

Staff exercising 'choice'; students exercising 'choice': Wholly online learning at an Australian university



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The paper examines the implementation of institutional policy relating to mandating wholly online study at the undergraduate level in an Australian higher education institution. The realities of the 'choice' provided to teaching staff in designing such units, and students in studying in this mode, are considered. Staff members' design experiences are reported, and data collected through the surveying of students' experiences in learning wholly online are analysed. The value students attributed to various aspects of the wholly online learning experience is outlined. Observations are made more generally about the uniqueness of wholly online teaching and learning environments in mandated contexts, and where policy and practice developments may evolve in the future.

Keywords: case study; educational design; wholly online; lifelong learning

Introduction

From 2004 Deakin University mandated that all its undergraduate students, irrespective of their mode of enrolment, had to undertake at least one unit wholly online, with no face-to-face teaching. The rationale for the policy initiative related to creating a different learning experience for students which would further develop life-long learning skills. The offering of wholly online units presented a unique educational design challenge, leading to a number of learning design approaches. Within the constraint that wholly online units needed to be offered, staff teacher design choices are highlighted. Moreover, within the constraint that all students needed to undertake at least one such unit, student choices of the most valued unit designs and online learning support practices are examined through the reporting of data from an online survey instrument. The role of appropriate forms of assessment in wholly online units is emphasised, as related to subject matter and teaching strategies. The future of this form of unit offering in design, policy and practice is finally considered.

Background

A key initiative in the University's strategy to expand its online and distance education profile related to offering all its units at three levels of online-ness: Basic, Extended and Wholly Online. At a 'Basic' level, online presence required the delivery of a unit guide, some learning resources and a moderated discussion space. An 'Extended' online presence related to anything above 'Basic' but falling short of 'Wholly' online. Being 'Wholly' online was originally defined as: all content online (either commercial print-based textbooks or commercial e-texts could be used as supplementary material); all communication and interaction with students online; assignment submission and feedback online (with examinations moving online when the University was administratively ready); and each unit having at least ONE session of interactive communication (synchronous, asynchronous, or both) between teacher and students online at least weekly or as established at the beginning of the course. Such interactive sessions were to have an assessable component where appropriate (Deakin Online Technologies in Courses and Units – Operational Policy, Approved by Academic Board on 25 July 2003, Appendix A: Deakin Categories of Online Activity).

Clearly, the defining feature of wholly online units is that no face-to-face teaching is offered and all resources must be offered in digital form, and all interactions between staff and students must occur online. The move to a systematic approach to offering all of the University's units at defined levels of online-ness was accompanied by the implementation of an institution-wide learning management system and over time other corporately supported e-learning technologies (all falling within the umbrella of Deakin Studies Online (DSO)). It could be argued that this development nearly 10 years on represented the re-emergence of what Holt and Thompson (1995) termed 'the technology imperative'.

From 2004, all students enrolled in Deakin undergraduate courses had to undertake at least one unit wholly online, with few exemptions given. At face value undertaking a unit online (indeed, only online) is not a novel learning experience. Neither for that matter is taking an entire course online. It is suggested, however, that the mandated nature of taking a unit wholly online, irrespective of a students' predominant mode of enrolment and study (i.e. internal/on-campus, full-time/part-time, external/off-campus) does represent a different teaching design challenge and student learning experience. It means that effectively whether students choose to or not, they are operating in a common online environment and interacting with a range of student cohorts whom they would not necessarily come into regular or any contact. While 'never the twain might normally meet' between on- and off-campus students (or where such students might visit the same online unit site, but operate in quite separate discussion realms), all types of students met together as one overall community of learners for the wholly online learning experience. Encountering a wholly online unit was the first such experience for both on-campus and off-campus students, with both cohorts usually experiencing online learning as augmenting face-to-face teaching and printed materials, not replacing them. From the teachers' perspective, the students' normal mode of enrolment and study could not be discerned in such environments.

