

21ST CENTURY LEARNING AND DIGITAL LITERACY: PIPE DREAM OR SMOKE AND MIRRORS?

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Abstract

This paper is set within the contexts of changes occurring in higher education institutions (HEI) and hegemonic struggles in relation to an intensification of neoliberalism in society (Berdayes & Murphy, 2016), and social justice and emancipation (Freire, 1968/2005). We discuss bottom up (educators and institutions) and top down (UNESCO and 21st century learning agenda) factors. Finally we critically discuss implications of the changes on pedagogy, focusing on inquiry-based learning (Hutchings, 2007) as a case study.

Introduction

The function of attending university is changing in terms of having graduates meet the short term needs of the state and corporate interests. Central to this is students are constructed as consumers and customers, and qualifications considered to be investment projects for employability (Lawrence & Sharma, 2002). Academic staff become service providers and research entrepreneurs (Hall, 2016). Universities are increasingly corporate, with strategic plans, key performance indicators and cost benefits analyses using metrics (Birnbaum, 2000; Conlon, 2004). We discuss the contested and competing value systems and ideological imperatives that underpin these changes.

In 1998 UNESCO issued its World Declaration on Higher Education for the Twenty-First Century to promote several important principles regarding creativity and critical thinking in higher education, that became known as the 21st century learning agenda. Since its publication, global higher education has undergone dramatic change and enrolments have increased at a rate of about 5% per year. Today, higher education is arguably undergoing an academic revolution, and many countries report having reached universal access status (Blessinger, 2015).

Given the great importance that countries place on higher education to help address a variety of socio-economic issues (e.g., employment, innovation and economic growth), universities are putting greater emphasis on graduate attributes (Daniels & Brooker, 2014; Haigh & Clifford, 2011; Hughes & Barrie, 2010; Osmani et al., 2015). Increased importance is given to knowledge, attitudes and skills that meet the demands of 21st century society that include critical thinking, independent learning, and knowing how to critically manage an abundance of information termed *digital literacy*, which:

refers to the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process (Martin, 2006, 19).

Due to the rapid change brought about by globalisation, modern societies are becoming increasingly hyper-connected and interdependent. In an age of open educational resources (OERs), massive open online courses (MOOCs) and the use of learning management systems, digital technology and virtual learning environments (VLEs) impact on the philosophy that underpins what universities offer students as learning opportunities and experiences.

Issues of widening access (Archer, Hitchings & Ross, 2003; Reay, David & Ball, 2005) increased staff student ratios (McDonald, 2013; McMurtry & McClelland, 2014) and its impact on retention and progression (Bowl, 2001; Longden, 2002; Thomas, 2002; Wyatt, 2011) and educators' ability to deliver quality feedback (Boud & Falchicov, 2007) have been extensively researched.

Our previous research examined assessment practises considering changes from students' and educators' perspective. In 2015, we explored students' perspectives and found that, despite clear differences in course content in Brazil and Scotland, students' perceptions of the assessment process using VLEs revealed similarities. Participants resisted several *embargos*, a term introduced by the authors (McPhee & D'Esposito, 2015), which described real and imagined barriers related to student success embedded in teaching and assessment institutional habitus. Barriers to learning and engaging with assessment included students reporting having to work long hours to fund learning, family commitments, and social class based perceptions of academic ability that impact on educational success. In 2016, we turned our focus to the perspective of educators. Assessment feedback remains a demanding task, and despite efforts for innovation and creativity in how feedback is delivered, gaps remain in how and in what way assessment is considered useful in aiding employability and demonstrating subject specialist knowledge (D'Esposito & McPhee, 2016).

Intrigued by these findings, we locate the focus of this paper on those factors that take up a great deal of the time of academics. We discuss the neoliberal agenda both top down (UNESCO and 21st century learning agenda) and bottom up (educators and institutions) that shape academic practices in relation to the nature and function of assessment. We address the 21st century learning agenda and its impact on our understanding of pedagogy and andragogy; the applications and development of innovations in assessment design, focussing on inquiry-based learning (IBL) as a case study. Finally, we discuss the potential impact of pedagogical changes on student learning and staff workload

21st Century Skills and the Pillars of Education

The 21st Century skills agenda is defined by a broad set of knowledge, skills and attitudes considered necessary for success in contemporary work environments. In 2002, the Partnership for 21st Century Learning¹, a broad coalition of financial and corporate interests, educational groups, technology firms, and media content providers², defined and illustrated the skills, knowledge, and expertise required to succeed in work, life, and citizenship (Warschauer & Matuchniak, 2010). The framework proposed by ‘The Partnership’³ has impacted on standards, assessments, curriculum and instruction, professional development, and learning environments.

