

Online learning in ACSEducation: Using online learning tools in professional education

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Following the theme of "Learning for the Future", this paper investigates the use of a number of online tools that enhance learning within the Professional Year Program offered by ACSEducation. Supported by the literature on the use of these tools for learning and assessment, the use of online tools has provided engaging and relevant learning for students undertaking ACS programs. This paper explains the choice of tools and how they are applied to ensure the best outcome for the learners. Current research being undertaken to investigate the perceptions of students toward the use of these tools is discussed. Future research into the improvement in the use and efficacy of the tools into the future, and the methods planned for this research is also detailed along with relevant supporting literature.

Keywords: ACS, Moodle, Mahara, e-Portfolio, online learning, online assessment, professional education

Introduction and background

This paper details and discusses the use of online learning tools within the Professional Year Program at ACSEducation, a subsidiary of the Australian Computer Society (ACS). ACSEducation uses a number of online, open source tools to deliver educational programs for ICT professionals. Using a variety of well-researched online learning tools has enabled the ACS to engage and advance the skills of ICT professionals in programs across the industry association. This paper will discuss several of the online tools used within one program and plans to formally evaluate the efficacy of such tools as the ACS plans and expands its educational program into the future. Following the theme of "Learning for the Future", this paper will highlight the advantages of the use of such tools within ACS programs into the future.

Australian Computer Society, ACSEducation & the Professional Year program

Underpinned by an Outcomes Based Education (OBE) model that promotes a constructivist approach to reflective learning, ACSEducation provides several on-line, open source e-learning environments within which IT practitioners at all levels may study to enhance their own particular skill sets with a view to seeking professional certification.

In a report commissioned by the Federal Government, three factors were identified as contributing to only one third of Australian trained, overseas born graduates obtaining employment within the Australian workplace: lack of specific occupational work experience; a viable Australian labour market bridging program; and weak English skills (Birrell, Hawthorne and Richardson, 2006). The development of the ACS Professional Year Program was recommended as a way in which to equip migrant workers with a variety of predetermined work readiness skills. Previous research had shown that the poor English language and communications skills were key areas of deficiency (Bretag, 2007; Watty, 2007). Professional Year Programs were designed to equip language challenged graduates with the generic skills required to work effectively within the Australian workplace (Birrell, et al., 2006). The PY 44 week work readiness program developed by the ACS offers a twelve week component whereby the PY student is enrolled simultaneously in an ICT internship and an online tutorial and it is this element of the program on which this paper concentrates.

A review of relevant literature conducted for this paper identifies previous work that supports the use of the online learning tools employed by ACS Education as well as informs the methods used in current and planned research in this area. The literature review selection criteria concentrates on an analysis of the efficacy of online learning delivery, the pedagogical underpinning for such educational delivery as well as the types of methodologies used to support on-line, open source learning environments within varying levels of educational

delivery. A second objective was to identify the types of gaps evident within the literature review conducted. A brief review of the most relevant literature is presented here.

Increasingly, universities are incorporating online technologies into teaching and learning strategies with the aim of creating more flexible learning activities (Taylor and Eustis, 2002). Advancements in information and communication technologies (ICT), as well as the changing needs and demands of students, are profoundly influencing instructional formats and delivery modes of tertiary educational institutions worldwide. Some acknowledged benefits of online learning delivery in this field include: enhancement of marketability; maximization of students' choice of learning styles; location; time; place of learning; reduction in instruction time; enhancement of effectiveness and mastery of learning; potential improvements in retention; increases in student motivation; satisfaction; and enjoyment of the learning experience (Farrell and McGrath, 2001; Kenny, 2002).

Recent studies have established that the provision of access to teaching materials alone is unlikely to engage students who respond better to more multi-modal forms of learning and is less likely to result in deeper levels of knowledge and skill development (Prensky, 2006; Rouvrais and Gilliot, 2004). Twenty-first century learning environments clearly need to take into account the networked nature of knowledge, opportunities afforded by teamwork and the importance of participation in knowledge generation in technology-rich environments (van Weert, 2006). Connectivism, (Siemens, 2005) acknowledges the centrality of learning through the generation of ideas, supported by social activity, enabled by personal networks, interactivity and engagement in experiential tasks and viewing the teacher as having the role of a mediator. Learning is the process of creating connections, a view that is congruent with the ways in which people engage in socialisation and interaction in the Web 2.0 world. A key idea is that learning starts with the connections students make with one another, as opposed to engagement with a fixed body of content.

Various researchers, (Birenbaum and Rosenau, 2006; Ashcroft and Hall, 2006) investigated the role of e-portfolios in assessing the development of life long learning skills and continuing professional development. Birenbaum and Rosenau placed reliance in earlier research conducted by Entwistle, (1991), and utilised Biggs' (1996) methodological measuring tool: the Motivated Learning Strategies Questionnaire. Biggs' research identified the importance of student attitudes towards learning and how the identification of attitudinal motivation influences individual student perceptions of the learning environment and its inevitable impact on their ultimate success within these learning environments. Tochel et al's (2009) study findings suggested there is good evidence that if well implemented, portfolios are effective and practical in a number of ways including increasing personal responsibility for learning and supporting professional development. Of further interest is their conclusion that a well-informed mentor can have considerable impact on [e-portfolio] uptake, especially when regular feedback is given. Reflective practice encourages synthesis of not only learning experiences, but also the personal value of other situations, (Conrad and Donaldson, 2011) such as internship experiences.

