Where to from here? Reflections, rethinking & reimagining higher education assessment in the New Media Age

Simon D. Smith
University of South Australia

Michael Griffith
Wai-Leng Wong
Paul McDonald
Australian Catholic University

Abstract: The New Media Age has ushered in new opportunities, challenges and demands in the delivery of higher education. Access to information and people anywhere/anytime is transforming traditional education models and changing teaching and learning approaches. In this paper, we reflect on current assessment practices in higher education and consider the impact the New Media Age is likely to have on the future of assessment. Examining education technology trends, we present a model that predicts the expansion of assessment along two dimensions**:** an *involvement* continuum and an *accessibility* continuum. The former consists of a scale *intrapersonal to interpersonal* while the latter consists of a scale *fixed to flexible*. Higher education assessment has traditionally provided for a relatively fixed spatiotemporal accessibility and intrapersonal involvement context. In this paper we suggest that the new media phenomenon will extend assessment provision further into flexible spatial and temporal accessibility, and deeper into interpersonal involvement.

Keywords: Future Assessment, New Media Age.

Introduction

Assessment is a focus and driving force for student achievement and also provides feedback into the teaching process. Innovations in education brought about by new media are having a flow-on effect on the teaching and learning process (Caple & Bogle, 2013), and corresponding transformations in assessment may soon follow. This paper explores the effects that new media is likely to have on assessment in the future. To explore future assessment possibilities, we first reflect on current practices and trends, and then overview soon-to-be mainstream technologies to explore their associated assessment opportunities and challenges. From these we construct a general direction for assessment in the future and discuss implications.

Assessment in the Future

Where are we now?

Current assessment consists of diagnostic, formative, and summative components (Biggs & Tang, 2007). Assessment has traditionally been undertaken in a relatively fixed space and time. It has been regarded as a "monologue" between teacher and student (Nicol, 2010) dominated by submission of assignments and/or closed book examinations and focussing chiefly on assessing recall of content. There remains a pervasiveness of the traditional lecturer view that holds tightly to a fixed, intrapersonal assessment model because this is the only

way that the lecturers/institution can "guarantee" that a student's work is truly their own. New media technologies are driving change in teaching and learning but assessment progression still lags behind, and traditional assessment models cannot deal adequately with more collaborative aspects that new media technologies can support (Gray, Thompson, Sheard, Clerehan, & Hamilton, 2010). Potentially, these technologies can create new opportunities for how we assess students: greater emphasis on formative aspects i.e. focus on processes/collaboration/communication and targeting higher order outcomes; greater student engagement/involvement and more choice and flexibility in assessments (Barwell, Moore & Walker, 2011; McNeill, Gosper, & Hedberg, 2010; Scardamalia, Bransford, Kozma, & Quellmalz, 2012).

What is on the Horizon?

Technology is one of the main drivers of assessment change (Johnson, Adams, Cummins, Estrada, Freeman, & Ludgate, 2013; McNeill et al, 2010)**;** therefore it is important to determine the soon-to-be mainstream educational technologies in order to understand their driving influences upon future assessment. The recent internationally recognised Horizon Report Higher Education Edition (Johnson et al, 2013) is a considerable body of work, and in it the potential impacts of nearly 50 emerging technologies have been analysed by an expert advisory board to draw consensus on the six main technologies that show promise of having a wider impact in higher education. These six main technologies, MOOCs (Massively Open Online Courses), tablet computing, games/gamification, learning analytics, 3D printing, and wearable technology are briefly described within the context of assessment.

MOOCs are commonly assessed via automated quizzes, although peer review systems, student gurus, badges and other forms of assessment are currently being explored with no real verdict as yet to which is most effective. ***Tablet computing*** is portable and facilitates sharing content with ease, and therefore ideal for collaborative exercises among students at various locations. ***Games*** increase soft skills including problem-solving and teamwork by leveraging motivations from content and context immersion. ***Gamification***, on the other hand, incorporates comparatively malleable elements of games such as levels, badges, quests and rewards, and allows freedom in choosing assignments. ***Learning analytics***, originally focused towards early warning signals for retention, is now directed towards gaining insights into student interactions. ***3D printing*** allows non-collocated groups of students to create physical items and submit "blueprints" electronically to be "printed" into physical form for assessment. ***Wearable technology***, in addition to being fashionable, allows for convenient access to information and people anywhere/anytime, and are likely to automate location-based decision-making.

