: a recent Pew Foundation survey demonstrated that 97% of American teenagers (both male and female) had played some type of game in the past month (Lenhart et al., 2008). When this popularity is taken together with the growing theoretical literature on the power of games as educational tools (Bogost, 2007, 2011; Gee, 2003; Flanagan, 2006), the possibility of leveraging the power of gaming in higher education merits careful investigation.

One especially promising niche within educational gaming is games that potentially contribute to the development of skills, knowledge, and values linked to citizenship. Also known as "civic games" (Raphael, Bachen, Lynn, Baldwin-Philippi, & McKee, 2010), they have elicited a surge of interest following the results of a 2009 MacArthur Foundation Report, *The Civic Potential of Video Games*, which demonstrated a correlation between positive citizenship-linked outcomes such as volunteerism and political engagement and the playing of certain types of games high in citizenship-related content (Kahne, Middaugh, & Evans, 2009). Some examples of the civic games cited in the MacArthur report are the *SimCity* and *Civilization* series, both of which have seen substantial use in higher education (Gaber, 2007; Lobo, 2007). Although (as will become apparent below) *Evoke* uses a radically different game mechanic from either of these two well-known game series, it also fits into the civic game category: it aims to help students develop the

skills required to enact a particular ideal of global citizenship.

Since civic games are a fairly new area of inquiry, it is not surprising that the academic literature is scattered and diffuse. However, it is possible to divide the existing empirical literature into three broad categories: 1) Substantial work, some in the area of higher education, has been done on commercial games that aim specifically to simulate political or civic processes. This game category includes *SimCity* and *Civilization* as well as more complex and less well-known simulations such as *Europa Universalis II* (Egenfeldt-Nielsen, 2007). Simple, flash-based political simulations have received attention as well (Neys & Jansz, 2010). 2) An emerging body of research addresses the civic potential of massively multiplayer online role playing games (MMORPGs), which differ markedly from the first category in that they are not primarily designed to simulate civic processes. Researchers have suggested that these MMORPG environments, which involve simultaneous play with thousands of other gamers in a persistent world, may offer a useful "third place" (i.e., beyond home and school) for civic development (Curry, 2010; Steinkuehler, 2005), and may help develop collaboration and leadership skills (Jang & Ryu, 2011; Whitton & Hollins, 2008). 3) Several efforts have been made to build and study customized non-commercial educational gaming environments (Barab et al., 2007; Gaydos & Squire, 2012). One of the most well-known of these is *Quest: Atlantis*, which aims to develop ecological stewardship skills, but a number of other games have been produced by science educators in an attempt to help students better understand scientific processes and begin to see themselves as capable social actors.

For its part, *Evoke* fits best into the last of these three categories, given that it is a customized, non-commercial game environment designed to achieve citizenship-relevant outcomes. However, as will become clear below, *Evoke* looks drastically different from anything else in this category, due to the fact that it is an alternate reality game.

What are Alternate Reality Games?

In order to properly situate *Evoke*, it is necessary to say something about alternate reality games (ARGs), the emerging genre to which this game belongs. Unlike traditional video games, which usually provide a self-standing virtual environment, alternate reality games function by overlaying the "real world" with a fictional narrative (e.g., "People from the future have travelled back in time to hide a treasure in our time.") that enrolls the user in a series of tasks and puzzles (e.g., "Decoding this Web page will reveal GPS coordinates.") ('Alternate reality game', 2012; Bonsignore, Hansen, Kraus, & Ruppel, 2011; Kim, Lee, Thomas, & Dombrowsky, 2009). In a traditional computer game, these game elements unfold exclusively within the game world itself: the game's custom-made virtual environment presents users with a challenge that they then solve within that environment. In an ARG, however, the game elements take place in the alternate universe that is built by fusing "real life" with the game's narrative. Thus, if a player uncovers the hidden GPS coordinates on a Web page, they might go to the "real-life" location to obtain further clues.

The best way to understand the significance of this preliminary definition is to look at some actual examples of ARGs. There is a consensus that the first successful large-scale ARG was *The Beast*, a 2001 effort planned as a viral marketing campaign for the Steven Spielberg movie *Artificial Intelligence* (Askwith, 2006). The game offered two "rabbit holes," which are entry points designed to capture users' interest. First, the film poster contained an unexplained credit to Jeanine Salla, a "sentient machine therapist" (Szulborski, 2005). Second, the film trailer contained a hidden phone number that, when called, yielded the following phone message:

> Welcome, my child. Once upon a time there was a forest, that teemed with life, love, sex, and violence [...] It can be a frightening forest, and some of its paths are dark and difficult. I was lost there once—a long time ago. Now I try to help others who have gone astray. If you ever feel lost, my child, write me at thevisionary.net […]. (Quoted in Szulborski, 2005)

Accessing this website at thevisionary.net revealed that a person named Evan Chan had been murdered and that "Jeanine" was the key. Thus, both rabbit holes—the poster and the trailer with its linked website—led users to Google "Jeanine Salla," which in turn led them to a fictitious personal website for Salla, which had been set up by the game masters. This website was seeded with yet more clues, which sent users off and running through a series of dozens of websites, photographs, telephone calls, email messages, and video clips set up by the game masters ('The Beast', 2012). *The Beast*'s puzzles were extremely difficult, and a large 7,000-member online community, The Cloudmakers, sprung up in order to share information and cooperate in solving the puzzles (McGonigal, 2003).

A more recent example of a successful ARG is *Perplex City*, a 2005 game that had as its premise the unearthing of a valuable cube that had been buried on Earth by travelers from a parallel world. In order to find the buried cube and win a $100,000 prize, players had to solve an enormous number of puzzles that gradually unlocked the game story (Moseley, 2008). A novel element of *Perplex City*'s design was that although some of these puzzles were available on the Web in the manner of *The Beast*, other game elements were available only on collectible cards that could be purchased in game stores. *Perplex City* also required players to cooperate to solve some of its puzzles. In one particularly interesting example, "Billion to One," the card asked players to find the full identity of an unidentified Japanese tourist named Satoshi. All that was provided was a photograph, the name "Satoshi," and the instructions "Find me" (http://billiontoone.org).

In another challenge, Violet Kiteway, a character in the future world of Perplex City, revealed that she needed to become a "published author" to obtain access to a fictional library that would reveal important clues (http://perplexcitywiki.com). As a result, a group of players collaborated to create an actual collection of short stories, *Tales from Earth,* in which Violet Kiteway "published" a story. In the end, *Perplex City* enrolled over 50,000 players in 92 countries, who followed the saga of the hidden cube for more than two years. In 2007, the cube was finally dug up in Northamptonshire by a 38-year-old player who claimed the $100,000 reward (BBC News, 2007).

Entertainment is not the only niche that ARGs occupy; there is also substantial interest in using ARGs as educational tools, especially in higher education (Connolly, Stansfield, & Hainey, 2011; Whitton & Hollins, 2008). Alex Moseley (2008), an educational designer at the University of Leicester who was an enthusiastic participant in *Perplex City*, argues that ARGs offer the possibility to promote three outcomes that are highly relevant in higher education: student engagement, the development of problem-solving skills, and the building of communities of practice. Drawing on his own experiences as well as data collected from a survey of *Perplex City* players, he suggests that these outcomes could also be facilitated in an ARG that was customized for a higher education environment.

Some preliminary investigations have already been conducted along these lines. For example, Whitton, Jones, Wilson and Whitton (2012) detail an ambitious project called ARGOSI (Alternate Reality Games for Orientation, Socialisation, and Induction). In the ARGOSI project, the game designers used posters and stickers scattered around the campus as well as emails to lure students into the world of Viola Procter, a fictitious student "who had discovered a mysterious old letter and map fragment" and needed help to decode a variety of clues. The game, which began in 2008, was a joint initiative by Manchester Metropolitan University and the

University of Bolton, and was intended to help students learn to get around Manchester and work together. Unfortunately, very few students decided to go down the game's "rabbit hole"; Whitton et al. (2012) report that only five students became highly engaged in the game during its one-year run. Other endeavors have also been discouraging; Piatt (2009) reports similarly dismal results for an ARG-based orientation game on the ELGG platform. Still, the fact remains that the educational use of ARG technology is in its infancy, and it would be hasty to write it off based on these initial, disheartening results. As I explain in the following sections, *Evoke* was a far more sustained and well-financed effort then the projects described by Whitton et al. (2012) and Piatt (2009), and it elicited substantially higher player engagement.

What was *Evoke*?

It is probably easiest to present *Evoke*'s basic structure by beginning with the initial "rabbit hole" that the game offered to the players. The game opened with the following instructions, read out slowly by a stentorian African-accented voice:

> This is not a simulation. You are about to tackle real problems--food security, energy, water security, disaster relief, poverty, pandemic, education, human rights. Welcome to the Evoke Network. Welcome to your crash course in changing the world.
>
> What's an "evoke"?...An evoke is an urgent call to innovation…Every Wednesday at midnight, the network will send out a new evoke. How to respond to an urgent evoke:
>
> 1. Read the story
> 2. Investigate the story
> 3. Accept your mission (Evoke, 2010b)

The intent of these general instructions, which were read against a background of staticky sound effects, was clearly to make the players feel as though they were the recipients of a secret broadcast. They were, according to the game, now members of the shadowy but noble Evoke team, and they had to work in order to generate "ideas that have never been tried before" and "innovative solutions." They were informed that if they completed their mission each week, they would be certified as a "World Bank Institute Certified Social Innovator—Class of 2010." Players were also presented with a chance to win a trip to a Social Innovation conference in Washington, D.C. (Evoke, 2012b).

As the general instructions quoted above note, the first step each week for the player was to "**read the story**." [See Figure 1 for an outline of how *Evoke* assigned tasks to players each week]. The game introduced its storyline, as well as the basic ideas behind each educational "mission," through a weekly seven-page comic strip that tells a story about "The Network," a fictional secretive group of citizens that swoops in to help solve global problems [See Figure 2 for an example of panels from the comic].

In the first episode of the *Evoke* comic, entitled "Social Innovation," the year is 2020 and the Governor of Tokyo is panicking because the city is "down to their final month of rice reserves" (Evoke, 2010c). He calls upon the assistance of The Network, who, apparently, "solved the Maize famine of 2017" in Nigeria (Evoke, 2010c). Alchemy, the leader of The Network, makes a deal with the Governor and issues a call (an "evoke") for the team to come to Tokyo and deal with the rice famine. The Network members are enthusiastic—for them, the rice famine constitutes an opportunity to make money and help the world at the same time. As he boards a helicopter, one Network member comments, "I think we'd better move fast to corner the market in Tokyo. Maybe [others aren't interested in it yet], but once we show the world the enterprise potential, everyone will be fighting for a slice" (Evoke, 2010c).

Once The Network arrives in Tokyo, they inform the Governor of the terms of the bargain: "Our specialists will handle your food shortage, but everything is off the books. You'll quietly facilitate local resources and access to public land, we'll provide

the imagination" (Evoke, 2010c). In exchange, the Network will provide Tokyo with the capacity to have "fresh fruits and vegetables every day of the year." "We'll keep 50% of the profits," Network leader Alchemy informs the Governor, "and you can take all of the credit" (Evoke, 2010c).

Once the game players had "**read the story**" in this initial episode of the comic, they were assigned to "**investigate the story**." In this particular part of the assignment, the game informed them that there were "thirteen secrets to Episode One" (Evoke, 2010d). As it turned out, in the context of the game, these "secrets" were questions that drew on things that are mentioned in the first episode. One question was "What is a Harajuku girl?" while another (perhaps somewhat more topical but rather less interesting) was "What is food security?" (Evoke, 2010d).

Once the "**investigate the story**" aspect of the assignment was complete and the players presumably understood more about the subject matter of the episode, they were assigned to **"accept [their] mission."** In the case of the first episode, the game provided players with the following mission instructions:

> Congratulations. You're off to a good start…Now you must go further. You're ready for your first mission. You're ready to become a social innovator.
>
> Social innovators invent creative solutions to the world's biggest problems.
>
> We don't wait for someone else to change the world. We do it ourselves.
>
> Your mission this week:
> Master the mindset of a social innovator. (Evoke, 2010e)

As was the case for all of *Evoke's* ten weekly episodes, the mission section of the assignment was broken down into three facets: Learn, Act, and Imagine. If the player completed one of the three facets, they received credit for the week; if they completed all three facets, they received "legendary credit" (Evoke, 2010b).

In the case of the social innovation episode, the Learn component of the mission consisted of reading a blog post: "Innovation in Africa Tips." The "33 secrets" contained in this blog post include a number of insights such as "Think like a child – children have no limit to their thinking," and "Keep learning from your customers" (Design in Africa, 2008). In order to earn credit, the players were assigned to "pick your favorite secret and share it in a blog post" (Evoke, 2010f).

The Act phase of the social innovation mission asked players to "choose a hero to shadow"—the hero, in this case, being a real-life social innovator of some sort (Evoke, 2010g). Players were encouraged to go to a variety of websites that listed brief biographies of social innovators. They were then asked to friend the innovator on Facebook, follow them on Twitter, and subscribe to the innovator's blog. To receive credit for this shadowing activity, the players were required to document it in a blog post.

The third phase of the mission—Imagine—offered the following instructions: "Imagine your best-case scenario future. Where will you be living in 2020? What will you do with your days? How are you changing the world on a daily basis?" (Evoke, 2010h). Players were assigned to write a blog post about "where you are and what you are doing when Alchemy calls YOU to help with the Tokyo food crisis" (Evoke, 2010h).

Throughout its ten-week cycle, Evoke repeated the same structure—read the story, investigate the story, complete the mission (learn, act, and imagine). The topics of each story and mission varied—the other weekly episodes of the game were dedicated, respectively, to food security, sustainable power, water shortages, the future of money, empowering women, urban resilience, indigenous knowledge, crisis networking, and the future of *Evoke* (Evoke, 2010c).

