WORKING WITH STUDENT DIVERSITY IN AN ONLINE PROGRAM

Luisa Signor, Catherine Moore
Swinburne University of Technology

ABSTRACT

The case study described in this paper illustrates the importance of the role that informed learning design plays in the planning, development, and implementation of online programs when educating diverse student cohorts. Within the context of this paper student diversity refers to: personal and geographical demographics, work and life experiences and consequent skill bases. This diversity was prevalent in the open-access, online undergraduate Bachelor of Technology program and can be attributed to the different backgrounds of the students many of which entered the program via non-traditional pathways.

A significant number of people working in the Information and Communication Technology (ICT) industry within Australia do not have higher education qualifications in the field; however for career advancement, they are seeking credentialing. Likewise, employers are pursuing professional development opportunities for their staff within their own ranks since higher education ICT programs Australia wide have failed to attract school leavers in recent years. In contrast, the Information Systems (IS) program discussed in this paper, has experienced exponential growth of over 80% since 2007 attracting large cohorts of mature-aged students studying while employed. These students enter the program with a variety of skills, experience and learning styles challenging the educators to establish strategies and adaptive learning designs to cater for this diversity. The paper discusses the practice-led design adopted for online learning and teaching with emphasis on working with student diversity.

KEYWORDS: Diversity, e-Learning, open access, online education

INTRODUCTION

The inclusion of online education at many universities worldwide has led to research studies which investigate different aspects of e-learning. One aspect explored in this paper is the diversity of students in online education.

Online education with its potential for flexible delivery attracts non-traditional entry students such as mature-age students who are balancing study with work and family (Coldwell, Craig, Paterson & Mustard, 2008). These students come from diverse backgrounds not only in terms of geographic locations, technical skills, and access to online connectivity but also in relation to timeframes they can devote to study due to their other commitments (Elias, 2010).

The literature revealed other areas of diversity such as the cultural backgrounds of students (Anderson & Simpson, 2007; Liu, Liu, Lee & Magjuka, 2010), and students’ preferred learning styles (Donnelly & O’Rourke, 2007; Signor, 2009). Not all identified areas of diversity fall within the scope of this paper, for example the issue of cultural diversity will be explored in future research. This paper focuses on diversity in terms of student backgrounds and experiences, geographical locations and students’ preferred learning styles.

An online Information Systems (IS) undergraduate program at an Australian university (in partnership with Open Universities Australia (OUA)) forms the case study for this paper. The IS program guarantees open access entry to any person i.e. there are no formal tertiary entry requirements. The outcome is significant variance among the student cohorts in terms of their personal and geographical demographics, work and life experiences and subsequent skill bases. This reality led to many challenges faced by the educators particularly in terms of catering for differences in student backgrounds and learning styles. As members of the academic team involved in the original on-campus provision of this program, the online transition and ongoing pedagogical development for learning and teaching to diverse cohorts was a high priority.

Growth of the online program.

Student enrolments in the program have grown by 80% since 2007 in direct contrast to the declining trend in Information Technology (IT) enrolments in universities Australia wide as reported by the Department of Education, Employment and Workplace Relations (2009), see figure 1. A
possible explanation for the growth in this program may be the demographics of the cohorts. The cohorts have been observed as predominantly Australian mature-age students. Supporting this observation is the OUA Annual Report as reported by Open Universities Australia (2008), which stated that 90-95% of students studying ICT through OUA are Australians who are 25 years and older. In light of this information, these mature-age students are likely to be balancing work and life commitments with their studies and may be drawn to the flexibility offered by online education in relation to time and place of study (Stephenson, Brown & Griffin, 2008).

![Figure 1: DEEWR vs IS program statistics according to Equivalent Full Time Student Load (EFTSL)](image)

Learning in relation to technology is considered extremely important to Australian employers as it can enhance employees effectiveness hence improve the performance of the company (Australian Employment & Workplace Relations, 2008). The continued growth in the IS program is seen as meeting an otherwise unmet need by mature-age candidates, who either desire to credential their existing work-based experience or are looking to enhance their career and employability prospects.

**Diversity of students.**

The open access feature of the program is the „no entry requirements“ such as prerequisite studies. This feature guarantees the student cohorts entering the program bring with them assorted skill bases, varied online accessibility and a mixture of preferred learning styles. The multiplicity of students led to developments in online learning design and teaching practices. As a result a range of pedagogically based initiatives to support students in the program were developed.

**Work and Life Experiences**

The program’s typical cohort include students returning to study for the first time after numerous years and students who wish to receive formal academic qualifications to supplement their industry experience. Many students are not in a position to stop employment in order to physically attend a university. The IS program is filling this otherwise unmet gap in Australia. The aim of the program is to create credentialed information systems professionals who add value to an organisation with their critical thinking skills and ability to liaise with colleagues and stakeholders, including clients. The use of interactive, collaborative online activities within the program draws upon students’ individual experiences and skill bases. Students are encouraged to develop a theoretical understanding of the information systems discipline to underpin their skill development. This has facilitated successful career outcomes and provides a foundation for lifelong learning. A primary focus for future research into this program will be to explore student outcomes in terms of their learning and career prospects. An example of this is the following feedback, in the form of an unsolicited email, received from a student in 2009:

“I have full time work now and it is all thanks to this course. A really big thank you…for making it possible for me to study at home in a rural location and gain a fantastic job as a result”.