The rationale provided by senior management and policy makers in the University for the wholly online unit initiative related to the further development of lifelong learning through the: acquisition and practice of a range of technical skills needed to work effectively in online environments; development of an understanding of issues and learning to act in an ethical and responsible manner in virtual environments; development of skills in online communication; development of a capacity for online teamwork, collaboration and negotiation; assessment and evaluation of the quality of online information; development of organisational and personal management skills necessary to sustain motivation and study effectively and successfully without regular face-to-face contact with teachers and other students.

Research methodology

Table 1: Experience of learning online (ELO) survey

Survey section	Key survey items
Student demographics	Gender, age, mode of study
Total time spent studying unit and time spent online for the unit	Hours per week on unit, hours per week online on unit
The organisation and structure of the unit	Access online resources, learn without face-to-face contact, organising own learning, clarity of learning objectives, media/technology purposes & workload
Teaching and learning aspects of the unit	Provision of materials, relevance to real-world, recognition of previous learning, critical thinking, appropriate examples, reflection on learning
Interactions with teaching staff and other students	Interaction with teaching staff & students, interaction with enthusiastic & patient staff, support from student group
Unit assessment	Completion of online assessment tasks, submission of and feedback on assignments online, clear expectation of assignment performance, relevance of assessment to learning objectives, value of assignment feedback
Graduate attribute development	Technical skills, evaluative skills, communication skills, information literacy skills, critical thinking skills, confidence in learning online
Student performance in the unit	How well students saw themselves performing in the unit wholly online
How the unit had influenced the student's approach to learning	Influences of learning wholly online on approaches to learning

The wholly online teaching and learning experience became the focus of a major research study undertaken by the first author and Challis (see Holt & Challis, 2007). The study adopted a case study method to examine staff members' experiences of designing and conducting a broad range of wholly online units and surveyed students' experiences of learning in wholly online environments. The wholly online unit (WOU) subjects covered and number of staff members interviewed are summarised in Holt and Challis (2007, pp.116-18). First year units covered science skills and health sciences. Second year

units covered engineering management, information systems and marketing management. Third year units covered information technology, education, arts sociology, and arts media and communication. Fourth year units covered law, and architecture and building. During 2005 and 2006, a large online survey of students enrolled in wholly online units was administered as part of the study to gauge students' perceptions of studying wholly online units. The 'Experiences of Learning Online' (ELO) survey sought information outlined in Table 1. The ELO questionnaire was developed from previous similar survey instruments used at Deakin University (Armatas, Holt & Rice, 2004; Challis, 2005) and elsewhere (Center for Support of Teaching and Learning, 2006; Enhancing Teaching and Learning Project, 2002), and, within the constraints of the Deakin University online survey tool. The second author joined the project to help undertake the analysis and interpretation of the survey data.

Of the 5862 students enrolled in the 21 separate unit offerings included in the survey, survey responses were received from 761 students, yielding an overall effective response rate of 13.0 percent (see Table 2).

Table 2: Responses by unit 2005 and 2006

Unit subject	Semester 2, 2005	Summer 2005/2006	Semester 1, 2006	Semester 2, 2006
Arts Media & Communication	Survey not used	-	-	1 response, survey not officially used
Media Theory	-	-	-	Unit offered first time, 26 responses
Literary Studies	-	-	Unit offered first time, 15	-
Arts Sociology	9	-	-	21
Health Sciences	175	-	Unit offered, not surveyed	102
Law	21	-	-	1 response, survey not officially used
Marketing	69	8	Unit offered, not surveyed	102
Information Systems	21	-	-	3
Science Skills	-	-	41	-
Information Technology	75	-	-	Unit discontinued
IT Practice	-	-	8	13
Architecture & Building	2	-	-	Unit discontinued as WOU
Engineering	17	-	-	36
TOTAL	389	8	64	300

- Education unit profiled above did not use ELO survey, with team using their own customised instrument.
- The Media Theory and Literary Studies units where survey data are reported, were not part of the teacher interviewing stage in 2005 (with the units offered for the first time in 2006).
- Semester 2, 2006 single entries for the Arts Media & Communication and Law units almost certainly represent students from semester 1 who somehow stumbled across the survey (perhaps because they were enrolled in another WOU in semester 2) and completed it in semester 2.
- The teacher of the Arts Media & Communication unit was prepared to be interviewed but did not want to be involved in survey.
- The Law unit only wanted to use University student evaluation instrument in 2006.
- Architecture and Building unit discontinued as WOU 2006.
- Science Skills unit discontinued in 2007.
- Information Technology and IT Practice units merged in 2006 and offered under the title of IT Practice.

