

MAKING ROOM TO RECONCEPTUALISE LEARNING IN BUSINESS: EDUCATIONAL TECHNOLOGIES AND TEACHING SPACES

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Abstract

This paper considers ICT usage in three Professional Development (PD) units of study at Victoria University (VU), Melbourne, Australia. The PD units were developed in response to an employer and graduate survey as part of a review of the Bachelor of Business at VU. The question of how well we have integrated the collaboration, communication and constructivist capabilities of available technologies into PD curriculum is considered in the light of preliminary responses of staff and students to the new units of study, the innovative learning spaces and the educational technologies available to facilitators. In the 2006 survey of business practitioners, Business academics and VU Business alumni recommended the PD units be introduced into Business degrees after respondents emphasised the importance of developing undergraduates' employability skills including, most importantly, ICT skills. Acknowledging student preference for, and effectiveness of, learning by doing, the lecture/tutorial format at VU had to change to effectively develop these skills. Lectures and tutorials were replaced by a 3-hour seminar of 40 students in seven purpose-built rooms that boast a range of ICT. The 3-hour seminar in new learning spaces allows for ways of developing and assessing students' skills in ICT, information literacy, communication, team work and problem solving. This paper begins a consideration of how, and even if, ICT in PD units is being exploited to its full educational potential.

Introduction

This paper considers ICT usage in three Professional Development (PD) units of study at Victoria University (VU), Melbourne, Australia which were developed after a review of all undergraduate Business programs at the university (Papadopoulos et al., 2006). The units were developed to fully exploit both the interactive, collaborative and creative potential of available ICT and innovative teaching spaces to develop students' employability skills

and, particularly in first year, to support students' transition into university. This paper considers how well the curriculum has encouraged the uptake of ICT especially in the new, purpose-built learning spaces. Preliminary findings from an online survey suggest that facilitators of the PD units are highly individual in their use of ICT, that some facilitators find some technologies 'very useful' and have developed creative ways to connect with students, capture student work and encourage student reflection while others may consider the same technology 'not appropriate' for teaching. Without having yet run focus groups to interrogate these findings further, it is clear that the faculty's educational developers must consider creative ways of embedding more ICT into the curriculum, sharing the creative ICT usage that already occurs and supporting more facilitators to embrace a range of ICT options.

The review into the Business programs at VU surveyed business practitioners, HR managers, VU Business alumni and VU Business academics. These groups were asked to rank the professional skills and knowledge required of a new, work-ready business graduate. Over 700 respondents completed the survey. Respondents rated each knowledge area by a level of importance ranging on a five-point Likert scale: 'unimportant' (1); 'moderately important' (2); 'important' (3); 'very important' (4); and 'essential' (5). Interestingly, ICT literacy was ranked by mean score as an important area of academic knowledge as shown in Table 1 below. The Table shows the first 10 of 18 knowledge areas ranked.

Table 1: Findings on the Survey Component of the Bachelor of Business

Academic Knowledge (Ranked in Descending Order)	Total (mean score)	Business (mean score)	Alumni (mean score)	F(726,2)	Sig.
1. Computer literacy	4.22	4.15	4.27	2.228	.108
2. Business communications	3.73**	3.61	3.82↑↑	4.731	.009
3. Ethics of business	3.7**	3.84	3.54↓↓	7.774	.001
4. Information literacy and analysis skills	3.59**	3.52	3.57	7.628	.001
5. Organisational behaviour	3.55	3.53	3.62	2.777	.065
6. Project management skills	3.51	3.51		n/a	n/a
7. Financial literacy	3.39*	3.5↑	3.3	3.749	.025
8. Strategic planning and implementation skills	3.37	3.35		.466†	.643
9. Innovation and entrepreneurial skills	3.29*	3.21	3.4↑	3.733	.026
10. Marketing principles	3.18*	3.11	3.28↑	3.214	.042

* Significance level ANOVA $p < .05$; ** Significance level ANOVA $p < .01$; *** Significance level ANOVA $p < .001$

↑ Significance level S-N-K $p < .05$; ↑↑ Significance level S-N-K $p < .01$; ↑↑↑ Significance level S-N-K $p < .001$

↓ Significance level S-N-K $p < .05$; ↓↓ Significance level S-N-K $p < .01$; ↓↓↓ Significance level S-N-K $p < .001$

† Students independent samples t-test used as survey item as only 2 groups represented for that item.