Meyers and Jones (1993) active learning principles was used to inform the use of case studies for student team dynamics and collaborative learning. In mirroring on-campus practices the active
learning approaches include small groups in online tutorials and the use of industry sourced and real world scenarios such as case studies and relevant assessment tasks. Options are available for students to base their assessments on their own work-related scenarios or, to cater for students who may not be currently employed, case studies are provided which emulate real-life scenarios that encourage analysis and problem solving.

As discussed previously, the program’s student cohorts are primarily mature-age students and are valued for the wealth of experience each student brings with them. To capitalise on this, teamwork and communication skills are facilitated via online communication within collaborative settings which enable group discussions drawing from industry experience. Students are encouraged to share their experiences as they relate to the subject matter. This results in value-added collaborative online tutorials where students stimulate conversation by bringing in their understandings around the concepts being taught. Students without the benefit of on-the-job experience are engaged into conversations by their peers with relevant and up to date experiences which assist them in sense making of content. Learning activities direct and support students towards collaborative communication throughout their studies. For example semi-structured synchronous online chats, asynchronous discussion threads, email and use of Skype for peer support.

Location and Accessibility
Online education attracts students whose residential location makes it difficult or impossible to attend face-to-face institutions (Signor, 2009). This is evident with many students in the program enrolling from local, rural and international locations.

One of the program’s philosophies is to be accessible for all students, no matter where they are or what technical resources are available to them (an important issue in the Australian context). Accessibility equity is a moral consideration for educators (Anderson & Simpson, 2007) particularly when delivering online education where students have limited access to online resources. Subsequently it is not assumed students in the program have equal access to the Internet or latest software versions. Therefore to ensure content availability for all students, a CD-Rom containing a complete mirror of a unit’s Website capturing all static content is offered as an alternative resource.

Learning Styles
Students in the program approach learning in different ways. These approaches may be viewed as preferred learning styles although it should be noted that each person is multifaceted and unique. Attempts to categorise people as having specific learning styles can be difficult however many researchers have attempted to do so by developing frameworks as measurements (Cuthbert, 2005; Honey & Mumford, 1992; Kolb, 1981). This section will not follow a particular learning style framework but will address learning styles more generically in terms of the students’ desired pace of progression through unit material, variety in viewing unit material and in the types of assessment.

One strategy employed to enhance student learning was the development and implementation of learning objects into the curriculum. A learning object can be a single file such as an animation, a video clip, a discrete piece of text or URL, or it can be a collection of contextualised files that make up a learning sequence (Oliver, Wirski, Wait & Blanksby, 2005). Learning objects offer a new conceptualisation of the learning process -rather than traditional lectures and tutorials, they provide smaller, self-contained, portable or reusable units of learning presented in manageable segments (Moore & Wallace, 2003). To encourage student reflection on their learning progress many of the learning objects contain self-assessment activities.

It was observed that learning objects afforded students a degree of flexibility to choose which areas within a unit to study as appropriate to their needs. For example, depending on each student’s prior knowledge, they have the option to skip any learning object in which they are already proficient, allowing more time to focus on their learning needs. This feature is particularly relevant for students currently employed within the IT industry due to their work experience. Students through tutor guidance are given control, responsibility and ownership for their learning within a structured environment in which they can develop self-directed learning skills.

Recognising the need to support students with different learning styles, many of the units within the program include virtual lectures with video components and text-based transcripts. Students who prefer the spoken word can listen to the video. Students who prefer the written word can read
the transcripts. Students are also able to view the lectures at their own pace, revisiting sections as required.

Virtual lectures are complemented by virtual tutorials conducted via online discussion threads or online chat sessions. However it was noted early on that static text based content did not suit the learning styles of all students therefore virtual tutorials using Mimio software (an electronic white-board that records voice, images and text) were developed to provide step-by-step worked solutions to complex problems. The incorporation of Mimio files allows students to view a pre-recorded white-board presentation of a worked example along with verbal explanations which are further unpacked during chat room sessions.

CONCLUSIONS AND FURTHER RESEARCH

Contemporary literature (coupled with the evidenced growth in the online program discussed in this case study) points to the growing demand for online education for students with diverse backgrounds. It has been shown that online programs teaching to diverse student cohorts can be successful in a tertiary environment, where explicit planning and development has been undertaken.

The planning and development for delivery of flexible learning materials which cater directly for student diversity must be a key focus of the underlying learning design philosophy. Imperative to this philosophy is to provide collaborative communication which affords accessibility for all students. As part of the communication strategy, educators proactively facilitate an inclusive environment that encourages the sharing of experiences amongst students.

This case study has illustrated an aspect of innovation in learning design for a highly successful, nationally recognised online and open-access undergraduate program (Australian Learning & Teaching Council, 2010). Future areas for research include cultural diversity and the need for equity for students with learning impediments and disabilities. In addition, exploration into the student outcomes in terms of their learning, career prospects and satisfaction within the program will form a key component of further analysis of this case study.

REFERENCES