Population data was obtained based on the completing student enrolments listed in Deakin's student information system for the units/semesters included in the ELO survey. 'CBD' coded enrolments in Health were the University's Institute of Koorie Education (IKE) students who do not complete in wholly online mode. They were deleted from the WOU population list. There were some other anomalies in the student information system enrolment data. For some 2005 units, there were no students listed as online, probably due to problems at the commencement of wholly online unit offerings. All non-WOU enrolments, other than for the University's IKE students were considered to be studying in wholly online mode.

Comparison of population and sample groups

Common demographic information that was known or could be inferred for both groups included unit of study, gender and mode of study. The proportion of respondents in each unit was not the same as the

proportion enrolled in each unit in the population group. Given the number of units involved, it is very difficult to achieve a statistically significant similarity of proportions, a task made more difficult by the varying degrees to which participation in the survey was promoted across the units included. The overall gender proportions of the respondent and population groups were not significantly different. For student enrolled in wholly online units, it was found that the 'normal mode of study' recorded in the student enrolment database was not always accurate, making it difficult to meaningfully compare the proportions of normal mode of study between the population and sample groups. While the good demographic match between gender is encouraging, given the comparatively low response rate, we exercise caution in attempting to generalise the sample responses to the wider student population.

Staff exercising design 'choice'

Challis and Holt (2007) reported on a number of constraints in designing wholly online units from the teachers' perspective. In order to provide the broadest coverage with the least number of units offered in wholly online form management decisions were made targeting compulsory program and faculty-wide foundation units as being best able to achieve this objective. These included first year compulsory units, although there was much debate amongst University Online Teaching and Learning Fellows as to whether a wholly online unit was best offered at commencing undergraduate levels. Within such macro constraints, further micro level design constraints but also opportunities were identified. Certain teaching staff were able to secure University's Online Fellowships, and significant central and local support, to offer new units in this mode, or to substantially redevelop existing units for this purpose. Other staff had only minimal support and their design efforts were constrained to the redeployment of existing units in this mode. The staff member's willingness and capacity to rethink unit curriculum, pedagogy, assessment and media/technology mix varied across faculty, school and disciplinary contexts (see Holt & Challis, 2007, pp. 119-21). A diversity of design models for wholly online units then emerged across the University, some with higher levels of innovation and possibility for transformatory learning, and others lower in this regard. We see this as symptomatic of the cultural and political dynamics of large educational institutions as related to policy-driven educational innovation in higher education. One unified institutional policy direction and definition can lead to many different local interpretations and actions, in turn shaped by considerations other than the purely 'pedagogical'.

Students' views on the learning experience

Students' views on the wholly online learning experience were elicited through a combination of closed-ended, quantitative questions using varying scales and 2 open-ended questions: Question 40, 'In what ways, if at all has studying this unit online influenced your approach to learning?' And Question 41, a general 'comment on any aspect of the unit' question. Question 41 drew comments containing 453 separate points from 309 postings made by students. These points were organised into 9 categories in Table 3. In order of perceived importance based on number of points made, the categories can be ranked from 1 to 8: (1) Wholly online learning experience and mandatness (2) Assessment; (3) Staff-student & student-student communication; (4) Unit Relevance and Learning Resources (of equal importance); (5) Technology reliability; (6) Organisation and Structure; (7) Workload; and (8) Attribute Development. Attribute development drew little attention in relation to this question but was the major focus of Question 40, see below. The mandatory nature of wholly online units clearly drew the most points made and was the greatest bone of contention. This was reinforced by the closed-ended question on the survey where 31% of respondents were dissatisfied with the unit offered wholly online, while 45% of respondents gave a positive rating with 24% undecided. The importance of well designed and conducted assessment, a perennial concern of higher education, also could not be under-estimated in the minds of students.