Beyond its basic structure, the game also integrated a number of intriguing social elements. All *Evoke* players had to create personal profiles, which

showed their picture and listed their current number of *Evoke* points. Players were also allowed to award points to each other—if a player liked the blog post of another player, they could +1 it, and the other player would then receive an extra point. These points were at least somewhat relevant, since *Evoke* had a leaderboard that continually updated the players on their respective rankings.

It should be noted, however, that the number of points did not determine the winner of *Evoke*. In order to win, players were needed to first fulfill the prerequisite of completing all the missions. Beyond this, though, they also needed to create an "Evokation," a social innovation project that, if selected, would receive either a scholarship to attend the *Evoke* summit in Washington, D.C., a mentorship with an experienced social innovator, or seed funding of $1000 (Evoke, 2010j).

Assessing the Results of *Evoke*

A reasonable place to begin assessing *Evoke* is to see how well the game did in meeting its own considerable objectives.

Given that this was a well-funded and highly organized project, it is not surprising that the *Evoke* team saw their task at least partly in terms of quantitative targets. In a "Behind the Scenes" post on the *Evoke* blog, the team posted the following data:

Table I

Evoke Participation Targets and Results

User category	Target Number	Actual Number
Visitors	87,500	177,673
Registered	6,875	19,324
Active	700	4,693
Certified	70	223
Evokation completion	7	74

(Evoke, 2010l)

There are several striking elements within these results. First, given that the World Bank spent half a million dollars on this project, these initial targets are surprisingly modest in certain respects. Although registered player targets are high, the visitor, active player, and certified player totals are low. Despite offering a high-production-value game and valuable prizes, the team anticipated that they would certify only 70 people and receive 7 Evokation proposals. This appears to be a low estimated yield; given the game's overall budget, the cost per Evokation proposal works out to $71,000!

Second, although the number of visitors and registered players is impressive, the number of certified players and Evokation-completing players is less so. Considering that half a million dollars was spent to create a video game that was completed by only 223 players, it could be argued that this was not an especially successful endeavor. Furthermore, as noted above, only a modest effort (one small learn/act/imagine task for each of ten weeks) was required to achieve completion. Thus, one could be a "certified" player and be only modestly invested in the game, and the low numbers of certification should be viewed with greater scrutiny in light of this fact. Moreover, the number of completed Evokations is unimpressive, especially given the valuable prizes on offer.

That said, the *Evoke* team nevertheless managed to develop a fairly vigorous community on the site. Although it is unclear what the team means when they write that 4693 users were "Active," the fact remains that throughout the game's ten-week run, the *Evoke* site was often vibrant, with an engaged community of users regularly going on quests, blogging, and +1ing each others' posts. The designers highlighted this fact for the players by integrating an activity feed. As game designer Jane McGonagall remarks, "It added a level of transparency to how many people were actively playing; throughout the entire 10 weeks, we averaged a 25-minute cycle in which the activity feed entirely replenished itself" (Evoke, 2010l).

Turning from *Evoke*'s global quantitative results, it is also instructive to look at some of the winning entries in the Evokation contest, given that these were, in a sense, the crowning achievements of the most dedicated *Evoke* players.Many of these attempts at social innovation, albeit well meaning, seem neither realistic nor well thought out. Take, for example, Re-Buffalo, an initiative to renew Buffalo, NY:

> Buffalo needs a new paradigm for solving our problems and steering a course for the future. ReBuffalo.org will give anyone with Internet access the ability to submit content and learn about innovative ideas and concepts from the worlds of academia, politics, and community activism, and it will provide an "ideagora" (see http://en.wikipedia.org/wiki/Ideagoras) that is available to anyone and everyone who has an interest in the future of Buffalo. (Wallace, 2010)

This, it must be said, was an entry that was awarded Evoke's top prize. Today, all that remains of Buffalo's "new paradigm" is a disused Facebook page and Twitter feed. Some of the winning projects were more realistic (e.g., a proposal to fund an experimental orchard in India designed to replace monocropping), but the majority appeared to be poorly specified and unlikely to succeed.

However, it may be unjust to judge *Evoke* by the projects that were proposed. After all, the game was an educational project, and the desired outcome was not the production of polished final projects, but rather the promulgation of a particular message. The game's creators explain:

> EVOKE was […] conceived as a crash-course in changing the world. It is a chance to showcase the kind of resourceful innovation and creative problem-solving that is happening today in sub-Saharan Africa and other developing regions, and to collectively imagine how the lessons from those scenarios can transfer, scale, and ultimately benefit the entire planet. (Evoke, 2010a)

For *Evoke's* dedicated players, this message seemed to resonate. The Evokation projects and the substantial number of active users on the site demonstrated that *Evoke* did, in fact, get a substantial number of people excited about social innovation. The game empowered at least some players to feel that they could begin taking action that would improve the situation of both themselves and those around them, and they consequently began to apply the alternate reality created by *Evoke* to their own local realities.

Yet the application of the alternate reality was not always unproblematic. Consider the following example from the "Thoughts and Ideas" section of *Evoke.* User Emile Jansen writes:

> Almost every day I see at least 10 homeless people on the street and the thought that comes to my mind is that they are humans like you and me and are spending day after day doing nothing. What if we could find a way of using this unused manpower [...] unfortunately I don't have any ideas yet. (Evoke, 2010m)

This question received the following response from Gary Wood, for whom the proverbial invisible knapsack of white privilege appears rather full:

> I've seen some resourceful homeless people who would do menial tasks like shine shoes for money. So the accountability issue is resolved and they are getting money. Most places with homeless people have a trashy feel to it. But to have my shoes shined by a homeless person actually gave the place a more classy feel to it. […] We aren't aware of what skills a homeless person may possess, but I'm positive all of them could do some cleaning and make their areas appear classier and nicer. (Evoke, 2010m)

The thread continues on a more encouraging note with a response from Katherine Morrison:

> Here's my idea, shelters+rooftop/community gardens. What if every homeless shelter had a rooftop garden or community garden? Those homeless needing help could be given workshops by volunteers, taught the necessary skills to cultivate food, be given a plot in the community garden […] (Evoke, 2010m)

It is in the discussion of issues like this where the potential educational strength (and, in a very significant sense, the weakness) of alternate reality games becomes clear. With conventional video games, users are immersed in a virtual realm. Granted, they bring with them all of their values and experiences, but while enclosed within the virtual space, they act only upon the simulated environment which it provides. This interaction generates new experiences that will undoubtedly affect subsequent experiences in conventional reality, but given that these experiences take place in the realm of the simulation, they will often be discounted when players return to the realm of the real. "After all," they will reason, "it was just a game."

In contrast, the potential effects of ARGs are not nearly so indirect. If successful, ARGs force users to interface directly with the real world through a lens created by the game masters. The experiences that result are tinged by the overlay of the alternate reality, but nonetheless take place in the real world. When one conducts research or acts on the real environment at the behest of the ARG's directives, the resultant experiences will probably appear more significant and genuine. For example, when one acts on the world to promote social enterprise, the action cannot be discounted or disavowed as merely virtual, as would be possible in a game. Thus, if successful, a game like *Evoke* could potentially mobilize an indifferent user to engage in direct social action, and to understand and endorse the philosophy behind the action.[1] This potential is particularly significant for higher education, because compared to K-12 populations, university students are more likely to possess the intellectual and social capital required to effect social action.

Conclusion: Some Remarks on *Evoke's* Underlying Philosophy

This potential for direct educational impact raises the question of whether the social action being promoted is worthwhile. *Evoke* is dedicated to spreading the gospel of social innovation, which is, in essence, that one can create positive social change through entrepreneurial endeavors that both do good and make money. This is exemplified in the first episode summarized above, and even more sharply in the story in Episode 4, "Water Crisis," in which catastrophic floods have brought London to the verge of a cholera epidemic. Entrepreneur Quinn, part of The Network, is on the phone with his friend Mikkel, trying to convince him to donate some water purifiers:

1 As revealed by Gary Wood's post that homeless people should "make their areas appear classier" (Jansen, 2010), the social tools being distributed are subject to the weaknesses of their wielders. One of the advantages of a traditional game environment (as opposed to an ARG) is that game designers have much more control over the actions that users are allowed to take.

> If you look at the climate predictions, London's going to see more floods like this […] In ten years, personal water purifiers are going to be an **absolute necessity** for every low-lying city on Earth. Mikkel, this is a **unique opportunity** to position yourself as the **brand** the world trusts for safe water […] Yes, I'll hold. But in 30 seconds I'm on the phone with **Kamen** to give **him** the exclusive. (Evoke, 2010b)

In the world of *Evoke*, an impending cholera epidemic is not just a humanitarian crisis, but also a great moneymaking opportunity!

For anyone who is remotely skeptical about the ideology behind *Evoke,* this example should raise serious concerns. Is nimble capitalism really the solution to serious social ills, or is more radical change needed? Although social enterprise is more humane than naked exploitation, it may not be nearly as powerful a tool for social change as *Evoke* claims. As its episodes repeatedly demonstrate, *Evoke's* ideology is one in which government appears ineffective and powerless, while homegrown, market-based solutions are cheap, democratic, and transformative. Although market based solutions undoubtedly have some potential, one could argue that touting social enterprise as a panacea serves to distract from the more fundamental structural reforms that are needed to address social and environmental challenges—wealth redistribution, for example.

Nevertheless, this case study is not the place to resolve this difficult question. For those who believe in the World Bank's gospel of social innovation, in which one saves the world by simultaneously doing good and making money, *Evoke* is a flawed but potentially transformative evangelical tool. For those who are more agnostic about social innovation, a group to which I belong, *Evoke* will appear less alluring. And this highlights an important question: Once we get beyond the question of whether a game can be a useful educational tool—and in the case of *Evoke*, my answer is a cautious "Yes"—we must deal with the question of whether the education being delivered is appropriate. This question, which is often neglected, is one that we should be asking much more frequently about educational games.

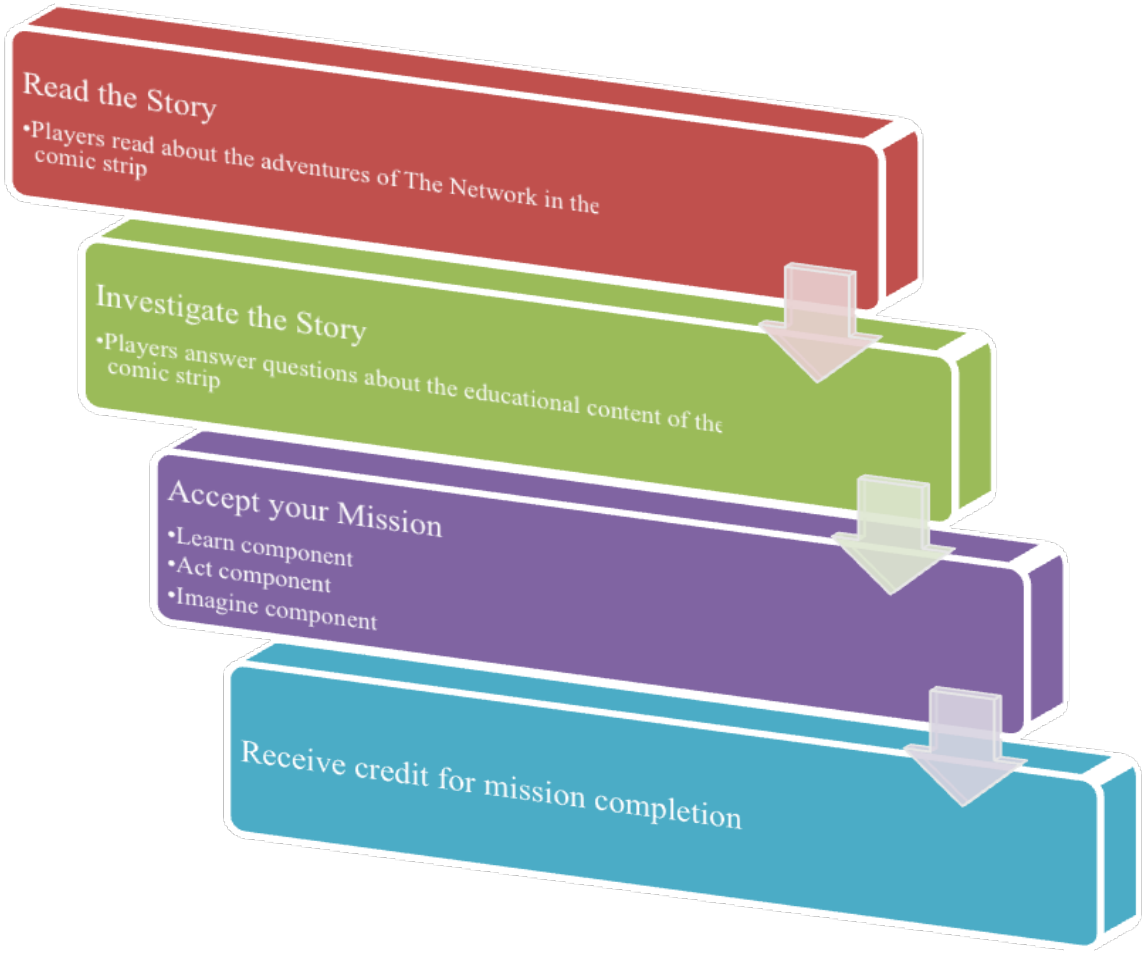

Figure 1: Evoke Assignment Structure

Figure 2: Evoke Comic Panel, Episode 1, Page 1

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IJTHE • RITPU

Student evaluation of teaching enhances faculty professional development

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Abstract

This paper highlights the role of Web 2.0 technologies in sourcing ongoing information from university students in an effort to assist faculty in their continuous professional development (PD), with the ultimate goal of incrementally improving teaching and learning. On a semester basis, students use an online program called CoursEvals to provide their opinions about the course and its instructor. The collected data are used to inform the content and delivery of faculty PD workshops. The interactive nature of CoursEvals, with Web features that facilitate information sharing and interoperatibility with Blackboard, a learning/course management system, make it ideal for impacting higher education. Students can complete student evaluation of teaching (SEOT) online from any location (university, home, mobile, or overseas). This paper underscores the interactive nature of the feedback process that allows faculty, administration, policy makers, and other stakeholders to participate in the ongoing improvement of teaching and learning. We see how Web 2.0 technologies can impact the teaching/learning nexus in higher education, how online forums and Blackboard bulletin boards have helped popularize Web 2.0 technologies, how online social interactions have escalated through wikis, blogs, emails, instant messaging, and audio and video clips, and how faculty can retrieve their personal SEOT at any time and use the information to self- or pee-evaluate at their convenience. Faculty can compare their SEOT over time to determine stability and monitor their classroom effectiveness. They can also address reliability and validity issues and use the information judiciously without making unnecessary generalizations. Researchers will find useful information supporting the impact of Web 2.0 technologies in higher education.