Over the past twenty years, the Internet has had a profound effect on the teaching and learning practices in higher education programs. Carbonaro, King, Taylor, Satzinger, Snart, and Drummond (2008) found that students reported enjoying the novelty and flexibility afforded by the use of online technologies. Studies suggest that there is a strong movement towards providing online learning as students appreciate the flexibility and enjoyment of learning in this environment (Kenny, 2002; Carbonaro, et al., 2008).

In spite of the plethora of studies on the effectiveness and advantages of online learning, there are several specific gaps in which the authors have planned studies. One is the lack of evaluation of online learning programs within professional industry associations. The other is the minimal amount of research conducted around the effectiveness of online assessment, particularly in online only courses. Finally, there is a gap in perceptions of online students who defer or withdraw from study environments.

ACSEducation application of online learning tools

Given Moodle's wide use in Higher Education delivery, and that education delivery was clearly moving towards e-learning, ACSEducation decided to adopt Moodle for its e-learning system in 2006. ACSEducation works with Bright Cookie, an educational technology company based in South Australia, which hosts the Moodle server and provides maintenance. Another strength that attracted ACS to Moodle was the usability. ACS decided to implement e-learning because of its position as a professional body in the IT sector.

A further open source learning tool utilised within the ACSEducation online environment is that of Mahara, a personalised, professional electronic portfolio (e-portfolio) within which students can document and plan their professional life achievements, career plans and long-term goal objectives.

In addition to offering materials for learning for PY students, Moodle and Mahara are used for all assessment of students in the course. Following a face to face workshop in which students are introduced to Moodle, Mahara, the SFIA (2011) capabilities framework and the PY course itself, student operate completely on line with the assistance of a tutor who interacts, monitors and assesses their progress.

Within the online course itself, students are divided into groups of 15-20 within a Moodle shell. Over the course of 12 weeks, they are introduced to a number of learning objects including a skills framework, ethical decision making, risk management, project management, initial career development information. Assessments include online weekly quizzes, discussion forums, reflective journals, and three assignments. The assignments include analysis of an ICT ethics case study, a risk management report and the development of a career based personal e-Portfolio. Each part of the online course is monitored by an ICT professional providing assistance and advice to the student. Whilst the student is engaged in the PY course, they are also completing a 12-week internship. This provides the student with an opportunity to gain valuable experience in the Australian ICT environment, and to reflect on this experience within the course.

The first tool offered within ACSEducation programs to assist students in an objective, documented self-analysis of their own particular IT skills is the introduction of an internationally recognised skills framework - the Skills Framework for the Information Age (SFIA, 2011) – the structure of which aids participating students in identifying demonstrable, current levels of professional achievement across generic and specialised skills, mapped against specific measurable standards (www.sfia.org.uk).

Current and future research

The authors took on board the recommendation of Bliuc, Ellis, Goodyear, and Piggott (2009) that further extensive research over a wide range of disciplines, involving large samples and a range of instruments to determine the effects of student perceptions in the effects of the online environment on ultimate educational outcomes as the starting point for our research design.

The approach adopted by the authors' current research into student perceptions of how Moodle and Mahara develop deep approaches to learning and the perceived quality of these tools has been influenced by previous qualitative research studies (Baeten, Dochy, and Struyven, 2008; Ellis, Calvo, Levy, and Tan, 2004). Research into the role of Moodle and Mahara as effective digital tools for reflective practice facilitation is reliant on the case study research conducted by Hegarty (2009) and George-Palilonis and Filak (2009). Birenbaum and Rosenau suggested a need to further analyse student perceptions of the online learning environment through the adoption of a mixed-methods research approach.

Since one gap the authors identified within the literature review was the exclusion of student perceptions from those who defer or withdraw from online open source study environments, it was decided to include all identifiable Professional Year (PY) enrollees within the questionnaire survey roll out, rather than merely those currently engaged within the medium or who had successfully completed the subject.

Following the completion of the study detailed above, the authors wish to investigate whether the existing online learning environment is an effective tool for creating a reflective learning environment. Subsequent papers will involve analysis of larger data sets extended to include the perceptions of both students and tutors, with a view to identifying, recording and implementing any remedial actions required to improve positive educational outcomes in the acquisition of professional development certification.

Hegarty's (2009) preliminary case study, which examined the role of reflective writing practices within the development of student skills, is an area of research identified as requiring further investigation. Finally, the authors will explore whether the concept of reflective learning could be easily grasped and self-reported as a positive learning conduit. Does the e-portfolio medium assist in facilitating student-centered learning and an ability to demonstrate a solid understanding and application of the required learning outcomes?

Conclusion

This paper detailed the structure of the ACS Education PY offerings, literature around the use of online learning, assessment and e-Portfolio use, and current research to establish effectiveness of the current environment. Existing research supports future research plans for the introduction of the chosen methodological framework for what is envisaged as a longitudinal study intended to offer further data to supplement current educational literature. The results of the pilot study investigating student perceptions of the role of the online and e-portfolio environment in the ACS Professional Year program will inform this future research.

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