A multiple linear regression of all the survey items was performed against Q39: How satisfied have you been with this unit being offered wholly online? (with satisfaction being taken as a proxy for quality learning based on the reasoning behind the national Course Experience Questionnaire (CEQ)). It was found that there are five variables that account for approximately 70% of the variation in Q39, and all are significant. A model for Q39 (with variables in order of importance) is:

$$Q39 = 0.259 Q8S + 0.138 Q28S + 0.156 Q34S + 0.269 Q38 + 0.164 Q37 - 0.599$$

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Table 3: Student points made on key survey categories

Key categories	Total no. of points	Total no. positive points	Total no. negative points
Unit Relevance	38 (8%)	22	16
Org & Structure	15 (3%)	-	15
Technology	27 (6%)	-	27
Workload	8 (2%)	-	8
WOU Experience & Mandateness	138 (31%)	35	103
Learning Resources	36 (8%)	11	25
Attribute Development	5 (1%)	5	
Assessment	95(21%)	11	84
Communication	81(20%)	30	51
TOTAL	453	124 (27%)	329 (73%)

The questions/variables are:

8. Being able to learn without regular face-to-face contact.
28. Having clear expectations of what is required to get good marks.
34. Having the ability to communicate knowledge and ideas effectively online.
38. How well do you think you're doing in this unit as a whole?
37. I am confident of my ability to learn online.

Strictly, all of these variables were ordinal rather than interval, so care must be taken in interpreting the multi-regression model literally. However, it does indicate those factors that contribute the most to the students' response in Q39. Basically, students are more satisfied taking a unit in wholly online mode if they feel competent/confident working wholly online, if they feel they are doing well in the unit and if they have been given clear guidance on assessment. These findings are reinforced in turn by the qualitative analysis reported above. From an educational design viewpoint, much of the analysis indicates the need for: a clear and convincing rationale as to why students need to undertake a wholly online unit and why in this particular subject; a carefully designed and executed formal assessment regime which is clear and relevant with constructive feedback; and good communication between teachers and students, and amongst students, with a premium placed on students feeling that teachers are making a special effort for them. The online communicative space has to be a lively and interesting place to interact and learn. So, students need to be equipped to be competent in operating in the wholly online mode, either before or as part of taking a wholly online unit, and designers need to be clear about assessment matters. It may be hard to make students feel better about how they are travelling in a wholly online unit, though providing several assessment points with prompt feedback could help them confirm their feelings.

Students' views on graduate attributes

The development of a desired set of graduate attributes and skills has been an enduring concern in higher education amongst academic researchers (see Candy, Crebert & O'Leary, 1994) and policy advisers (see *Learning for Life Final Report*, 1998). If wholly online units were designed to further develop generic graduate attributes underpinning lifelong learning capacity then it is revealing to look at both quantitative and qualitative feedback elicited through the ELO survey. The survey item Question 40 elicited 325 points from 325 comments made by students on their overall view of the WOU learning experience and the generic attributes they perceived as being most developed (see Table 4). In order of ranking they were:

1. Graduate Attribute Organisational/Personal Management Skills
2. Graduate Attribute Lifelong Learning Skills (self-directed, independent, self-responsibility/self-regulation for learning)
3. Graduate Attribute Information/Digital Literacy
4. Graduate Attribute Information Technology Literacy
5. Graduate Attribute Confidence In Learning Online And Graduate Attribute Communication Skills
6. Graduate Attribute Problem Solving Skills
7. Graduate Attribute Teamwork/collaboration

Somewhat surprisingly, the graduate attribute relating to developing teamwork and collaborative skills attracted little attention from students. Wholly online units, however, adopted different design options for

contributing to the development of teamwork and collaborative skills, and some could be judged as more successful than others, particularly as to whether collaborative designs and conduct were related directly or indirectly to formal assessment requirements (see Palmer & Holt, 2007).