Keywords

Web 2.0; technology, higher education, student evaluation of teaching, CoursEvals, computers

Résumé

Cet article met l'accent sur le rôle des technologies du Web 2.0 dans la recherche permanente d'information auprès des étudiants à l'université pour appuyer les professeurs dans leur perfectionnement professionnel (PP) continu, dans le but ultime d'améliorer progressivement l'enseignement et l'apprentissage. Chaque session, les étudiants utilisent un logiciel en ligne appelé CoursEval pour donner leur avis sur le cours et sur le professeur. Les données collectées servent à alimenter le contenu et le déroulement des ateliers PP. La nature interactive de CoursEval – dont les fonctionnalités Web facilitent le partage de l'information et l'interopérabilité avec Blackboard, un système d'apprentissage/gestion de cours – en fait un outil idéal pour assurer un impact sur l'enseignement supérieur. Les étudiants peuvent remplir une évaluation de l'enseignement par les étudiants (EEPE) en ligne, n'importe où (à l'université, chez eux, sur leur portable, à l'étranger). Cet article souligne la nature interactive du processus de rétroaction qui permet aux professeurs, aux administrateurs, aux décideurs et autres intervenants de participer à l'amélioration continue de l'enseignement et de l'apprentissage. Nous observons comment les technologies du Web 2.0 peuvent avoir un impact sur le lien entre l'enseignement et l'apprentissage dans l'enseignement supérieur, comment les forums en ligne et les babillards Blackboard ont mis les technologies du Web 2.0 en vogue, comment les interactions sociales en ligne ont augmenté par le biais des wikis, des blogues, des courriels, de la messagerie instantanée et des extraits vidéo et audio, et comment les professeurs peuvent accéder à leurs EEPE en tout temps et utiliser l'information pour l'autoévaluation ou l'évaluation des pairs comme il leur convient. Les professeurs peuvent comparer leurs EEPE au fil du temps pour en déterminer la stabilité et contrôler l'efficacité de leurs classes. Ils peuvent aussi traiter les questions de fiabilité et de validité, et utiliser l'information judicieusement, sans faire de généralisations inutiles. Les chercheurs trouveront des informations utiles confirmant l'impact des technologies du Web 2.0 dans l'enseignement supérieur.

Mots clés

Web 2.0 ; technologie ; enseignement supérieur ; évaluation de l'enseignement ; CoursEvals ; ordinateurs

Introduction

Since the 1950s, educational technology research has been debating the pros and cons of the usefulness of computers in enhancing the teaching/learning nexus. After five decades, the time has come to evaluate the impact of Web 2.0 technologies in enhancing the teaching/learning nexus in higher education (HE). A quick glance at a tag cloud, word cloud, or weighted list with Web 2.0-related terms reveals the multiplicity of common uses of Web 2.0 technologies. Blogs, folksonomy, wikis, audio, video, mashups, hosted services, Web standards, standardization, RSS, CSS, microformats, accessibility, podcasting, social software, sharing, collaboration, perpetual data, and AJAX are just a few of the many terms displayed in the Web 2.0 tag cloud. This visual representation provides some idea of the significant impact Web 2.0 technology continues to have on HE.

Web 2.0 was first used in January 1999, at the close of the 20th century, by an information architecture consultant. The term "Web 2.0" is considered to be the one millionth English word, according to Global Language Monitor, a US Web monitoring firm that searches the Internet for newly formed words and recognizes those that have been used at least 25,000 times. The first Web 2.0 conference was hosted in 2003. The focus was on software applications being built on the Web as opposed to the desktop, representing a migration from customer consumption to customer creation. In other words, participants on a Web 2.0 site operate as prosumers rather than consumers. This means that participants are creators, and not merely passive recipients of-

content that was already created for them. They generate content in the form of ideas, text, videos, audios, pictures, and so on.

Shirky (2008) posited that the key characteristic of all these social media practices is "mass socialization," whereby the power of the collective actions of online user communities rather than individual users is harnessed. Social media are Internet applications characterized by openly shared digital content that is authored, critiqued, and re-configured by many users. This allows users in higher education settings to converse and interact with each other in order to create, edit, categorize, label, recommend, and share new forms of textual, visual, and audio content. Tapscott and Williams (2007) affirm that young people "are not content to be passive consumers, and increasingly satisfy their desire for choice, convenience, customization, and control by designing, producing, and distributing products themselves" (p. 52).

Halpin and Tuffield (2010) contend that, from the outset, "The Web has always been social." As far back as the early 1970s, Shirky claimed that Internet applications allowed users to exchange messages with each other, maintain personal profiles, curate lists of 'friends', and write blog-like journal entries. Moreover, he insists that the current generation of social media applications is completely distinct from those of the earlier Internet in terms of scale of use. He elaborated that contemporary social media are used by hundreds of millions of users: Facebook's figure exceeds 500 million, contrasting sharply with the Web tools of even ten years ago. Shirky further asserts that "the social media of the 2010s now boast a sufficient critical mass of users and applications to be of genuine collective benefit and social significance" (p. 2). Christakis and Fowler (2009) concur that "As part of a social network, we transcend ourselves for good or ill and become a part of something much larger" (p. 30).

Subrahmanyam and Šmahel (2011) observed that social media are associated with an increasing tendency for young people to multitask, to rely on a 'digital juggling' of daily activities and commitments. Shirky observed that social media technologies are also associated with enhanced social autonomy, since young people now have greater "control over the nature and form of what they do, as well as where, when and how they do it" (p.2). By extension, Web 2.0 technologies allow users enhanced capacity to self-organize and provide for themselves, thereby empowering them significantly.

Today, faculty can connect with their students in higher education settings, especially when they use social networking sites to support the university lifestyle through online interactions with peers and faculty (Yu et al., 2010). The university studied by Yu et al. maintains profiles and groups on its Facebook site, where students and faculty interact as they share resources and express opinions on various facets of the courses being offered. This partially confirms Mason and Rennie's (2007) observation that "shared community spaces and intergroup communications are a massive part of what excites young people and therefore should contribute to [their] persistence and motivation to learn" (p. 199).

The business models of Netscape and Encyclopedia Britannica Online are associated with Web 1.0: the makers created software, updated it periodically, and distributed it to end users. In contrast, Web 2.0 models, such as Google and Wikipedia, focused respectively on linking Web pages and providing perpetual, ongoing information from contributors.

The following figure illustrates some ways in which Web 2.0 differs from Web 1.0.]

Web 1.0		Web 2.0
DoubleClick	-->	Google AdSense
Ofoto	-->	Flickr
Akamai	-->	BitTorrent
mp3.com	-->	Napster
Britannica Online	-->	Wikipedia
personal websites	-->	blogging
evite	-->	upcoming.org and EVDB
domain name speculation	-->	search engine optimization
page views	-->	cost per click
screen scraping	-->	web services
publishing	-->	participation
content management systems	-->	wikis
directories (taxonomy)	-->	tagging («folksonomy»)
stickiness	-->	syndication

Source: http://oreilly.com/web2/archive/what-is-web-20.html

Figure 1: Comparison of Web 1.0 and Web 2.0

Student Evaluation of Teaching

For the past century, higher education institutions have asked students to submit their evaluations of courses (d'Apollonia & Abrami, 1997; Dommeyer, Baum, Chapman, & Hanna, 2002; Layne, DeCristoforo, & McGinty, 1999; Richardson, 2005; Shevlin, Banyard, Davies, & Griffiths, 2000). The main objective was to get students' feedback on teaching and instruction (Centra, 1977, 1993; Cohen, 1981; Koon & Murray, 1995; Marsh, 1984; 1987; Marsh & Dunkin, 1992; McKeachie, 1990; Murray, Rushton, & Paunonen, 1990; Ramsden, 1991; Seldin, 1984; 1993). Marsh (1987, 2007) emphasizes the validity of student evaluation of teaching due to the established relationship between perceptions of course effectiveness and actual learning outcomes.

Traditionally, students' have used paper-and-pencil formats to evaluate teaching. Yet this technique [gives rise to] many biases, such as not incorporating the ratings and opinions of absentee students who did not fill out the questionnaire the day it was administered (Becker & Watts, 1999; Layne, DeCristoforo, & McGinty, 1999). In addition, the teacher is usually present during the evaluation, resulting in potential bias (Layne, DeCristoforo, & McGinty, 1999). In light of this, an online system of student evaluations may provide higher education institutions with a number of potential added values over the paper-and-pencil method.

Study Context and Research Objectives

The main priority of the Caribbean National University is to provide students with effective teaching, research, and development programs for socioeconomic and technological development in a high-quality learning environment. This entrepreneurial institution was established to keep pace with the growing industrial needs of the country. Its vision is to equip its graduates with metaskills to enable them to take the helm in using and developing new and emerging global technologies. Accordingly, university would be prepared to start and maintain companies for sustainability and overall enhancement of the lifestyle of the general populace. In keeping with its vision and mission, the institution offers a range of certificates and diplomas as well as undergraduate, graduate, and professional education courses in a variety of programs, including education, engineering, information and communication technology, biomedical sciences, agriculture and food technologies, performing arts, maritime studies, fashion and design, criminology, health administration, and sports management. In an attempt to achieve the highest quality of learning experience that promises to revolutionize the way citizens achieve the aforementioned goals, each student is invited to evaluate both the course and its instruc-

tor through the medium of online student evaluation of teaching (SEOT). Students are expected to truthfully express their views in an atmosphere of confidentiality and anonymity regarding the organization and effectiveness of the curriculum and its delivery.

In support of the university's goal to deliver programs of the highest quality that connect learners and teachers in an interactive learning community, a learning center was established, with responsibility for all teaching and learning activities at the university.

Continuous monitoring of teaching and learning activities requires ongoing feedback from students through a centralized SEOT system designed to standardize activities across the various programs. Using SEOT feedback, the center provides professional development (PD) opportunities intended to prepare faculty to teach in a networked world, effectively utilizing both virtual and physical learning environments equipped with the required technological infrastructure.

Supporting learners across its several campuses and satellite stations through videoconferencing and WIFI facilities, the learning center utilizes a range of state-of-the-art Web 2.0 technologies in HE as a core feature of its operation. The university provides wireless access across its many campuses to support mobile applications. It continually liaises with the information and communication unit to support online electronic communities inside and outside the country with a range of services, particularly social computing technologies.

This gives rise to a number of compelling questions:

- How has the use of social computing technologies impacted student learning and teaching at this university?'
- In what ways are instructors using Web 2.0 to engage learners within and outside their classrooms?

The center's activities range from delivering asynchronous and synchronous courses by means of distributed delivery and face-to-face teaching to supporting online forums and Blackboard bulletin boards. The center's instructors demonstrate how online communication can be leveraged through videoconferencing, social networking, wikis, blogs, emails, webinars, instant messaging, and audio and video clips. Web 2.0 technologies are made available in learning spaces that encourage innovation and entrepreneurship in an ever-changing technological environment.

Student Evaluation of Teaching (SEOT) System

SEOT is a uniform, university-wide system for student feedback on academic instruction for all its programs. SEOT is an integral part of the cyclical educational process. It incorporates all the areas of curriculum, pedagogy, learning, and assessment, because it requires respondents to give feedback on not only the areas, but also the processes involved.

Regardless of academic rank, the teaching performance of all faculty members is subject to evaluation by self, peers, and students. Accordingly, SEOT is administered in every course section at the university every time a course is offered, which would have been excessively inefficient without Web 2.0 technologies.

SEOT is considered part of an overall teaching evaluation system, which includes ongoing faculty self-assessment, peer assessment, and student assessment. At the core of all SEOT operations is the Web, which generates valid and reliable data for personal and institutional use. Prior to 2009, individual programs used their own evaluation instruments and retained their results independently. A paper-based software called *Remark* and a web-based software called CoursEvals were simultaneously piloted in 2009. Both software applications may also be used for a variety of surveys other than SEOT. The aim was to transition all programs online, since the paper-based procedure was time-consuming and un-

sustainable. Nevertheless the paper-based option proved expedient for campuses that were experiencing connectivity issues at that time.