(Source: Papadopoulos et al., 2006.)

Employability Skills or Professional Literacies

The Business Review recommended the development of specific, mandatory units in the Business degree that would maximize students' employability skills, including ICT skills. Professional Development 1: Critical Thinking and Problem Solving (PD1); Professional Development 2: Analysis and Strategy (PD2); and Professional Development 3: Challenge and Leadership (PD3) were developed to be taught sequentially in the undergraduate degree. Delivery began in 2008. Employability skills, also called generic skills, soft skills, professional literacies or enterprise skills (DIUS, 2008), feature in all undergraduate programs in Australia. Their prominence in curriculum comes from the students themselves, industry and professional bodies and from State and Federal Governments. Certainly, universities are increasingly mindful that graduates' transition into professions should be supported by a range of preparatory initiatives in the curriculum. Occupation preparedness is one reason for focusing on employability skills but such skills simultaneously support students' capacity to participate effectively in academic discourse. Arguably, ICT skills have the capacity to support and extend the development of all generic skills regarded by academics and professionals alike as vital. Employability skills typically include communication skills, teamwork skills, problem solving skills, self-management skills, planning and organising skills, technology skills that contribute to effective execution of tasks, life-long learning skills and initiative and enterprise skills (DEST, 2002). Research, defined broadly, is an often-included skill. Clearly, ICT can support the development of all of these skills but how well are curriculum developers exploiting that potential?

The university has a role in the development of employability skills, professional literacies or graduate capabilities (DEST, 2006). Professional literacies should be developed in undergraduate degrees by a range of means. A pivotal means of supporting skills development in the PD units includes the embedded (and the serendipitous) use of ICT both inside and outside the classroom. Of course, merely *using* ICT does not equate to good teaching. The interactive, collaborative and creative potential of ICT must be foregrounded over its overwhelming capacity to simply transmit information more insistently and ubiquitously.

In the development of the PD curriculum, the team favoured the phrase "professionally relevant learning" in conceptualising the curriculum as it suggests the skills, qualities and attributes that are required by a profession as well as the processes through which those skills are learnt. While professionally relevant learning may well include industry placements, industry based projects and the like the PD units of study are not designed to incorporate work placement. That function is provided at VU by the Centre

for Work Integrated Learning which organises both Co-operative Education where students undertake full-time employment and Business Integrated Learning which sees students working on industry projects. PD units complement these work-based approaches.

The PD units develop students' professional literacies. In fact, all units taught at VU must embed VU's six Graduate Capabilities into the curriculum: "the university accepts that it has the dual responsibility of enhancing the employability of its students and developing their effectiveness as lifelong learners" (VU, 2008). VU's Graduate Capabilities are like most Australian universities' attributes. The terminology changes from graduates skills, attributes, capabilities or qualities, but VU graduates, like most university graduates, are expected to be able to "problem solve . . . locate, critically evaluate, manage and use written, numerical and electronic information; communicate in a variety of contexts and modes; work both autonomously and collaboratively; work in an environmentally, socially and culturally responsible manner; and manage learning and career development opportunities" (VU, 2008). PD units, however, especially focus on developing and assessing these attributes and are distinguished from other units in the university by several features. They are characterised primarily by *how* they are taught: namely, in a three-hour, collaborative seminar; with a multi-disciplinary mix of students from across Faculty (including Accounting, Management, Events Management, Economics, Law, Information Systems, Finance, Tourism, Hospitality and Marketing students as well as some Engineering students electing to enrol); using constructivist pedagogies, and; in the specially designed teaching spaces.

Attrition and the First-year Experience

The PD units were designed to achieve the outcomes of the business review; that is, to develop and assess students' professional literacies. Beyond developing professional and academic attributes, the units also seek to address the attrition rate at first year and the concern that students have little sense of belonging to the university (Krause, 2005). We want to improve the odds that 2 out of 3 students are confident that at least one teacher knew their names (Krause, 2005) to 3 out of 3.

Attrition is an institutional concern. Australia's Department of Education, Employment and Workplace Relations (DEEWR) uses universities' attrition rates as one of many performance indicators. Like all performance indicators, there is significant funding attached to attrition. For numerous reasons, attrition rates at VU are high compared to other Australian universities. Over a 10-year period, the rates have often hovered around 25% (Gabb et al., 2006). Student engagement is a key factor in attrition. VU's

students typically have lower levels of engagement than peers at other Australian universities; they spend less time on campus and less time in private study and they have fewer contact hours per week (Gabb, 2006).