This ‘21st century learning’ agenda aligns with the four pillars of learning proposed by UNESCO (Delors & UNESCO, 1996):

1. Learning to know: cognitive tools required to better comprehend the world and its complexities, and an appropriate and adequate foundation for future learning.
2. Learning to do: the skills that would enable individuals to effectively participate in the global economy and society.
3. Learning to be: self-analytical and social skills to enable individuals to develop to their fullest potential psycho-socially, affectively as well as physically.
4. Learning to live together: values implicit within human rights, democratic principles, intercultural understanding and respect and peace.

These top down factors are noble aims that drive the 21st century learning agenda (Rotherham & Willingham, 2010). Given the current state of dwindling staff resources, cuts to budgets, widening access and its impact on progression and retention, can this 21st century learning agenda create digitally literate critical thinking effective communicators? We will now turn our attention to the factors emerging from educators.

The Dominant Discourses and Practices of Assessment

Boud (2000) writes that assessment is a value laden activity, underpinned by debates about academic standards and as a preparation for employment, as well as a measure of quality and achievement, and incentives for student success and satisfaction.

Dominant views of assessment and particularly summative assessment construe the learner as a passive subject, subjected to the practices of the institutions to confirm learning has taken place. In understanding the dominant discourses of assessment Boud and Falchicov (2007, p. 4) helpfully indicate that:

...assessment would be less of a problem if we could be assured that what occurs under the guise of assessment appropriately influenced student learning ... Commonly, assessment focuses

little on the processes of learning and on how students will learn after the point of assessment.

Assessment practices are driven by several issues such as quality assurances, confirming learning outcomes are achieved, determining achievement and ensuring confidence in standards and procedures. These practices conform to the needs of bureaucratic procedures over which students have no say, and little control. However, as Boud and Falchikov (2007, p. 4) point out:

We are now able to step back and challenge the controlling effect of assessment that focuses students on performance of assessment itself, rather than on what studying in higher education is arguably for: that is, providing a foundation for a lifetime of learning and work in which there is little formal assessment or formal instruction.

The dominant discourses and practices of assessment have created an impetus for change from educators to meet the needs of students.

As it has been convincingly argued, in HEI limited budgets, increased staff student ratios (McDonald, 2013; McMurtry & McClelland, 1997) have impacted on the ability of educators to deliver quality feedback (Boud & Falchikov, 2007). In attempting to provide feedback, educators have relied on technology to help. The benefits of technology (VLEs, Turnitin and similar assessment standardised tools) are ways in which busy academic staff can provide assessment feedback.

The Impact of Technology on Education

Recent developments in technology, for brevity labelled *Web 2.0* tools, allow two-way interaction with knowledge creators. Affordable processing power in devices such as tablets, phones and computers, give the end user control (to an extent) over access to, and the creation and sharing of, knowledge.

In education, this creates several factors that impact on staff and student expectations and behaviours. As students are empowered by easy access to knowledge, educators must find ways to innovate traditional ways of altering what universities provide for students and the tensions over control of this experience that occur between staff, students and institutions.

Using technology to provide access to education such as *blended learning* blurs the boundaries between on campus and online modes of study. Class and face to face teaching is reduced, and replaced, in part, by online or face to screen engagement.

Written text can be replaced by interactive learning objects such as TouchCast and similar technologies. Using multimedia is not new. However, the use of technology for its own sake, because it allows free, or easily accessed information, raises issues of quality, appropriate use, ownership of programme resources and measurable learning outcomes.