Table 4: Student points made on graduate attributes

Factor	Points made
Graduate Attribute Teamwork/collaboration	2 points (0.5%)
Graduate Attribute Information Technology Literacy	12 points (4%)
Graduate Attribute Information/Digital Literacy	34 points (11%)
Graduate Attribute Organisational/Personal Management Skills	74 points (23%)
Graduate Attribute Communication Skills	6 points (1%)
Graduate Attribute Problem Solving Skills	3 points (0.5%)
Graduate Attribute Lifelong Learning Skills (self-directed, independent, self-responsibility/self-regulation for learning)	40 points (12%)
Graduate Attribute Confidence In Learning Online	6 points (1%)
General Positive Experience of approach to learning	33 points (11%)
General No Change in Experience of approach to learning	21 points (6%)
General Negative Experience of approach to learning (Within category, 22 points made about how it made students appreciate face-to-face teaching)	94 points (30%)
TOTAL	325

A consolidation of data in the above table can be found in Table 5. Of the 325 points volunteered by students in the survey, over half were positive in relation to the development of graduate attributes, while a significant number (28%) were negative about the wholly online approach to learning. The mandated nature of undertaking a unit online undoubtedly coloured students' views on the whole learning experience, although once locked into the requirement to have the experience a significant number of positive points were volunteered about how the study contributed positively to the development of at least certain generic attributes.

Table 5: Positive, negative and no change points made by students

FACTORS	Points made
All Graduate Attributes – positive contributions	177 (55%)
General Positive Experience of approach to learning	33 (10%)
General No Change in Experience of approach to learning	21 (7%)
General Negative Experience of approach to learning	94 (28%)
TOTAL	325

On the quantitative side of the survey, in aggregate, students certainly indicated their appreciation of various generic attributes developed relating self-organisational, independent learning skills, information technology skills, information literacy skills, communication skills, critically thinking skills and confidence in learning online (see Tables 6 and 7, respectively). However, based on satisfaction levels recorded, further work is required to enhance their development as reported by students.

Table 6: Most important attributes and satisfaction

Graduate attribute: Survey items	Importance rating 7-point scale	Satisfaction rating 7-point scale
Organising & being responsible for own learning	84% saw this as being important	69% of students satisfied
Opportunity to develop/practice online technical skills	68% saw this as being important	67% of students satisfied
Learning to judge quality of online information	74% saw this as being important	67% of students satisfied
Ability to communicate knowledge & ideas effectively	72% saw this as being important	66% of students satisfied

Table 7: Satisfaction graduate attributes

Graduate attribute: Survey items	Satisfaction 5-point scale
Able to search for and use information effectively	59% agree; 26% undecided
Encouraged to think about ideas and solve problems	51% agree; 30% undecided
Confident of ability to learn online	60% agree; 24% undecided

Where to from here in policy and practice?

Designing and teaching in wholly online environments has created major challenges for staff and led to a diversity of developmental responses. Staff in the study would retain most of their digital designs and online practices even if wholly online requirements were modified and certain forms of face-to-face teaching re-introduced. The most innovative digital and online teaching practices, therefore, can not be said to be dependent on policy mandate. Studying a mandated unit wholly online at the undergraduate level has undoubtedly been a disruptive experience for students at Deakin and provides the focus of the following discussion. Disruptive, that is, in relation to challenges to normal expectations associated with particular modes of enrolment and as associated with a broader cohort of students engaging in the experience than would normally be the case. Some sense of this disruption can be found in the following student comments taken from the survey. The first two comments relate to the disruptive experiences felt by on-campus (almost certainly school leaver) students:

I think I would have benefited more from contact learning. I think it is much more interesting to attend a lecture and hear perhaps ideas and experiences from the lecturer. It is also great to have discussions in a tute and bounce ideas off each other. The on-line tests are worth having as they encouraged me to read the chapters every week instead of putting it off until a later date. I have found [subject] very interesting but I chose to be an on-campus student and not an off campus student. [Student 1]