This university-wide SEOT ensures that students have an optimal learning experience: instructors are advised about the effectiveness of their teaching, and they receive ongoing suggestions for improvement. Additionally, administrators and other stakeholders are informed about the overall quality of courses and instructor performance. To summarize, the major goals of the SEOT are to:

- promote continuous improvement in students' learning experience
- promote continuous integration of new ideas and effective pedagogy into courses, programs, and curricula
- encourage and support both scholarly teaching and the scholarship of teaching and learning through continuous feedback
- develop, implement, and assist in novel instructional approaches and methods
- cultivate an institutional climate that values, rewards, and renews teaching excellence
- provide the university with information about the quality of learning and teaching
- provide the university with additional information for merit, salary, and promotion decisions.

Mandatory for all university courses and student-centered, the online SEOT instrument comprises statements for which students rate their degree of agreement: strongly agree, agree, neutral, disagree, and strongly disagree. The statements are organized into two categories: course and instructor. The nine course statements address the **clarity and achievement of learning objectives** ("The learning objectives of this course were largely achieved," "The learning objectives of this course were made clear at the beginning of the semester"); **deeper understanding of the subject matter as a result of the course** ("I have a deeper understanding of the subject matter as a result of this course"); **organization of the course** ("The course was well organized"); **use of a variety of instructional aids** ("A variety of instructional aids were used to help internalize the course content (e.g., reference materials, online resources, field visits, laboratory work, handouts, activities, etc.)"); **pace of coursework** ("The course was paced in a reasonable manner to facilitate the learning process"); **variety of assessments** ("Various forms of assessment were used to arrive at the final grade (for example, essays, examinations, quizzes, group work, projects, assignments, self & peer assessment, etc.)"); **relationship of assignments and examinations to course content** ("Assignments and exams were related to course content"); and **recommendation of the course to others** ("I would recommend this course to other students").

In addition to these closed-response statements, three open-ended questions ask students to write what they liked best about the course, what they liked least about the course, and recommendations for improvement along with additional comments about the course. Seven instructor statements address **preparation for the class** ("The instructor was well-prepared for class"); **clear and effective instructor presentation** ("The instructor presented content clearly and effectively"); **instructor treatment of student with respect** ("The instructor treated me with respect, and was pleasant and approachable"); **instructor availability** ("The instructor was readily available to students outside of class"); **instructor use of a variety of teaching techniques to appeal to different learning styles** ("A wide variety of teaching techniques were used to appeal to different learning styles"); **fair award of grades** ("Grades were awarded fairly"); and **useful and timely feedback on all examinations and assignments** ("Useful and timely feedback was provided on all exams and assignments"). Three open-ended questions address instructor strengths, areas for instructor improvement, and additional comments about the instructor.

Respondents can complete the SEOT online from any location (university, home, mobile, or overseas) using Web 2.0 technologies. One significant impact

is that a smaller number of full-time employees (FTE) are required to process the SEOT compared with paper-based evaluations (.75 FTE year-round online; 3 FTE year-round paper-based). For the institution, this represents a net saving that can be deployed to other areas. The university's student information system (SIS) Jenzabar is premised on Web 2.0 technology, with links to the SEOT online course evaluation system (CoursEvals).

The identical items are reformatted to allow self-evaluation and peer evaluation. Both forms of evaluation allow instructors to continuously improve their teaching practice. These Web 2.0 technologies have impacted the institution's image, as the university-wide SEOT was instrumental in the university's recent institutional accreditation.

Students who use SEOT are assured anonymity and/or confidentiality. They are encouraged to be honest and open about their assessments. Feedback on academic instruction contributes to personnel decisions and course adjustments. Students are informed of important announcements via Web 2.0 technologies. A set of color-coded general guidelines on SEOT administration is emailed, along with mailed hard copies, to program professors, campus administrators, instructors, and proctors. Each program in turn establishes specific procedures for distributing, administering, and collecting responses. The ultimate responsibility for implementing provisions and protocol and for preventing abuses rests with the academic administrators and program professors or their designates. Web 2.0 technological incentives are used to encourage student participation.

The organization and management of SEOT mandates the use of Web 2.0 technologies, particularly because staff members operate in a fast-paced working environment that requires several deliverables in a timely manner. For instance, the PD workflow flowchart was formulated with the use of Web 2.0 technologies. The response rate for online evaluations shows an overall percentage increase from 2009 to 2012, as shown in Figure 2.

Table 1

Summary of online SEOT student participation

	Semester 1 2011–12		Semester 3 2010–11		Semester 2 2010–11		Semester 1 2010–11		Semester 3 2009–10		Semester 2009–10	Semester 1 2009–10		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall participation		32		24		31		29		29		23		21
Participation in active courses		31.4		25.33		32		28.9		29.8		24.24		22.9
Total Number of courses	**1033**	100	**435**	100	**710**	100	**308**	100	**155**	100	**196**	100	**98**	100
Number of courses with zero participation	**39**	3.78	**30**	6.90	**42**	5.92	**42**	13.64	**16**	10.32	**16**	8.16	**13**	13.27
Number of courses with participation	**994**	96.22	**405**	93.10	**668**	94.08	**266**	86.36	**139**	89.68	**180**	91.84	**85**	86.73
Participation 50% and over	**200**	19.36	**200**	45.98	**150**	21.13	**63**	20.45	**40**	25.81	**15**	7.65	**150**	153.06

Source: University Records, 2012.

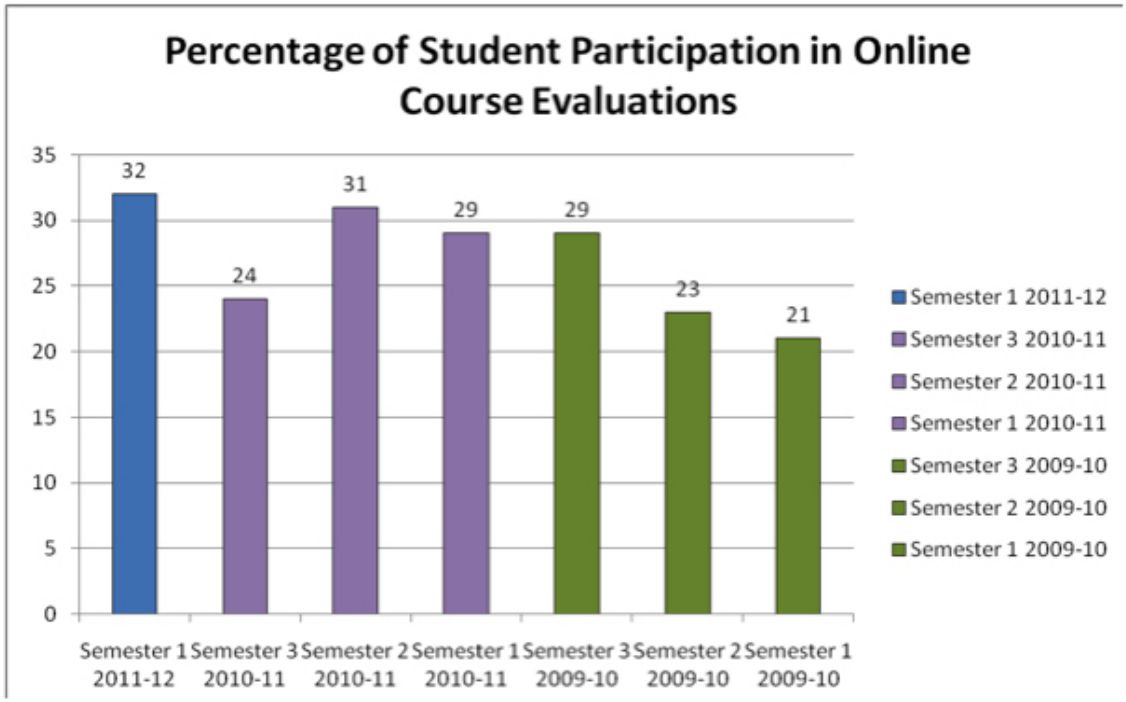

Figure 2 Source: University Records, 2012

The impact of Web 2.0 technologies in HE on data analysis cannot go unmentioned. The collected SEOT data could not be effectively analyzed without the use of Web 2.0 technologies, in the form of computer software packages such as CoursEvals (for online SEOT) and Remark (for paper-based SEOT). These software packages automate the process and allow generating reports of descriptive statistics, including but not confined to response rates, means, standard deviations, and bar graphs. It is understood that some evaluation datasets may be skewed for a number of reasons, including classes with very small numbers of students, evaluations with very low response rates, first-time courses given on an experimental basis, and faculty in their first years of teaching. Given that 50,000 SEOT for approximately over 800 courses must be prepared, distributed, administered, and reported for each semester, Web 2.0 technologies have been invaluable in accomplishing this feat.

Digital scans of open-ended comments are prepared for scrutiny, a herculean task were it not for Web 2.0 technologies. Instructors who require assistance are guided by their program professors or program coordinators and leaders, who can refer them to the learning center for one-on-one assistance. When SEOT reports fall below a collaboratively established acceptable threshold, the Learning Center uses Web 2.0 technologies to initiate communication with program professors, leading to overall personal improvement. Faculty can respond in writing to the program professor when student ratings are used for performance evaluation. These responses become part of a permanent SEOT record.

At the system's center is a helpdesk manned by an experienced, trained professor who spends quality time with each referral or walk-in instructor. Faculty members are strongly encouraged to seek assistance at any time for conducting their courses. The professor uses a range of Web 2.0 technologies: Skype, email, instant messaging, SMS, Flickr, Facebook, Twitter, LinkedIn, Internet searches, Google Maps, YouTube Videos, webcasts, webinars, Elluminate Live, Mobil Application updates, blogs, Wikis, and online journal access, among others.

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Elluminate Live, Mobil Application updates, blogs, Wikis, and online journal access, among others.

In order to scaffold learning and provide sound advice, particularly for effortful cognitive tasks that prove challenging to faculty, instructors also use applications such as OpenScholar (a software application and document management system allowing online entry and storage of biographical data, research projects, and other documents), Lecture Capture (to record and digitize lectures), Vimeo (an online platform for sharing and discovering video content globally: http://vimeo.com/), Prezi (a cloud-based presentation and story-telling software for idea sharing on a virtual canvas: http://prezi.com/), Google Drive, the new home for Google Docs (a collaborative online platform that allows users to create and upload documents rapidly and edit in real time: https://docs.google.com), SideSix (an online platform that specializes in responsive Web design: http://sidesix.org/), Slideshare (an online community presentation-sharing platform supporting pdfs, videos, and webinars: http://www.slideshare.net/), LinkedIn (a professional social networking website), Freebase (a large, online collaborative collection of structured data/metadata harvested from many sources: www.freebase.com), and pdfsam (for splitting and merging pdfs). Several faculty members also use smart phones with numerous online applications such as ChatON, iCloud storage, calendars, YouTube videos, iTunes, Google maps, News stand, Skype, audio books, Snapfish, Flickr, Face Dial, and many more to facilitate the SEOT-assessed teaching and learning process. Of note, Google maps provide accurate directions between the geographically separated campuses where faculty conduct face-to-face classes. Needless to mention, birthday, anniversary, and special events are announced online using Web 2.0 technologies, providing additional motivation to faculty as they engage in their daily work.

Faculty members are encouraged to respond to student ratings on their performance and use the information to improve the teaching and learning process. Comparisons between their self-evaluations and peer evaluations serve as reference points for further reflection and deliberation.

Mention must be made here about the archival potential and data storage capacity for SEOT thanks to Web 2.0 technologies. Prior to online SEOT, stacks of paper-based SOET had to be stored in spaces that could have otherwise been used as office space. The manpower involved in organizing and stacking bales of paper was phenomenal. With Web 2.0 technologies and online SEOT, years of information can be stored in the cloud and quickly retrieved when required.

Faculty and Staff Professional Development (PD)

Comments from the SEOT are used to plan and design PD workshops on an ongoing basis. Basically, program professors meet with faculty to discuss their SEOT results. When reports are acceptable, after all the variables relating to the faculty member have been collaboratively considered and no additional assistance is requested, PD workshops underscoring the principles the teacher used for successful teaching are proposed and retained for future reference. When there are shortfalls, and faculty need to hone certain skills, workshops are planned by the PD unit of the Learning Center. The process is iterative, and the workshops are continuously adapted to individual faculty needs. Editing, printing, and packaging workshop materials are some of the many activities that require Web 2.0 technologies. The Internet is a powerful source of information, providing much needed resource materials for effective workshops. All materials are properly sourced for copyright purposes and to provide easy referral and access by workshop attendees. Web searches, especially Google searches, are frequently used to retrieve relevant information for a variety of workshop topics. An array of shareware is also used as workshop resource materials. You Tube videos (both commercial and mash-ups) can help faculty internalize fundamen-

tal concepts pertinent to PD. Plans are underway to prepare self-made You Tube videos. Self-made PowerPoint presentations also use Web 2.0 technologies. Thus, Web 2.0 technologies continue to impact the delivery of quality materials for all faculty PD workshops. Social networking websites such as Facebook, Twitter, Myspace, Qapacity, Blauk, deviantART, Vox, LibraryThing, aNobii, Shelfari, weRead, GamerDNA, Playfire, Wakoopa, Epernicus, Advogato, Bebo. Google+, MEETin, Tagged, Kiwibox, Itsmy, MocoSpace, Ning, and Raptr, to mention a few, are used by workshop participants to communicate with each other about workshops and other issues.

The university hosts a website that facilitates connection to major social networking sites such as Facebook and Twitter. Microsoft PowerPoint, Prezi, and Slideshare are useful for presenting materials at workshops. Flickr, Picasa, digital media files (audio and video) downloaded through web syndication, webcasts, educational gaming, Google maps, and information from a variety of virtual learning environments and You Tube videos provide a rich source of resource materials for workshop delivery. Regular contact with professional colleagues is established and maintained through LinkedIn, a business-related social networking site launched in 2003. Intranet communication, email, online discussions with seeded discussion boards, and internal Web blogs allow faculty and staff to quickly communicate with each other on a range of matters, including PD workshops. Journal websites, educational shareware, and other library resources are used extensively for workshop preparation, particularly to appeal to the different learning styles (auditory, visual, kinesthetic, and combinations of these) of participants. All this has been made possible by Web 2.0 technology.