The first year is crucial as far as attrition is concerned (Gabb et al., 2006; McMillan, 2005) and a key way to reduce attrition is to attend to the transition of students. The PD units have embedded a range of the strategies to address attrition: collaborative learning activities, early “at risk” assessment and follow up support, multiple formative assessment tasks, explicit pedagogies in regard to academic requirements of university (referencing exercises, plagiarism exercises). Each seminar includes a theme-related icebreaker aimed at building relationships within the group. This ensures that the idea of learning being “pleasurable. There is no rule against hard work being fun” (Ramsden, 1992, p. 102) is integrated into the curriculum, not bolted on to the end of class. In PD units, attrition problems are particularly addressed through increased social and academic engagement of students in class through a range of collaborative learning activities and outside of class through team projects. Student engagement has been enhanced through embedding ICT in the assessment. Less embedded but no less engaging has been students’ own propensity to use online social networking platforms like Facebook and Twitter for group work, preparing group classroom presentations, sharing research and simply socialising. Of course, the links between good teaching and reducing attrition are also vital and we need to ask, how can ICT enhance good teaching in the PD units?

Student-centred Pedagogies

The purpose of PD units is to explicitly develop Graduate Capabilities through active-learning in a “constructive process” (Kozma, 1991, pp. 179–180). PD units have been designed to encourage this constructivist approach assisted by ICT. The units further aim to support the development of technologically literate graduates who are unafraid of technology, able to use it effectively to communicate and generate ideas, to connect, to find, to effectively work, study and live as “digitally enhanced” graduates (Prensky, 2009).

Collaborative Learning Suites

The delivery of the PD units at VU have necessitated the development of seven purpose-built learning spaces with a range of technologies that support collaboration, communication and ICT competencies at an average cost of approximately AU\$400,000 per room. A further two rooms are being built in a café style for PD 3 students at a similar cost. Beattie’s 2005 survey of

learning spaces at VU, “Make room! Make room!”, alludes to commonplace expressions that often describe the student learning experience at first year: “sardines,” “cattle,” and “squashed” all convey various images of overcrowding. Such congestion is a common feature of the tertiary education system. A recent report examining overcrowding at Victorian universities said that lectures were so crowded, students frequently had to sit on the floor, some students skipped overcrowded classes with 40% of students saying that “lecture facilities were unable to meet the educational needs of the people crammed into them” (Perkins, 2009). To reconfigure teaching and learning in a move away from cost-effective lectures and tutorials is, really, an expensive exercise but also, given the report mentioned by Perkins, a timely effort that will make students feel valued. Krause (2005) warns that for first year students may feel especially alienated in large classes, that students lack both a sense of community and a sense of connectedness. The PD spaces and curriculum aim to overcome these problems.

The PD classes are taught in 3-hour seminars of no more than 40 students, with kidney-shaped tables of 8, one computer per team of 4 and projector capacity for students to share their computer work with the class on one or all of the five 52" LCD monitors around the room. In PD lecturers are referred to as facilitators to signify a shift in the pedagogies underpinning the curriculum. Facilitators control all the LCD monitors (three 40" LCD monitors are for facilitator display only but facilitators can elect to use all monitors simultaneously). Facilitators can switch between teacher, student groups and student presentation modes on their console which controls LCD monitors. They can encourage students to share individual, group and whole of class activities. Facilitators also have DVD, VHS and document camera facilities that can project onto all LCD monitors. Transmission from facilitators is discouraged: “Resist the urge to tell!” became the motto in facilitator training, so strong was the emphasis on encouraging a constructivist approach of supporting students to discover, develop and demonstrate skills, knowledge and information autonomously and collaboratively with peers. Socratic questioning is urged over any transmission of information. The students have all the resources to investigate but some facilitators cannot resist the urge to tell: they just have to “cover” this, “go over” that and tell students something else. The constructivist teaching approach expected in PD clearly “requires a paradigm shift in the faculty’s general approach to teaching and learning” (Papadopoulos & Woodley, 2008); certainly, the move to a learning paradigm” (Bowden & Masters, 1993) requires that far more than teaching spaces needs reconfiguring. Facilitation does not mean that seminars forgo teacher direction. In fact, the facilitator’s role is complex — requiring thinking on one’s feet, time management skills, the capacity to reflect and to

pose intriguing questions to encourage critical thinking. Facilitators need strategies to evaluate how well students are understanding, learning, and collaborating. And they need to be ICT savvy in a student-centred way.