The education system has been arguably influenced by what Ritzer (1996) termed *McDonaldization*, -- the process by which the principles of the fast food industry are coming to dominate more and more sectors of the world. The author outlines four characteristics of this mechanistic worldview: efficiency, predictability, calculability (quantifiable results) and control. Regarding education, McDonaldization attempts to address perceived inefficiencies in learning. These processes have led to educational experiences at university becoming a commodity that can be digitally packaged, marketed and sold.

Changes to Pedagogy Linked to a 21st Century Learning Agenda

Pedagogy encompasses all age groups and contexts in which teaching-learning processes take place. For Freire (1968/ 2005), it is best understood in the concept of *praxis* (with theory and practice in permanent dialogue) and concrete educational practices (Streck, 2010). We use the term to refer to teaching-learning processes and teaching learners how to learn.

Methods of integrating learning are key components of how HEI aim to develop learning in their students and meet the 21st century learning agenda. One increasingly common method is *IBL*, which is an umbrella term that covers a range of pedagogical approaches widely recognised and advocated in higher education. They are united by the central place given to students' investigative work addressing questions and solving problems, seeking and creating new knowledge and understandings. Problem-based learning, project-work and case-studies, would be examples of these approaches driven by a process of student centred (personalised) inquiry (Hutchings, 2007).

IBL is a student-centred and student-directed process. It excludes teaching approaches that are primarily concerned with the explanation of content or a topic (Aditomo, Goodyear, Bliuc & Ellis, 2013). Using this method, teachers act as facilitators and encourage, providing guidance and support. There is an increased use of technology to deliver teaching and support to assist students to engage with new forms of assessment.

The classroom is no longer the unique epicentre of learning, based on information delivered through a lecture. IBL focuses on knowledge construction by means of an active learning centred process to allow students to acquire experiences in a range of intellectual and social capabilities. These are said to include critical thinking, reflection and self-criticism, teamwork, independence, autonomous thinking and information literacy (Hutchings, 2007, pp. 12-13).

Increasingly, there is a sharing of power between the educators and the learner, which is a welcomed change. However, student expectations have radically altered the interaction between staff and students. Learning becomes a process of staff-student negotiation rather than educator directed. This manifests as a changing teaching role, towards support and negotiation over content and methods, and a focus on developing and supporting learner autonomy. Emphasis is placed on learners supporting each other using social media, peer assessment, discussion groups, and guided online study groups.

It is reported that IBL can help students become more creative, positive and independent learners (Kühne, 1995; O'Shea & Young). It can provide opportunities for students to develop skills that are essential for work, learn to cope with problems that do not always have clear solutions, deal with challenges to accepted wisdom, and shape how solutions are discovered.

Assessment of IBL

It has been mentioned that assessment underpins the student experience, and should in practice align with desired learning outcomes, as Biggs (1999) notes in his model of constructive alignment.

Given the wide range of intended outcomes that underpin the 21st century learning agenda, a range of assessment methods are required to match the open-ended nature of IBL. While it is possible to apply traditional assessment methods to IBL, such as end of module exams or written assessment (particularly to meet discipline or professional requirements in terms of theory and practice), most typically assessments, especially at undergraduate level, often include some form of group task. As Kahn and O'Rourke (2004) note in their guide to curriculum design in relation to EBL (enquiry based learning, a variant of IBL) grading a group assignment is challenging (Bryan, 2004, cited in Kahn & O'Rourke, 2004). If the assignment is formative, then this poses fewer challenges. However, in high stakes assessment innovation such as IBL can pose several challenges (Boud & Falchikov, 2007). In a summative assignment, assigning a grade that matches the efforts and contributions of all contributors is an issue.

A portfolio, for example, allows wide scope in terms of what counts as referenceable material, and this may not include peer reviewed academic texts and research. This raises the issue of what counts as a suitable source of material that can be considered *academic*.

The key to all of this is how it impacts on teaching, learning and assessment. What appears to be missing is research evidence that validates the innovation that leads to measurable benefits for staff and students.

Criticisms of 21st Century Learning

The 21st century learning agenda poses a great challenge to HEI on how to encourage the acquisition of an increasing body of technical and scientific knowledge while fostering the development of key graduate skills and attitudes (Ribeiro, 2011), that underpin the 21st century learning agenda.