Over the past six years, the PD unit of the Learning Center has conducted multiple Problem-Based Learning (PBL) workshops for faculty and students, involving a total of 65 students and over 1,640 faculty and staff members. Overall average participant satisfaction ratings range from 86% to 98%.

All workshop materials are stored as hard copies and in digital format using shared computer space. Faculty and staff can readily access workshop materials due to the storage capacity of Web 2.0 technologies. Table 2 summarizes part of a slate of faculty professional development workshops for one semester. Without Web 2.0 technologies, it would be impossible to offer these workshops across the campuses located at different sites on the two islands.

Table 2

Summary of part of a slate of PD workshops for one semester

#	Workshop Title	Workshop Description	Campus
1	Still Shooting and Basic Photo Editing (Picasa & Photofile)	Basic "point and shoot" with a range of devices, including mobile phones and the incorporation of Picasa, Photofile, and other free online software.	2
2	Adding interest to your Blackboard course and enhancing communication 	Participants will learn to use the Discussion Board tool at each point in the lifecycle of discussions – from creating forums and threads to moderating, managing, and grading discussions. Participants will learn to use Blackboard tools to keep students informed about course events, send messages, and communicate effectively in real time.	4
3	Creating Effective PowerPoint Presentations	Hints for creating a successful presentation, effective PowerPoint slides, what NOT to do, text guidelines, a guide to using clip art and graphics.	3
4	Educational Uses of Social Networking Programs	The broad range of social media applications enables new forms of online interaction. They are suited for working together, supporting content creation, and sharing within your community. In order to transfer these opportunities to education, we will identify application scenarios and good practices, and we will discuss the opportunities and limitations of the tools and services for their effective use.	5
5	CV and Publication database: Scholar	An online resource that enables individuals to create their own personal websites.	1
6	Grade Centre and Student Groups in Blackboard 	Instructors will create groups and provide collaborative tools for students as they work together on group projects. Participants will also be introduced to the Grade Center tool (the online grade book), and will learn how to navigate the Grade Center and customize it for their needs.	4

#	Workshop Title	Workshop Description	Campus
7	Practical Tips and Safe Assign 	Participants will learn how to use Safe Assign ,Blackboard's plagiarism checker.	4
8	Adding interest to your Blackboard course and enhancing communication 	Participants will learn to use the Discussion Board tool at each point in the lifecycle of discussions – from creating forums and threads to moderating, managing, and grading discussions. Participants will learn to use Blackboard tools to keep students informed about course events, send messages, and communicate effectively in real time.	4
9	Podcasts	Creating a podcast allows instructors to share learning experiences. They can also use the technology to provide additional and revision material to students to download and review at a time that suits them. The flexibility that such time-shifting offers makes podcasting a valuable educational tool.	7
10	Enhancing Communication and Safe Assign in Blackboard 	Participants will learn how to use Safe Assign, Blackboard's plagiarism checker. Participants will also learn to use Blackboard tools to keep students informed about course events, send messages, and communicate effectively in real time.	4
11	Student Groups and Wikis and Blogs 	Participants will learn how to use Safe Assign, Blackboard's plagiarism checker. Participants will also learn to use Blackboard tools to keep students informed about course events, send messages, and communicate effectively in real time.	4
12	Social Media in your Campus Library	Specifically developed in reference to the Corinth Campus Library, this guide can be tailored to the various campuses to encourage the use of Social Media in the library, drawing on the ways in which other universities are using Social Media in libraries to interact with their students.	4

Source: University Records, 2012

Using Blackboard (Bb) for SEOT

SEOT information is disseminated in a timely way through the Learning Management System, Blackboard (Bb), which is used for all courses across the university. The Learning Center regularly conducts training courses to upgrade all faculty in Bb use as well as regular updates and new releases. Faculty use Bb to engage with their students on course matters, resource materials, updates, and many types of collaborative projects. At a minimum, course outlines, resource materials such as research articles, relevant Web links, visual resources, and other relevant data and information are posted on Bb. SEOT reminders are also regularly posted on Bb. Bulletin boards and online forums are used extensively to discuss various subject-related issues. The interactive nature of Web 2.0 technology allows faculty to be in constant contact with students on their desktops, laptops, or mobile devices. Students use a range of mobile devices, including iPhones, iPads, Pods, and a number of commercially available androids.

Teachers and instructors are given ongoing training in CoursEvals, Remark, and Bb using webinars organized by their respective training representatives. Elluminate Live is often used by some faculty for personal training at home and at universities abroad. A number of Web 2.0 technologies are also used by both faculty and staff at the university for personal PD. Some of the more commonly used features include Google Chrome, Google Chrome Sync, Internet searches (Google, Explorer, Firefox, Safari, etc.), Dictionary.com, Microsoft packages, (Word, Excel, PowerPoint, Publisher, Calendar), email, blogs, Wikis, and RSS.

A group of 21 graduate students enrolled in a Master's program in Industrial Innovation, Entrepreneurship and Management (IIEM) at our university used blogging to communicate their personal experiences during an international study tour in North America. As an integral part of the program, the tour provides the students with opportunities to study the operations of globally competitive businesses as they incorporate learning outcomes from their program, research, and business interests. The blog is accessible to all interested persons by logging on using Web 2.0 technologies.

The university introduced Bb as its course/learning management system in 2008 under the guidance of an advisory committee, of which this researcher was a member. Bb use has increased over the years, as shown in the following three figures, which were sourced from 2012 university records.

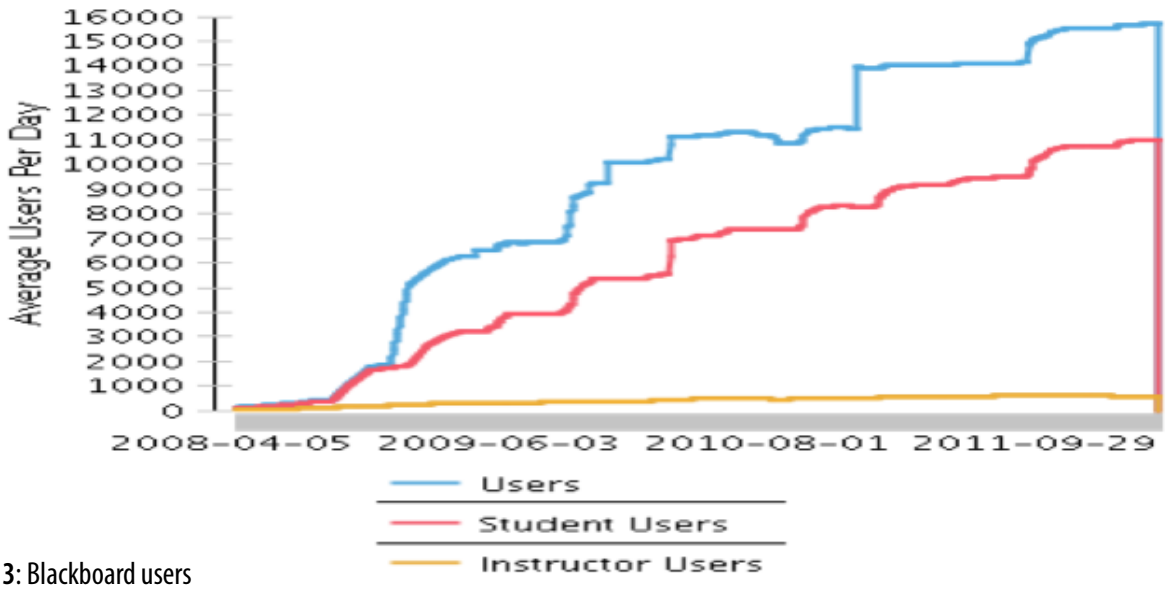

Figure 3: Blackboard users

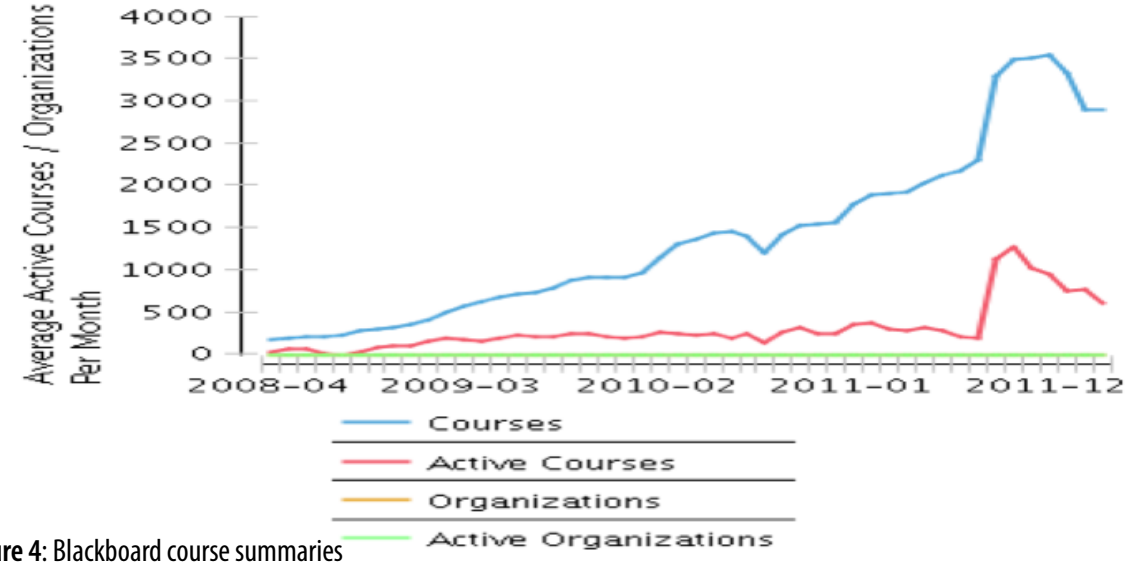

Figure 4: Blackboard course summaries

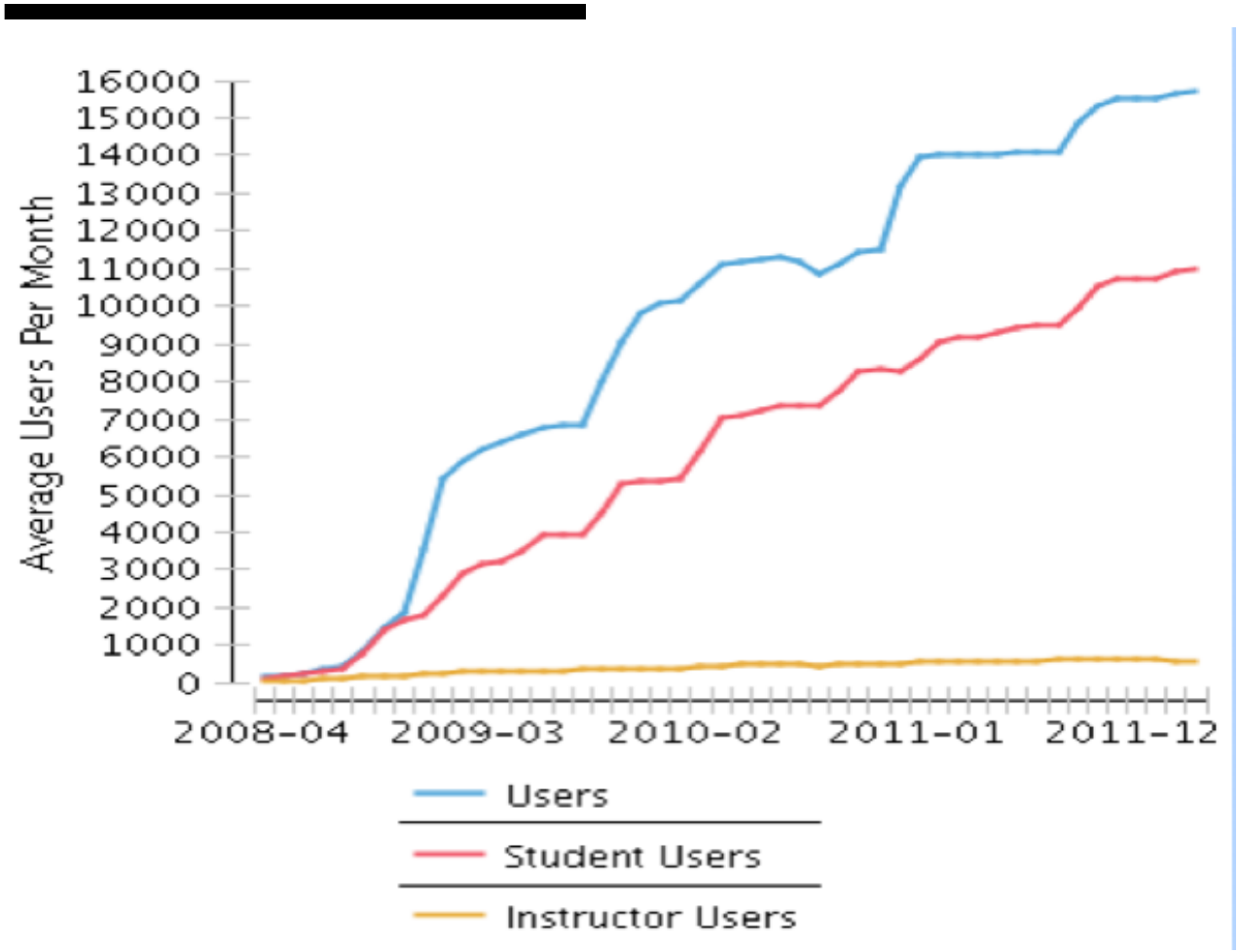

Figure 5: Blackboard course summaries

Since 2009, towards the middle of the first semester, the Learning Center has hosted an annual event called Five Minutes of Fame to showcase the impact of Web 2.0 technologies in the classroom for innovative teaching and learning. This occasion addresses the following SEOT item: "A variety of instructional aids were used to help internalize the course content." For instance, in 2009 the presentations included Learning Experientially – The way to go; The challenge to change; Involving students with "Life Skills" tasks and discussions when Bb is utilized; Using digital media to reinforce and enhance learning; and Using social networking sites to supplement Bb: Students' experiences and lesson learnt. All presentations are Web-linked for archival purposes, again made possible by Web 2.0 technologies.