The idea of running a wholly online [unit] sounded promising when I first heard it, with the ability to fit around work and social commitments, but in reality it became an after thought when 3 other subjects are pushing for assignments and homework that must be completed before tutorials and labs. [Student 2]

The following comment relates to the experience of an off-campus student:

As stated above, as an off campus mature age student, I need to be able to succeed to organise myself, prioritise my study material, both in relation to my other commitments (work family etc) and in relation to the study itself. It is very important to be able to "get ahead" as other commitments wax and wane. It is important to be able to recognise core requirements and those which are extra, so when the need arises, I can reprioritise and plan for study objectives. No such differentiation is given in any study guides. The difficulty for off campus students is that hints and cue's from lecturer's as to what is important is not available, it was so in this unit. The consequence is that the off campus student is left with assuming all is important and ultimately is left with a higher work load. ... The prime source is and always should be the study guide (and not an on line version - ever) as the off campus student can from day one plan and organise and implement a study regime that suits her or his needs. ... The lack of a [face-to-face] study weekend was most disappointing. This unit was extremely interesting. So please do not consider the comments a criticism. But a greater understanding of the difficulties facing the off campus students who are in the main extremely motivated is important. [Student 3]

Hagel and Shaw (2006) shed further light on these disruptive and for many students, negative experiences. Undertaking marketing-type research on undergraduate commerce student study mode preferences in Deakin's commerce program, they found that students associate a certain set of benefits with certain modes of enrolment, and that they carry certain expectations of study modes with their modes of enrolment. They found that students distinguish between study modes (ie. face-to-face, web-based and print) on two key benefit categories with those being 'engagement' and 'functionality':

The engagement component included aspects of interaction and learning. The functionality component encompassed notions of convenience, time-efficiency, and flexibility.... The results suggest that in choosing a study mode students realise that they are trading-off the

benefits of engagement and functionality, i.e. no single mode encompasses both benefits, equally (Hagel & Shaw, 2006, p.297)

It can be inferred that on-campus, school-leaver students (internal mode of enrolment) seek, or purport to seek, the benefits of engagement in their mode of study and hence value more highly face-to-face teaching (the authors also found that such a mode met on-campus students' expectations on functionality quite highly). On the other hand, off-campus, mature students (external mode of enrolment) seek the benefits of functionality in their mode of study and hence value more highly media/technology delivery approaches which maximise these benefits. While it could be argued that increasingly on-campus, school-leavers (in part-time or full-time paid employment) do value functionality in their studies ('Online learning has saved me heaps of money in petrol. I can do it at night when the kids are asleep. I can do it in the comfort of my own home. I LOVE IT'), the extremeness of wholly online learning denying any form of in-person engagement would be of concern. Also, the removal of traditional delivery media (print) for off-campus, mature aged students could also be seen by many as reducing functionality benefits. The requirement that these students also work online collaboratively with their previously separate on-campus counterparts, as learning peers, would further disrupt pre-existing functionality expectations. It cannot be denied that in disrupting both student cohorts' 'mix of benefit' expectations, wholly online units were negatively perceived. However, ironically, the very sense of disruption is an indicator that such environments were having the desired effect of making students learn in a novel situation. In a sense, the following student comment, albeit isolated, is of more concern than comfort to unit designers: 'I didn't see much difference (apart from the student collaboration element) between a wholly online unit and an off-campus unit. There was a very large amount of reading to do, and I don't believe that this unit took full advantage of the features and advantages offered by the medium it uses (i.e. the Internet)'.

Hagel and Shaw (2006, p.299) reach their own conclusions on the value of adversely affecting students' expectations/benefits/value equation: '...the findings of this research call into question the migration by Australian universities towards more ICT-intensive, "flexible" forms of delivery'. An alternative view to merely passively responding to students' perceived mode of study needs can be drawn upon in the work of Brookfield (1990, p.68):

In fact, rather than teachers always adjusting their practice to account for students' preferred learning styles, a good educational case can be made for doing precisely the opposite. In other words, instead of affirming the habitual, comfortable ways your students go about their learning-some of which may involve deeply etched, self-defeating habits-you should think about introducing them to alternative modes of learning.