Why should we assess differently?

The six technologies likely to become mainstream described above include a mix of mobility, innovation and collaborative opportunities. For instance, learning analytics provides decision-making information originally focusing on individual retention issues but more recently focusing on interaction analysis. Tablets and wearable technology are devices allowing mobility and sharing yet can be equally utilised independently within a class environment. While MOOCs largely contain individually assigned automated quizzes, there has been an exploration of including more collaborative elements. Games and gamification, which potentially can make learning more engaging, can be adopted either in class and/or online. Although most of the technologies themselves do not mandate any specific assessment models, a number of constraints and concessions exist. For example, while MOOCs require computer automated and/or peer involvement due to their potential massive student numbers, they allow flexible automated assessment times to allow students to move at their own pace.

The affordance of the six technologies discussed appears to be their ability to automate testing and feedback and/or their ability to facilitate collaborative assignments. Automated testing and feedback allows for more flexible place and time assessment accessibility. Collaboration allows for greater interpersonal involvement within the assessment process. Based upon these continuums we derive a model that describes possible assessment directions, and their relationship to traditional assessment practices. This model helps us to reflect upon the nature of the nature of technology-enabled assignment tasks and the suitability of the corresponding assessment applied.

Please note that in the figure below the accessibility continuum consists both of spatial and temporal flexibility; these are collated for convenience and do not necessarily indicate correlation.

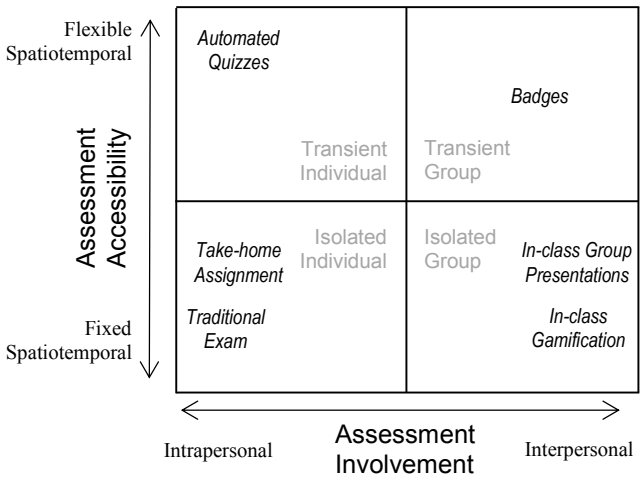

Figure 17 - Assessment in the New Media Age

Discussion

The six educational technologies tipped by the 2013 Horizon Report to become mainstream have provided indications of continuing directions towards *interpersonal involvement* (e.g.: collaborative learning) on the one hand, and *flexible spatiotemporal accessibility* (e.g.: independent anywhere/anytime learning) on the other. Interpersonal involvement in assessment such as collaborative learning supported by new media cannot be assessed to full effect using previous strategies (Gray et al, 2010; Waycott, Gray, Thompson, Sheard, Clerehan, Richardson, & Hamilton, 2010). This is because new media differs from traditional forms of assessment by enabling compilation and sharing of resources and establishing interrelated knowledge networks (McNeill et al, 2010). Assessment activities of interactive learning in an online environment can therefore differ substantially from what staff and students are familiar with (Waycott et al, 2010), and there is greater potential to support the assessment of higher order learning processes (McNeill et al, 2012). Conversely, automated testing for *independent learning* is simpler to deploy and offers great efficiencies for academics. It can be expected that students will gain more from automated feedback than is commensurate with the effort that goes into producing it (Sadler, 2010); however this form of assessment is often criticised for primarily targeting lower order skills (McNeill et al, 2010).