Conclusion

This paper highlighted the growing role of Web 2.0 technologies in sourcing ongoing information from university students in an effort to assist faculty and staff in continuous PD, with the ultimate goal of incrementally improving the teaching and learning experience. An overview of Web 2.0 technology and SEOT underscored the significant role of Web 2.0 technology at the university. Details of specific Web 2.0 technologies in use were highlighted, along with their contribution to enhancing faculty and staff PD for lifelong sustainable learning and overall personal growth. Some of the Web 2.0 technologies mentioned included Wikis, email, SMS, RSS, blogs, social networking, videoconferencing, webinars, audio and video clips, SharePoint portal, podcasting, Skype, Google Docs, Flickr, Facebook, Twitter, LinkedIn, Internet searches, Google Maps, webcasts, webinars, Elluminate Live, and mobile applications.

Some notable limitations of this present study include occasional connectivity issues related to the Internet provider, which are outside the jurisdiction of the university. The varying extent to which faculty and support staff have training in, exposure to, and openness to new and innovative ideas constitutes another limitation of this study. Concurrently, the unwillingness of faculty to embrace new and emerging technologies could be a self-imposed limitation that may adversely affect their engagement in and appreciation of the effect of Web 2.0 technologies in higher education. A mindset that presupposes that Web 2.0 technologies are more appropriate for the younger generation than they are for older folks militates against rapid progress.

Possible avenues for future research include the effect of Web 2.0 technologies on support staff and other workers in higher education institutions. Issues of job stability and upward or lateral mobility could be limiting factors for enthusiastic faculty engagement with Web 2.0 technologies. Additionally, the influence of Web 2.0 technologies on lifelong learning in personal, domestic, and academic settings may provide other useful directions for future research. Finally, evaluating the multitasking capabilities of users of Web 2.0 technologies compared to non-users or limited users could provide a useful method for determining the magnitude of its influence on higher education. Readers may use the above-presented ideas to improve their institution's PD offering.

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Distance Education in Africa: A Longitudinal Study of the Perceptions of 2,416 Students

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Abstract

Distance Education (DE) holds particular promise for Africa, where higher education systems must cope with multiple constraints. However, there are many obstacles to the development of DE, including inadequate computer equipment and lack of professional skills. Against this background, this article presents the results of a longitudinal study on DE programs[1] offered to students in Africa. Using quantitative analyses of questionnaires and qualitative analyses of interviews, the contributions of DE to the professional development of Africans are examined in the aim of gaining a deeper understanding of the dynamics at play when students enroll in a DE program.

Keywords

distance education, Africa, higher education, professional development, enrollment

Résumé

Les formations à distance semblent comporter de très nombreux avantages pour l'Afrique, où les systèmes d'éducation font face à une multitude de défis. Néanmoins, malgré le potentiel des formations à distance, la mise en place de ces dernières arrivent également avec son lot d'obstacles, comme par exemple l'équipement informatique inadéquat et les compétences professionnelles. Ce texte présente les résultats d'une étude longitudinale sur des formations à distances universitaires proposées à quelque 2416 étudiants en Afrique[1]. À partir de l'analyse quantitative de questionnaires et de l'analyse qualitative d'entrevues, nous examinons comment les formations à distance sont en mesure de participer au développement professionnel d'étudiants d'Afrique. Nous avons aussi cherché à mieux comprendre les avantages et les défis rencontrés par les étudiants participant à de telles formations.

Mots-clés

formation à distance, Afrique, enseignement supérieur, développement professionnel, recrutement

Distance Education in Africa: A Longitudinal Study of the Perceptions of 2,416 Students

Distance education (DE) programs have made a significant contribution to the development of higher education, even though the progress made to date lags behind expectations (Altbach, Reisberg, & Rumbley, 2009). DE "refers to approaches to learning that focus on freeing learners from constraints of time and place while offering flexible learning opportunities […] to both individual home-based learners and groups of learners in remote classrooms" (UNESCO, 2010). They hold particular educational promise for Africa, where universities are facing many challenges such as rapidly expanding enrollment, tight budgets, overcrowded classrooms and dismal job prospects (Butcher, Latchem, Mawoyo, & Levey, 2011). As a result, university education in Africa is lagging far behind the rest of the world: although the gross university enrollment rate was 26% worldwide in 2007, it stood at only 6% in sub-Saharan Africa (UNESCO Institute for Statistics [UIS], 2010). In this perspective, DE is often perceived as a viable alternative. DE delivery systems allow larger numbers of people to study at lower cost than in face-to-face classrooms (Evoh, 2010). The spatial and temporal flexibility also encourage a diversity of candidates, from university freshmen to working professionals (Aderinoye, Siaciwena, & Wright, 2009). In socioprofessional terms, distance education can help mitigate a longstanding and problematic trend in Africa (Muhirwa, 2012), namely the flight of African professionals to the North once they graduate (World Bank, 2009). Called the "brain drain" (Freitas, Levatino, & Pécoud, 2012), this trend is sometimes voluntary and other times not, and it is encouraged by grants and scholarships that enable African students to pursue their studies in Western countries. Whereas the original purpose of this funding was to reinvest African skills at home, the actual result has been the reverse: African countries have been deprived of a qualified workforce (Tessema, 2010). In this respect, distance education can make a radical change, because it allows learners to enroll in programs administered from outside their sociocultural environment while remaining at home, facilitating skills reinvestment within local communities (Jacquinot, 1993; Moughli, Semporé, & Koné, 2008). DE therefore has instrumental potential for training a qualified African workforce, as well as socioprofessional potential for building a qualified African workforce (Mufutumari, 2010), which explains why it features prominently in the 2006–2015 Action Plan for higher education developed by *Seconde décennie de l'éducation pour l'Afrique* [second decade of education in Africa]. However, progress has been hampered by multiple obstructions: substandard computer equipment, disorganization, and lack of professional skills (Basaza, Milman, & Wright, 2010; Visser-Valfrey, Visser, & Moos, 2012).

Against this background, this article presents the results of a longitudinal study that targeted five objectives:

- Describe the sociological and technological profile of the participants
- Assess their motivations to take a DE program
- Identify the participants' representations of DE
- Identify the challenges involved in DE as well as the areas of satisfaction
- Identify the benefits derived by graduates from a DE program.

Method

Participants

As mentioned above, we surveyed two populations: 1750 students enrolled in a DE program and 666 recent graduates from a DE program. A total of 2,416 individuals participated in the survey (1,571 males and 845 females in each of three study years). In addition, 24 individuals (12 students and 12 graduates) were interviewed via Skype.

Procedure

To achieve the research objectives, two survey questionnaires were developed and administered during each of the three study years: one for students enrolled in a DE program and one for graduates of a DE program. In addition, telephone interviews (supported by Skype) were conducted in the second study year. For the data compilation, two separate populations were surveyed: students enrolled in a DE program during each of the three study years and students who had graduated from a DE program at the end of each of the three study years.

Analysis

The quantitative survey data were analyzed using SPSS version 20. Descriptive analyses as well as cross analyses of the data were conducted using a series of variables that were relevant to the research objectives. Some questionnaire items were designed to elicit open-ended responses, which were analyzed qualitatively using QDA Miner. The conducted interviews were also analyzed using QDA Miner. This allowed coding text segments for content analysis using an approach inspired by L'Écuyer (1990) and Huberman and Miles (1991, 1994).

Results

Sociological and technological profile of participants

In terms of place of residence, the surveyed population was majoritively representative of Africa: about 75% lived in the sub-Saharan region and 8% in the Maghreb. The other geographic regions represented were the Indian Ocean (6%), the Middle East (2.5%), the Caribbean islands (2%), Central and Eastern Europe (1%), and Asia-Pacific (<1%).

In terms of gender, despite the well-meaning and proactive policies of universities, women were largely underrepresented. In fact, as mentioned above, the distribution across all samples was about one-third women to two-thirds men.

In all samples, most participants were in the age range from 31 to 40 years (41–49% across study years), followed by 30 years or less (31–36%) and 41 years and older (15–22%). This distribution reflects the recruitment policies of the universities, which prefer younger students who at the same time already have some background in the study field.

A large percentage of respondents had earned a graduate university degree, and this percentage varied from one-third to over one-half across the samples. However, professional experience was relatively thin: half the respondents had less than five years' experience and almost 80% had less than 10 years' experience. In sum, in terms of sociological characteristics, we may consider that the participants entered the DE programs towards the start of their professional career, at an average age of 35 years, and many among them had earned a graduate university degree.

The technological profile of the respondents appeared to be related more to the year of graduation. For example, in the first two study years, about 75% of respondents said they had access to a computer at home, but this percentage rose to 94% in year three. A similar trend was found for Internet access at home, with about 50% for the first two years and 68% for the third. Independently of these fluctuations across years, the rates were consistently higher than expected, given the student-to-computer ratios in the participants' regions. When asked about where they most frequently went to access the Internet, the first place was the workplace, followed by home, and finally the university computer centers.

Some of the questions also addressed Web-use skills. The most popular tool by far was Wikipedia (almost 50% used it frequently or very frequently), followed by MSN-Messenger and Skype. Websites

such as Facebook and YouTube were used significantly less often. However, use of these Websites showed an effect of age, with younger respondents using them more often for social exchanges and sharing, and older respondents making more use of technologies that directly met their learning or professional needs.

When participants' age is taken into account in the technological profile, a number of interesting differences can be identified, again depending on the study year. Thus, for year 2009–2010, younger participants (aged 30 years or less) accessed the Internet more often at work, whereas those aged from 31 to 40 years accessed it more often at cybercafés. The opposite trend was observed for years 2007–2008 and 2008–2009: the older and more experienced the participants, the more they tended to have computers at home, along with greater access to DE courses from home. In contrast, younger, less experienced participants made up for their lack of equipment by going to the university computer centers (years 2007–2008 and 2008–2009) or using the equipment available at their workplace (year 2009–2010).

Participants' motivations to enroll in a DE program

The analyses of the three years of data show clear and convergent motivations for enrolling in a DE program. As seen in the 2009–2010 data in Figure 1, the main intention was to pursue individual professional development and the professional promotions that come with further qualifications. Practical considerations also came into play, such as the possibility of combining education and work, the prestige conferred by a university diploma, and the fact that the diploma program was not offered locally.

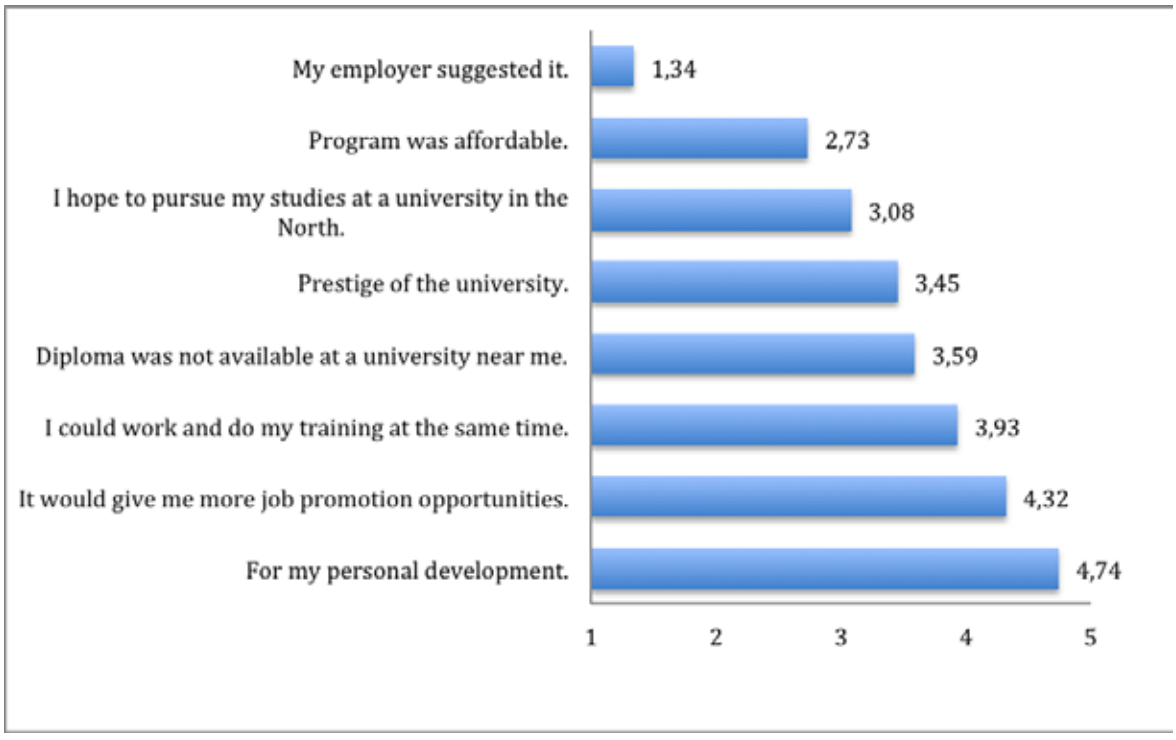

Figure 1. Motivating factors for enrolling in a DE program (2009–2010)2

Although factors such as university prestige or the hope of pursuing studies at a northern university appear to have played a non-negligible role in the decision to enroll in a DE program, they had less weight. A case in point was that the hope to study at a university abroad was rarely realized, given that, depending on the graduation year, only 13 to 20% of the participants left their country after graduation.