Ultimately, there is merit on either side of the argument, with Hagel and Shaw (2006) quite reasonably counselling against the mass movement of units to online delivery in higher education, while Brookfield's argument can be reasonably drawn upon to support a policy initiative requiring students to only study one unit (that is, have only one special learning experience) in a mode at odds with their normal study expectations. The wholly online policy initiative, however, has to be seen in the historical context of an institution moving strategically to enhancing its involvement in online education and the move to implementing corporately supported e-learning technologies. In order to move the whole organisation decisively in this direction, and to achieve an appropriate 'return on investment' on the adoption of corporate e-learning technologies of scale, an online involvement policy was determined. This required all university units to have at least a basic online presence, and for the flagship development of wholly online unit involvement. It can be seen then that within the various micro teaching/learning contexts representing choice and constraint, at a larger macro level the institution made a deliberate strategic choice to pursue the mandated large scale use of e-learning technology systems. It is important to highlight that strategic and political concerns can strongly influence the environment within which pedagogical choices by teachers and students are exercised.

It is extremely difficult to make definitive judgments on the worthwhileness of the wholly online policy initiative. The evidence suggests that students hold concerns about the mandated nature of such a mode of learning, and for many it was not the type of learning experience they expected in their mode of enrolment. Student short term reactions to the experience are clearly reflected in responses on the research instrument and the University's Student Evaluation of Teaching and Units (SETU) system. However, the importance of graduate attributes was clear to students, and they could at least appreciate how the wholly online learning experience aimed to develop these attributes further. The success of each wholly online unit in doing so varied and is beyond the scope of this paper to examine. However, it can be suggested that many students may not be in a position to judge fully the value or otherwise of such an experience until they have in turn had some experience of the online worlds of work, community and

society. It could therefore be argued that institutions should not react too quickly to mixed feedback provided by students unit-by-unit through their studies. For all the wrestling of concerns being undertaken amongst teaching staff and students on the wholly online experience, it is likely that the future of such environments might be resolved by broader evolutionary forces. The period of institutional history entailing the corporately managed top-down approach to the implementation and use of e-learning technologies might be coming to a close. Events are moving on from the acquisition and deployment of these systems and the need to justify 'return on investment'. With the maturing of the technologies, the settling down of their implementation and the institutionalisation of other emergent social networking and/or open source environments, power may gradually shift back to teachers to make informed judgments on the selection and best use of a portfolio of new media/new technologies (well supported by the organisation) in response to their students' needs, expectations and circumstances, and the requirements of their subjects. This will in turn see the blossoming of rich and varied forms of 'blended' environments designed in ways customised to meet the needs of many and varied student groups (see Bonk & Graham 2006 for global developments in blended learning designs).

Conclusion

This is a case of educational technology innovation at an Australian university driven strongly through strategic institutional concerns. It illustrates how strategic organisational choice at one level, shapes the environment in which 'choice' can be exercised at the local teaching and learning level. Teaching staff still had some local discretion to innovate with subject design to varying degrees. Students had no choice but to undertake at least one unit wholly online in their undergraduate studies, and for most no or quite limited choice in what that unit might be. The need to undertake such study was disruptive to many students and the expectations they attached to a particular mode of enrolment. Evidence though suggests that the generic attributes which underpin lifelong learning capacities are seen to be important by students and that the wholly online learning experience contributed to their development, particularly as related to further developing their self-management skills. The longer-term effects of the wholly online experience post-graduation deserve further research. Teaching staff valued much of what they designed and how they taught in wholly online units. They would, however, value greater discretion in designing 'blended' environments using the best of face-to-face and online teaching and learning. This preference points the way to the likely trend towards the more pervasive, targeted and customised use of new media/new technologies in higher education. This evolution will gradually see the need for online policies defining types and levels of online education receding from the organisational landscape.

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