Students are encouraged to use whatever software and media are available and suitable for learning tasks — so activities from finding information, comparing information, synthesising information, communicating with other groups via chat, discussion, e-mail or other means and presenting findings all insist on the use of ICT *in a team* of no more than four students. A deliberate decision was made in designing the rooms and the activities: this was no computer lab. Students would need to share computers. Students were not, during class, going to work alone on a computer: “students [would] not be working in isolation — just being interactive with a screen. Classroom interaction is vital” (Woodley in Biggs, 2003, p. 218). In addition to electronic educational technologies, the PD spaces are also equipped with glass whiteboards and students have a range of whiteboard markers, Post-it notes and other media to present information, create mind maps or comment on other students’ board work. In fact, low-tech technologies have proven very popular with many team activities and we certainly did not want the “technology-enabled” (Brown & Lippincott, 2003) learning spaces to result in technology-dependent learners. The table design encourages students to feel comfortable and connected — padded swivel seats are adjustable and computer screens and keyboards can be moved about to accommodate, not dominate, learners. Students can see each other and are configured so as to be part of a learning network — not just looking towards the lecturer in immovable rows. The PD learning space, then, offers students the room in which to practise interpersonal interaction.

The multimedia environment of the PD rooms means teaching has the potential to be less dictatorial, less linear and more exploratory than teaching in lecture theatres and tutorials. Kozma (1991) argues that such environments can challenge learners to develop their critical thinking skills in ways that traditional transmissionist spaces might not. But the shift from lecture and tutorial has proved to be a greater shift in practice for some facilitators than it has been perhaps for first year students. The spaces have been created to support the development of professional literacies, academic literacies and social cohesion. The technologies used in the curriculum should support and enhance these aims but do they? How well have we integrated the collaborative and investigative capabilities of ICT into course instruction and classroom use? Have we merely created more ways to transmit information?

Teaching PD

PD units currently have 60 seminar groups each week (semester one, 2009, PD1 has 39 seminars and PD2 has 20 seminars). The seminars run at 4 campuses and are taught by 35 different facilitators. PD units use Learning Modules in Blackboard to structure seminars and to provide before and after class activities for students as well as vital functions like communication, assessment and Turnitin. Blackboard and e-mail also help students and facilitators to share resources and “keep on the same page” with the curriculum. Attempts to ensure comparability across seminars is enhanced through weekly Lesson Plans provided to all facilitators and by facilitators sharing their classroom experiences (sometimes during class) via group e-mail. While “our ability to take advantage of the power of emerging technologies will depend on the creativity of designers” (Kozma, 1991), the onus as far as the PD units is concerned is also on the facilitators. The creativity of curriculum developers and the high-tech look of the PD learning spaces will not salvage a class if the facilitator is unwilling or lacking in confidence to use ICT or to let students occupy the learning space in active and creative ways. Biggs (2003) reminds us that ICT can “make bad teaching worse” — so ICT for ICT sake is to be avoided while the interactive capacity for ICT must be exploited. Findings from a 2009 survey suggest that training for facilitators of PD is more critical than the curriculum developers expected.

Survey of Facilitators

A 2009 survey using Survey Monkey examined PD facilitators’ use of ICT and, specifically, Blackboard in the PD units for the semester beginning February 2009. The survey asked facilitators to self-report on their ICT skill level, to indicate the frequency of their ICT usage of a range of technologies (for example, Internet, Skyping, Mobile Phone, Digital Camera, Document Camera, Twitter (or similar), Podcasts, Blog/Vlog, Wiki, MP3) for teaching PD, teaching units of study other than PD and administration. More specifically, the survey asked respondents to consider selected Blackboard functions (Who’s Online, E-mail, Announcement, Discussion, eJournal, Grade Book, Quiz, Learning Modules and Student Tracking) and to indicate frequency of use with the options: ‘Never’, ‘Several times a month’, ‘Weekly’, ‘Several times a Week’ or ‘Daily’. The survey also asked for facilitator examples of particular ICT usage in PD and their overall perception of the impact of ICT on teaching and learning in PD. This response, it must be noted, was overwhelmingly positive. Finally, respondents were asked about their own professional development habits and needs