In confirmation of the results on the questionnaire responses, the interview results revealed that the development of professional competencies was far from the primary motivation reported by participants, and it generally applied only to working professionals who wanted to continue their training:

> S2:[3] "I'm not looking to get a degree, but simply to acquire some more skills, some more assets, so I can upgrade my professional qualifications."

This is not to say that enrolling in a DE program was not devoid of ambition. For most participants, it was meant to make up for a lack of training or to meet circumstantial needs:

> S1: "Since I'm a teacher, I was aware of the importance of communication techniques, because in our university culture, unfortunately, we receive purely agronomic training only, and the pedagogical aspect is completely neglected."

In this respect, the motivation to take a DE course was not just the "added value" it would confer. The students also took the courses to earn higher salaries. In addition to professional development, whether out of a desire to improve or out of necessity, increased employment opportunities provided a further reason for taking a DE program:

> G7: "I wanted to come out as a qualified person, with degrees, not only to find a job in my country, but also abroad. They can give me more job opportunities."

> S3: "I visualize a goal that I have set for myself; that is, I want to have a degree."

According to the respondents' expressed views, we may posit that both intrinsic and extrinsic motivation played a role in their decision. Thus, the most frequently stated positions reveal either intrinsic motivation (personal growth) or extrinsic motivation (professional advancement).

Moreover, although they are not negligible, it is worth mentioning that the DE-specific factors follow behind in third and fourth place. In other words, the decision to take a DE over a face-to-face program appears to have been made only after the decision was made to pursue professional development. Therefore, it was not the DE program itself—with all its advantages—that motivated them to enroll, but instead the need for further training. The DE program was selected subsequently, for its particular advantages.

Depending on the study year, some interesting indications were obtained by crossing certain variables. For example, according to the 2009–2010 data, the hope to pursue studies at a northern university and university prestige appeared to be stronger decision factors for men than for women. Age also influenced the desire to pursue studies in the North, which was mentioned much less often by participants over 40 years old (2008–2009 data), probably due to the greater obligations associated with a more solidly established social status.

When comparing the opinions of participants enrolled in programs delivered by universities in the North versus the South, the main distinguishing characteristic was that students in northern-delivered programs were more inclined to enroll because the equivalent degree was not available in their region. The prestige of the university and the hope to continue studying at a northern university were also significantly more influential on the decision to take a program delivered by a northern university.

Participants' representations of DE

We also note a strong convergence in representations of DE among the different samples across the three study years.

In all cases, the first six perceptions are reported in the same order of priority, with the remainder showing only minor differences. The data presented in Figure 2 are for year 2009–2010.

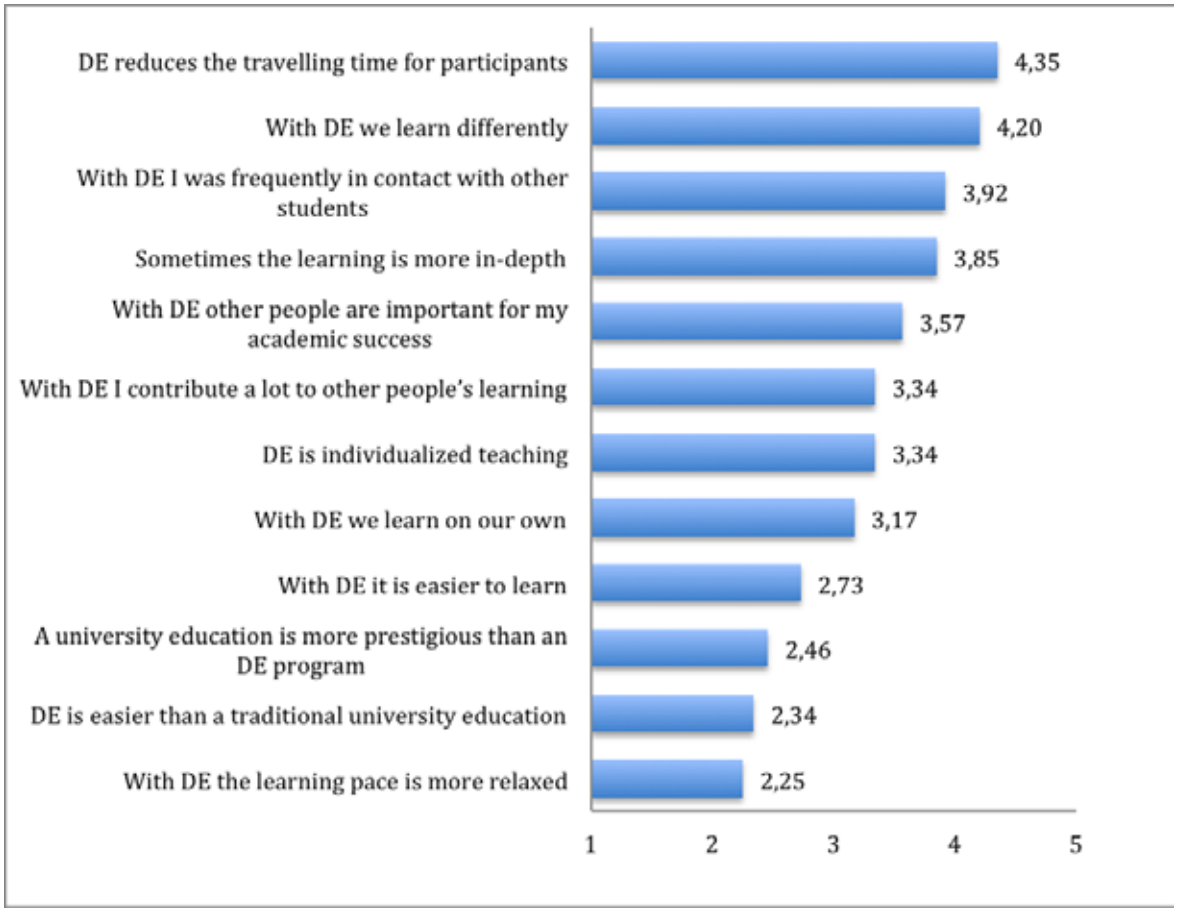

Figure 2. Representations of DE programs (2009–2010).

The representation with which most respondents agreed, "DE reduces the travelling time for participants," was the most immediate and widely acknowledged benefit of DE.

The next most frequent representation concerns the teaching and learning methods associated with DE, expressed as, "With DE, we learn differently." This underscores that the benefits of DE exceeded the organizational framework, and that the differences with respect to face-to-face education influenced how the participants learned. Some representations concerned the role of other learners in the DE process: "With DE, I was frequently in contact with other students." This is in line with the previous representation, and it appears to indicate that DE was perceived as a collective rather than an individual learning mode. This is confirmed by the statements, "With DE, other people are important for my academic success," and "With DE, I contribute a lot to other people's learning." Moreover, respondents agreed less with the fact that, "With DE, we learn on our own," which reinforces the view of DE as primarily a collective activity.

Finally, a look at the remaining representations ("With DE, it is easier to learn," "A university education is more prestigious than a DE program," "DE is easier than a traditional university education," and "With DE, the learning pace is more relaxed") suggests that the workload and value of a DE program were perceived as more or less equivalent to those of face-to-face education. In other words, DE may offer different teaching and learning methods ("With DE, we learn differently"), but it requires about the same amount of work, and the outcome is a roughly equivalent set of qualifications.

When the expressed opinions were crossed with variables such as gender and age, some shades of difference were revealed in the trends. For example, it appears that men placed more emphasis on collectivity and collaboration in DE, showing higher agreement than women with the statements that addressed these aspects. In contrast, women compared to men tended to perceive DE more as an individual learning mode. For year 2009–2010, younger respondents (30 years or less) compared to older respondents (31 years and older) tended to perceive DE as an individual learning mode, while older respondents perceived that DE had more benefits for their learning.

Another interesting differentiation concerns the organizing university. Respondents who took a DE program delivered by a university in the South had a more collective perception: they agreed significantly more with the statements, "With DE, I was frequently in contact with other students," "With DE, other people are important for my academic success," and "With DE, I contribute a lot to other people's learning." Inversely, respondents who took a DE program delivered by a university in the North had a significantly more individualized perception of DE, expressed as "DE is individualized teaching." Again concerning the organizing university, students enrolled in a northern program gave more weight to the contribution of technologies to their training, in contrast to students enrolled in a southern program.

Concerning participants' preconceptions about DE, two scenarios were identified from the interview analysis:

- Either they had not had preconceptions, that is, they did not have a clear idea of what a DE program was before they experienced it:

  S5: "Before, I didn't know what would happen."

- Or they had erroneous preconceptions:

  S1: "For me, distance learning, well, you're very free; nobody tells you what to do; you can take the courses whenever you want."

We may therefore posit that when students begin a DE program, there is usually a period of adjustment, when they must reassess their initial perceptions in addition to familiarizing themselves with how the DE program works.

Challenges encountered and the degree of satisfaction with DE

In terms of technological challenges, a considerable proportion of the respondents, which varied across the samples, reported that they had to cope with frequent or very frequent power failures, ranging from 30% in 1997–1998 to 18.6% in 2009–2010. Internet crashes were about equally frequent: from 28% in 2008–2009 to 22% for 2009–2010. These are significant disruptions, interfering directly with course progress. Moreover, the students were rarely able to resolve these problems by themselves, given that they were burdened with poor-quality infrastructures throughout the region or even the entire country. Looking at the change in percentages over time, note that these crashes become less frequent. However, given the time span between surveys, we should be cautious in attributing this positive trend to overall improvements in services.

The great majority of respondents were at ease using the latest software applications. In fact, over 80% said that they had few or very few problems using basic programs for word processing, spreadsheets, or presentations. Less than 5% said that they had major problems.

Furthermore, the education platforms, which were almost all the same across the training programs, generally caused no problems. Depending on the study year, from 60 to 80% of users found them easy or very easy to use. Only the more specialized applications, such as Web page design software, posed appreciable difficulty.

As for the computers themselves, from 64% (in 2008–2009) to 73% (in 2009–2010) of respondents felt that their equipment was satisfactory or very satisfactory at work and at home. Of those attending a digital campus, 80% felt that the available equipment was satisfactory or very satisfactory.

Concerning assistance for resolving technical problems, about 65% reported that a resource person at the delivering university was frequently or always available. However, in practice, they usually asked for help from another DE staff such as a tutor or professor. Alternatively, 50% of respondents sought help from a colleague on site or from another student. Problem solving appeared to follow a gradient: the participants' first strategy was individual trial and error, followed by help from peers (students, colleagues, acquaintances), and finally remote help by a professor, technician, or tutor, whom they contacted by phone or via the platform.

In light of these results, it appears that the vast majority of participants enjoyed highly satisfactory learning conditions when it came to the materials and technical assistance. Apart from power blackouts and Internet crashes, which the educators had no way of controlling, there were very few technical problems, and the support provided to resolve them was generally deemed adequate.

Concerning the pedagogical aspects, some were viewed as positive or even very positive, but others were perceived more negatively. Among the positive aspects were the support materials and documentation for the courses, the teaching methods, and the assessments and exams, which were reported as appropriate or very appropriate by a large majority of respondents (over 80% in 2008–2009 and slightly less in 2009–2010). On the other hand, some aspects related to program organization appeared to be considerably less satisfactory. Thus, from 60% (in 2009–2010) to 74% (in 2008–2009) of respondents felt that the learning pace was intense or very intense (the descriptor "too intense" was not offered as a response choice).

In addition, the results on workloads and deadlines for handing in assignments appear to differ considerably among respondents. Regardless of study year, about 34% of respondents felt that the workload was reasonable or less than expected, whereas 62% found it heavy or very heavy. A similar trend was found for assignment deadlines, which from 34 to 37% considered convenient or very convenient (depending on the year), whereas 39% considered them more or less difficult to meet, and 27% considered them difficult or very difficult to meet. On this point, we should mention that time management and work planning are key factors in DE, because they determine the regularity and

intensity of produced work. Accordingly, these aspects featured frequently in the qualitative analysis of the open-ended responses:

> S4: "At first, I didn't know enough about the tools we were working with. […] After a while, everything went well."

However, this first type of familiarization appears to vary across participants, depending on their computer skills and those of their family or acquaintances:

> S10: "It [managing the platform] didn't take long because I had taken some computer training."

The second type of familiarization involved in the DE programs was pedagogical. Aside from learning how to use the technologies, taking a DE course required learning how to use new learning methods, which not all the students were used to:

> G1: "Of course, when it's a machine, sometimes, they're hesitant to talk to a machine or to write with a machine. […] So they're introduced to a new culture. Some of them aren't used to that."

This two-fold familiarization highlights the importance of initiating students into DE functions, both technological and pedagogical, prior to beginning a course:

> G2: "[…] organize a return to university where everybody assembles. You get to know all the people who are going to take the program, and that way you can learn things that you didn't know before, and who you can go to for help."

Concluding with the organizational aspects, the length of the program was generally judged appropriate or very appropriate by about 80% of respondents, and the availability of a resource person for assistance was judged frequent or constant by over 65% of respondents.

The relational aspects of the DE system were generally assessed very positively, in terms of both peer-to-peer communication (over 80% satisfaction) as well as communications with professors and tutors (about 70% satisfaction). In addition, 89% of respondents in 2008–2009 considered the work atmosphere of the program satisfactory or very satisfactory, with 66% in 2009–2010.