The two expanding assessment continuums of involvement and accessibility offer different challenges with respect to modifying traditional assessment practices accordingly. Given current new media trends, it is foreseeable that flexible accessibility and interpersonal involvement learning processes will converge in the mainstream, and therefore new or more mature corresponding assessment strategies are likely to follow. The dual effect that new media is having on accessibility and involvement may be the impetus that leads to a rethinking and reimagining of assessment practices in higher education. Traditional assessment practices are already being challenged by new media technologies in a number of ways. For example, a recent framework (Cochrane & Bateman, 2009) that links new media mobility to associated pedagogy, andragogy, and heutagogy suggests varying forms of assessment should be applied to differing media usage. Motivational constructs based on fundamental human desires such as reward, achievement, status and altruism are leveraged for learning via gamification (de Byl, 2012), integrating assessment via digital badges. Sadler (2009) recommends increased student autonomy and involvement equipping them with ability to assess and evaluate their peers in a holistic manner. Gray et al (2010) consider that traditional linear principles of constructive alignment and pre-determined objectives may give way to a more responsive assessment, although also considers that student Web 2.0 authoring will not totally replace other assessment strategies. The model presented in this paper also suggests a pluralistic approach to assessment in the future, with new assessment strategies coexisting with traditional practices.

Implications

One major implication of a pluralistic assessment model is based on variable accessibility and involvement is the issue of appropriately aligning assessment to the learning process. Pelliccione & Dixon (2008) report that much of the recent research into assessment procedures in higher education asserts a need to align assessment

strategies to complex learning patterns. Inappropriately designed assessment in a Web 2.0 context could have a deleterious effect on student learning and engagement, and an academic without a sound rationale for assessing students' Web 2.0 activities will struggle to justify the added effort flowing from the assessment (Gray et al, 2010). Therefore, simply applying a familiar traditional assessment model to a 'variable accessibility' or 'interpersonal involvement' learning process will constitute a misalignment, will likely result in a dysfunctional measure of knowledge achieved, and may even foster negative student motivations for learning.

Another significant issue of the pluralistic assessment model is academic integrity. Gray et al (2010) assert that new media does not automatically create transparency and accountability. The question of reliable assessment of knowledge exists because automated online tests are not commonly invigilated, and the continuous and dialogic texts produced via social web technologies may lead to questions of academic authorship and integrity that university students are required to demonstrate (Waycott et al, 2010). A future focus away from the acquisition of predetermined knowledge and towards learner engagement creates a greater need to capture the process of student learning (Barwell et al, 2011; McNeill et al, 2010), suggesting a greater emphasis on assessment for learning with a need to embed integrity assurance into the process.

Limitations

This paper considers the future of assessment purely within a technological context, and therefore does not consider economic, institutional, political or bureaucratic influences. Only the most recent Horizon Report was referred to in this paper as a representative of future technologies; perhaps a wider review of predicted technologies would produce a more comprehensive analysis of future assessment needs.

Conclusion

This paper considers the effect that the New Media Age is likely to have upon the future of assessment in higher education based upon six soon-to-be mainstream technologies identified in the recent Horizon Report. A reflection of current assessment practices and trends suggests that educational technology precedes assessment, and that an expansion of the traditional assessment model is occurring. Educational technologies on the horizon indicate a further drive in the directions of flexible assessment accessibility and interpersonal assessment involvement. Future assessment directions introduce greater challenges relating to appropriate alignment of assessment and learning process, and to issues of ensuring academic integrity, and within this context will require a rethinking and reimagining of how to assess and evaluate learning in the future.

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Authors' details: Michael Griffith. Email: Michael.griffith@acu.edu.au

Please cite as: Smith, D., Griffith, M., Wong, W., McDonald, P. (2013). Where to from here? Reflections, rethinking & reimagining higher education assessment in the New Media Age. In H. Carter, M. Gosper and J. Hedberg (Eds.), *Electric Dreams. Proceedings ascilite 2013 Sydney*. (pp.821-825)
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