In relation to the use of Blackboard functions, it was interesting to note that many interactive communication tools like Who's Online and Chat were "Never" used by most respondents; E-mail, Discussion, Announcement were "Never" used by some respondents and, despite the e-journal being an assessment task, 1 respondent 'Never' used that function either. Student Tracking was not used by several respondents. As this function provides another indicator of students "at risk" of attrition, this finding will be acted on immediately. The fact that 1 respondent claimed not to use Learning Modules either might suggest that some facilitators are not familiar with Blackboard nomenclature rather than the functions themselves. This, too, will be followed up in the focus groups.

The number of facilitators who "Never" use Twitter, Digital cameras or scanners, CD-ROM, DVD, Podcasts, Blogs, Vlogs, Wikis, Mobile Phones or MP3s for their teaching or student learning was substantial (over 50%). Responses to the question: "If you do not use a specific ICT resource in any of the contexts specified . . . please indicate why" (Not familiar with, Lack of skills, Not appropriate, Lack of technical support, Lack of time), for technologies as omnipresent and user friendly as mobile phones (Armataş et al., 2009), over 80% of respondents indicated that they "Never" used them for teaching. The number of respondents who did not use a specific ICT resource in any teaching context not because they were unfamiliar with it or lacked the skills but because they felt it was "Not Appropriate" was unexpected. This question included Twitter (or similar), Digital camera, scanner, mobile phones, and Wikis. This response was surprising because we know anecdotally that, in some classes, facilitators actively encourage these technologies. Students do take photos with their mobile phones of mindmaps they have created on whiteboards and use the photos in their reflective journals, one facilitator takes photos of students and creates a class list with photos which is distributed to aid name recall (especially important when working online), one facilitator uses mobile phones to text reminders to students and encourages students to text her in addition to e-mail. As a facilitator, the authors have often engaged in impromptu chat with students using Who's Online. Students do use Facebook to work on their projects. They do upload podcasts. They blog and vlog and contribute to Wikis.

Examples offered by facilitators of particular ICT usage in PD were highly individual from playing music in class to daily dialogue in the Discussion forum. Most facilitators commented positively on the immediacy, the currency and visual appeal of multimedia resources. One facilitator noted that an unexpected outcome of ICT in PD is that "students write more during and after class." This survey, then, has provided some interesting findings. Participants of the survey have been invited to attend a focus group. Of the

15 respondents, 9 have agreed to attend the focus group when some of these preliminary findings can be explored. The PD units need to tap into existing ICT leanings to better engage with students. The curriculum development team, facilitators and students need to collaboratively reconsider the curriculum to better exploit ICT and the way contemporary students learn.

While multimedia environments, such as the PD rooms, have the potential to be radically different from traditional learning environments (Lawless & Brown, 1997) and were intended to be drastically different from lecture and tutorials, it is largely dependent on the curriculum and the facilitator whether this is achieved. Lectures, videos, textbooks, “tend to dictate an established order in which information is learned and the manner in which this information is presented is controlled” while the online component of the curriculum has the capacity to increase “dimensionality” (Lawless & Brown, 1997, p. 125). This increased dimensionality would only happen if students had a reason to use ICT. Lawless and Brown note that “By nature, multimedia environments are dramatically different from traditional learning environments” (p. 118). Despite the learning spaces, the technologies and the curriculum, it is clear that facilitators can still impose a more traditional transmission style of teaching — and, in fact, ICT can support them to do that. However, if Wikis were assessable student effort would be more generative than consumptive, if a learning blog substituted the less interactive journal or if evidence of using a collaborative platform were required alongside the more traditional report, then perhaps the use of ICT in teaching PD would have been more creative and less predictable. Assessment tasks must be considered in an evaluation of curriculum.

Conclusion

The survey suggests a divergence of teaching practices, utilisation of technologies and facilitator approaches to learning spaces. The survey also hints that individuals are using ICT in ways not envisaged by the curriculum developers. Facilitator responses suggest that they, like students, learn from colleagues and they learn by doing. It is vital that facilitators be ICT literate to actualise the potential of ICT to engage students. In future curriculum development, the team will examine opportunities to increase facilitators’ ICT repertoire to encourage effective inclusion of technologies that are currently being left out of some learning spaces despite being firmly entrenched in students’ social spaces.

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