In summary, an overwhelming majority of respondents perceived the pedagogical and relational aspects of the DE program as satisfactory. However, a number of organizational aspects, such as workload, learning pace, and assignment deadlines, appeared to be more problematic, and they taxed some respondents to their limits. These problems would be largely explained by the fact that most of the students were working at the same time, and might even have a second job as well as additional responsibilities (e.g., childcare).

Nevertheless, participants who had taken an introductory course on DE found the DE experience significantly more satisfying in terms of work atmosphere and exchanges with professors and tutors. With the same ranking of aspects, participants who had opportunities to attend synchronous meetings with course instructors appeared to be more satisfied with the relational climate of the program, although they did not show significantly more satisfaction with organizational aspects.

By accounting for certain variables such as gender, age, and some organizational aspects, we were able to deepen our understanding of some of the pedagogical and technical aspects of the programs.

With respect to gender differences, the 2008–2009 and 2009–2010 data converge to indicate that women more than men consistently contacted a resource person to help resolve technical problems. However, no apparent difference emerged between men and women in terms of the technical skills required to follow a DE program.

The effect of age range is seen on the degree of satisfaction with the program. Thus, older learners (40 and up) appeared to be significantly more satisfied with the training, whereas younger learners were less satisfied, and they more frequently reported having technical problems during the program.

It is also interesting to note that when problems arose, respondents enrolled in a southern university more frequently appealed to a tutor or another student. Moreover, they were significantly more satisfied with the workload and reported significantly fewer conflicts with other students and professors. However, they were also significantly less satisfied with the assessment and examination system than students in a northern university. This suggests that for the southern universities, the cultural proximity between students and professors facilitated relational aspects of the training and acted to intensify and enrich relationships with tutors.

Results of the qualitative analysis reveal that, generally speaking, the tutors were perceived to have played a positive role, particularly when they intervened rapidly, comprehensively, and in an individualized manner:

> S1: "Personally, last year, I was greatly helped by two or three of my tutors, who were sympathetic about the problems I had during my training. So I feel that the tutors did an excellent job."

Of course, the tutors could not play such a positive role if they were unavailable. Therefore, participants clearly identified the unavailability of the tutors as the most serious drawback:

> S10: "In my case, my tutor wasn't there for me."

In addition, we may conclude that the tutor's role was perceived positively overall, as long as they were available to coach the students. That said, they usually provided assistance quickly, comprehensively, and in an individualized manner.

Benefits associated with earning a DE diploma

The benefits of earning a DE diploma were investigated in the students who had completed a training program the previous year, that is, in 2008 for the 2008–2009 survey and in 2009 for the 2009–2010 survey.

Regardless of the graduation year, the benefits associated with obtaining a DE diploma were revealed as very significant, particularly in terms of feelings of professional competence (see Figure 3). Thus, in the graduating class of 2008, 75% of respondents agreed that they had greater feelings of professional competence, with over 94% agreement for the class of 2009.

Aside from feelings of professional competence, the impacts on employability and professional development were also appreciated. Thus, around 32% of graduates in 2008 and 45% in 2009 felt that the diploma contributed positively to their professional career, in the form of a promotion or the assignment of additional responsibilities.

Moreover, as shown in Figure 3, 22% of graduates in 2008 agreed that their diploma had contributed to finding a new job which corresponded better to their personal aspirations. For the 2009 graduates, this percentage was much higher, at 53%. Furthermore, about 22% and 25% of graduates in 2008 and 2009, respectively, felt that their diploma gave them opportunities to earn a higher salary.

In addition, respondents associated their diploma with other benefits, including the following:

- The skills they developed through their DE program helped them find a number of solutions to problems at work (95%, for both graduating classes).
- DE was useful for their professional career (85%, for both graduating classes).
- They were satisfied with their progress in developing new competencies (92% for 2008 and 73% for 2009).
- More job opportunities were available to them (72% for 2009).
- Their diploma was recognized in their professional community (74% for 2009).
- They were satisfied with the success they had in their career (73% for 2009).
- They were satisfied with their progress in achieving career goals (74% for 2008).

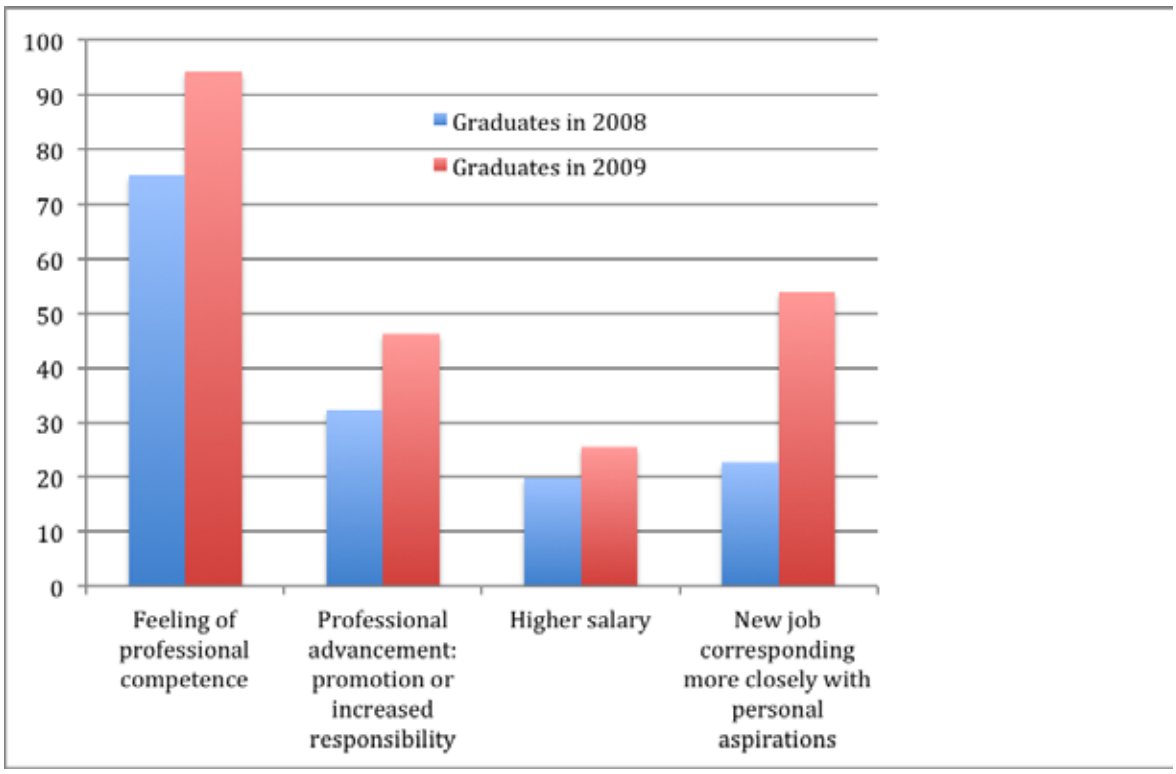

Figure 3. Benefits associated with earning a DE diploma.

The results of the qualitative analysis reveal that the benefits of the DE programs were felt mainly in terms of professional outcomes. The two main benefits corresponded point by point with participants' motivations to enroll in the program (see section on "Participants' motivations to enroll in a DE program"), which suggests that DE programs can respond adequately to learners' expectations. The positive outcomes included:

- Benefits for the development of professional competencies:

  S5: "In any case, it enabled me to developed competencies."

- Increased employability:

  G2: "The profs got me involved in a lot of things, because quite simply, they felt that I had more skills, and those skills, I acquired them through those courses."

Increased employability, translated concretely into job promotions:

> S4: "I'm still getting offers, job offers that people give me."

Another benefit of DE, although less often reported, was its contribution to the development of a qualified workforce that could serve African countries:

> G2: "I realized that this should be an irreversible process, so African countries can improve the quality of their workforces without fear of the brain drain."

Given the benefits it provided, participants overwhelmingly reported a highly positive view of DE:

> S10: "On the whole, I appreciated it. For me, it was a rewarding experience."

In summary, it appears that the greatest benefits of the training were associated with feelings of professional competence, along with considerable benefits in terms of career progress, including additional skills, higher salaries, and greater professional recognition.

Furthermore, the high agreement with the item addressing willingness to continue DE training (76% for 2008 and 73% for 2009) indicates strong intentions among the graduates to acquire more qualifications. In view of the overall positive views expressed about DE in the questionnaire responses, we could assume that the training programs had a positive effect on these intentions.

Conclusion

We conclude by recalling that distance education (DE) proffers two main benefits for Africa. First, it provides a low-cost way to ease the congestion in African universities, which are struggling to accommodate excessive numbers of students in inadequate facilities. Thus, online courses can broaden the education offer without the construction of new national academic networks and institutions. Furthermore, because it does not require students to travel abroad, distance education can facilitate the reinvestment of graduates' skills into their own communities. They can thereby contribute to the development of a qualified workforce attuned to local and regional needs. However, the current state of technological development in African countries casts doubt on the possibility of fully realizing the potential of distance education at this time.

In relation to the research objectives, we underscore some overall trends in order to provide a broad overview of the training programs, and we identify certain findings that could be useful for guiding future policy decisions.

In the participants' sociological profile, we found that the three successive samples of participants who were enrolled in or had completed a DE program were fairly homogenous in terms of gender and age as well as marital, family, and sociocultural status. The same may be said in term of their jobs and years of professional experience. Consequently, there were few differences among the cohorts between students who were taking courses and graduates, aside from program progress (ongoing versus completed). There is no question that the sociological portrait that emerges was strongly influenced by the universities' selection criteria, which favored equity for women and candidates younger than 40 years old. That said, the average participant profile is a man about 35 year old on average, living and working in an urban, French-speaking region of Africa, with a university degree in education at the bachelor's, master's, or doctoral level, and currently working. Accordingly, the DE programs would have been undertaken mainly in the first half of the participants' professional careers, with the purpose of continuing education beyond initial training.

With respect to the technological profile, we note first of all that the participants enrolled in a DE program in 2009–2010 appeared to be better equipped technologically than those surveyed in 2008–2009. As mentioned above, we noted an overall improvement in the available equipment (i.e., computer and Internet access) from the first to the third study year. We also found differences in the technological profile in terms of age and professional experience. Thus, when participants' age is accounted for in the analysis of the technological profile, some interesting differences emerge, although they fluctuate with the study year.

Certain particularly discriminatory age-related factors then came to light. For instance, younger respondents had fewer problems with the computers compared to older respondents. One possible explanation for this is that younger respondents had more opportunities to practice their technology

skills than older respondents, who were therefore less experienced in these matters, probably due to recent technological innovations at the universities and in professional and personal lives. Other noticeable age-related differences were observed in the degree of satisfaction with the relational aspects of the training, where older participants were more satisfied, and in satisfaction with the training requirements, which older participants perceived more negatively.

Aside from the job- and age-related variables, which appear to be closely associated, some interesting gender differences were uncovered, notably in technical and relational aspects. Although no appreciable difference was found between study years in men's and women's technical skills, women more frequently asked a resource person for help to resolve technical problems.

Generally speaking, the technical problems involving the DE Web platforms were most often resolved using strategies that would be considered informal: asking for help from other students, more experienced colleagues, peers, or family members. For example, one student said, "My little sister is an engineer, and she helps me too." All three surveys showed that this was a routine and frequent strategy.

The results also show that men perceived the collective aspects of DE more positively than women, who perceived it more as an individual learning mode.

These differences in appreciation of the collective versus individual aspects of DE were also seen between students in programs delivered by northern versus southern universities. Thus, respondents enrolled in a northern program had a more individualized perception of DE, whereas respondents enrolled in a southern program placed less emphasis on the role of technologies in their learning.

In terms of the benefits obtained from a DE program, the results show overwhelmingly positive perceptions by all participants. Although the graduates in year 2008 reported a certain shortfall between the benefits for their professional development and the tangible benefits for their professional advancement, the graduates of 2009 appeared to have a more positive appreciation of the tangible impacts of DE on their job status. However, we should emphasize that the benefits derived from the DE programs were not the same for all participants. For instance, men experienced greater feelings of competence, as did respondents who had taken an OLD program delivered by a university in the South. In addition, younger and less experienced respondents reported a greater salary impact.

Finally, it is worth noting that 87% of respondents remained in their country of residence once they had obtained their diploma. The motivations to enroll in a DE program therefore appear to be more for purposes of social and professional advancement at home than for migrating to a richer country. In addition, the hope to pursue one's studies at a university in the North seems to be a secondary reason, overshadowed by motivations such as personal development and professional advancement. In light of the opinions expressed, it would seem that the decision to take a DE program over a face-to-face program comes into play only after the decision was made to advance one's professional career.

From the results reported here on three successive cohorts, comprising a total of 2,416 individuals who followed a DE program, we may reasonably conclude that the programs as delivered were perceived highly positively by the vast majority of participants, who derived considerable and diversified benefits for their personal and professional development.

In conclusion, we may add that, even though the workload and tight deadlines sometimes taxed the limits of the participants, who had to contend with jobs at the same time, the great majority retained a positive perspective of this form of education delivery, as expressed by their general satisfaction.

Notes

[1] All programs were offered by the Agence universitaire de la francophonie / Association of Universities of the Francophonie (AUF), a global network of French-speaking universities which includes l'Université de Montréal.

[2] Rated 1 = "completely disagree," 5 = "completely agree."

[3] Throughout this text, the letter S refers to participants who were enrolled in a DE program at the time of the interview (i.e., students), and the letter G refers to participants who had graduated from a DE program at the time of the interview (i.e., graduates).

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