The changes posed for educators are about ensuring an environment that develops critical thinking and skills, without disregarding content and subject specialist knowledge. In IBL, learning is posited as self-directed (or self-regulated) through collaboration, creativity and innovation. It remains difficult to see how such interactions improve learning (Rotherham & Willingham, 2010).

IBL in practice requires formative assessment and feedback, which increases staff workload considerably. Peer assessment, for example, which is an IBL suggested practice, impacts on teaching workload as staff acting as facilitators also increases workload (Graham, 2010, cited in Harmer & Stokes, 2014: 23). Therefore, despite radical changes to pedagogy and the use of technology and innovation, staff may continue to gravitate to the use of summative assessment that may be driven by discipline and professional requirements.

While research results can demonstrate teacher satisfaction in relation to IBL, they also point to (a) pedagogical challenges (e.g., finding a balance between need for input and the amount of freedom given to students to explore and experiment, higher class unpredictability, how much support to provide) and (b) a considerably increased time/workload, routinisation, and further constraints to staff autonomy (Ribeiro, 2011).

Impact of 21st Century Learning Agenda on Students

Student learning is a key component of this emerging pedagogy, with their success as the main goal of staff activity. Technology increasingly underpins innovation in teaching and learning. Matching pedagogy, learning objects, subject matter, and student access and success using appropriate technologies, software, and online strategies remains an ongoing challenge in online and blended modes of learning.

The use of technology has the potential to emancipate. However, access to information is increasingly becoming a site of conflict. Curricula, teaching-learning and research is becoming organised to foster creative thinking at every grade level, and creative thinking and critical thinking should enhance and complement each other. The changes in assessment that underpin IBL can create the potential for critical thinking and are relevant to a society that has access to an abundance of information. However, if academic texts are replaced by group exercises such as poster assessments, digi-essays, and other innovative assessments that underpin IBL, will students seek the easiest options, of using Google Scholar or Wikipedia rather than learn how to read and critically understand research papers and academic peer reviewed texts?

Many HEI have implemented changes to learning and teaching, including using IBL to address issues related to learning, linked to employability. Linking the learning experience to employment has altered the function of higher education. Learning is no longer a means of emancipation and empowerment, but potentially a means of reproducing oppression and introducing new modes of surveillance, under the guise of supporting learners, creating workers to meet corporate needs and interests.

Conclusion

We have discussed the changes occurring in HEI, and the top down and bottom up factors that are radically altering the nature and function of the student learning experience, and both staff and student expectations. We have indicated that, in addition to benefits to staff and students in using IBL, there are other strategic, organisational, and corporate benefits to a 21st century learning agenda. In the case study, IBL raises important issues in relation to the relationship between staff and students, and between HEI and corporate interests.

Smoke and mirrors refer to practices of theatre where smoke and mirrors were used on stage, and in early film, prior to special computer generated effects, to fool the audience (consumer) that something was real, when it was not. Pipe dream refers to the dream that opium smokers had when intoxicated. Not based on reality, but fantasy.

Changes in HEI business practices, student debt, poverty, and increased staff workload with fewer resources may prevent the 21st century learning agenda that underpins the four pillars of education becoming realised. Hence, it is potentially a pipe dream, and the process of selling it, or forcing it on HEI uses smoke and mirrors to conceal agendas.

Freire (1968/2005) states that the university embodies both the potential for liberation and domestication, for both transformation and reproduction. Linking the learning experience to employment has altered the function of higher education: learning is no longer a means of emancipation and empowerment, but potentially a means of re-producing oppression, and creating workers to meet corporate interests. This raises issues of who truly benefits from such radical changes to pedagogy.

Perhaps the agenda of 21st century learning is to produce uncritical digital illiterate graduates, and make them fit for an economy with few workers' rights, low wages and zero contract hours. Or perhaps we are being overly critical, and study at HEI will truly emancipate, inform and educate citizens 'fit' for the 21st century.

Notes

1. Formerly the Partnership for 21st Century Skills
2. AOL Time Warner Foundation, Apple Computer, Inc., Cable in the Classroom, Cisco Systems, Inc., Dell Computer Corporation, Microsoft Corporation, National Education Association, and SAP.
3. For further information access <http://www.p21.org/>

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