ICT-enabled Learning: The Student Perspective

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Abstract

This research seeks to contribute to current discussions in Australian higher education on how best to deploy ICT-enabled learning. Its particular focus is on examining the qualitative data from students on their experience of using Information and Communication Technologies (ICT) at one college in an Australian university.

In total, about 71,240 written comments made on a subject feedback survey by College of Arts students in Semesters 1 and 2 in 2007, and Semester 1 in 2008 were analysed using the qualitative analysis tool *CEQuery* (Scott, 2006). A more detailed analysis of 1,866 specific comments on ICT-enabled learning was then undertaken. Some 26 different types and uses of ICT-enabled learning were identified by students in their comments as a 'best aspect' of their university experience. The preferred uses of ICT-enabled learning are consistently focused on active learning — online search and use of the online library; various forms of peer-supported learning, online discussions, quizzes, tutorials, experiment; and receiving prompt and constructive feedback on their learning. The article argues that ICT-enabled learning must always be seen as being just one (albeit very important) element among the many 'best aspect' methods identified by students as engaging them in productive learning.

Keywords: ICT-enabled learning, student comments, *CEQuery*

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Since the 1990s Australian universities and colleges have been faced with figuring out how best to respond to the relentless development of communication and information technologies, their rapid influx into our daily lives, the exponential growth in computing power, and the rapid growth in internet speeds (Braun, Kadi, & Mahadevan, 2002; Fullan & Scott, 2009; Gallagher, 2001; Macnamara, 2007; McLoughlin & Luca, 2001; Segrave & Holt, 2003; Sharpe, Benfield, & Francis, 2006). The information technology (IT) revolution is creating new expectations and opportunities for how university students want to and can learn. It questions, for example, whether higher education should remain campus-based or become more 'distributed', especially given the increased difficulty of travel in large cities and the potential for people to work productively for at least part of their week at home. Already, traditional universities are no longer viewed as the sole, or even key, repository of

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leading-edge knowledge or necessarily as being the best place to access it (Fullan & Scott, 2009).

The key dimensions of the challenge facing Australian higher education in determining how best to deploy ICT-enabled learning appear similar to those found in U.S., U.K. and Canadian studies. As reported by Twigg (2003), some U.S. institutions have simply bolted new technologies onto existing systems and 'traditional' notions of classroom instruction, thereby generating additional expenses rather than clear educational, operational or financial benefits. Sharpe and Benfield (2005) and Kirkwood and Price (2006) from the UK suggest that the majority of e-learning initiatives in higher education to date have reflected a teacher-centred rather than student-focused approach to learning design. Kanuka and Kelland from Canada (in press) advise that higher education leaders and teaching practitioners should remain cautious regarding their expectations for e-learning technologies, until it can be determined exactly what IT-enabled strategies add to the quality of learning in specific discipline areas, in different contexts and with different types of students.

What the collapse of a range of ventures aimed at setting up solely online learning institutions confirms is that ICT-enabled learning strategies must always remain just one (albeit very important) element among more than 60 preferred learning methods identified by university students (Scott, 2006) that need to be combined and delivered appropriately to optimise student learning and retention.

Admittedly, there are small numbers of students who are quite happy to work totally alone and online but, as has been shown (Scott, 2006, 2009), learning is a profoundly social experience. We know that students like to learn by doing, using a wide range of practice-oriented methods, via active learning in groups, and to be able to contact their tutor for 'just-in-time' and 'just-for-me' assistance. The wide range of ICT tools now available can help meet some, but not all of these key engagement and retention elements. For example, they have significant potential to allow students to 'learn in their own time', to access quality assured materials online and download them, and to rapidly search large databases, along with a range of active learning options including simulations and social networking.

Students' uncertainty about how to use ICT for learning (as distinct from using it for social purposes) and their preconceived expectations that university learning will replicate schooling create additional challenges (Coates & Rosicka, 2006; Kennedy, Judd, Churchward, Gray, & Krause, 2008; Zimitat, 2004). The situation is compounded further by the fact that research undertaken in one university (Barraket & Scott, 2001) found that there may still be a digital divide in universities, segmented primarily along the lines of social class. This research found that people who are first in their family to attend university and whose family incomes were low were much less likely to be 'ICT savvy' or to have family or friendship networks to help them set up and use ICT-enabled learning efficiently. Mori (2008) has identified a similar pattern in the UK.

A number of studies to date have sought to determine the 'effectiveness' of different uses of ICT introduced by lecturers or universities. However, the results of these studies are equivocal because the dependent variables in such studies (performance on tests, exams, etc.) often have not been validated as being of a university standard or comparable. In addition, it is very hard to separate out the effect of an ICT-enabled learning strategy from the multiple influences on student learning. Such issues are explored in more detail in a commissioned research and analysis report to the 2008 Review of Australian Higher Education (Scott, 2009).

Rather than look at correlations between a range of specific ICT-enabled learning methods and learning outcomes, some recent studies have sought to access the higher education student experience of using ICT at university more directly, to work with learners as they are using ICT in their studies. A good example of this approach is the in-depth research undertaken by Creanor, Trinder, Gowan and Howells (2006) with 55 learners. The researchers found that email was by far the most used technology (69% reported usage), followed by computer-based course materials (47%), computer-based assessments (38%), video and audio files (27%), electronic whiteboard (25.5%), and online discussion board (22%). Less experience with videoconferencing and learning on a mobile device were reported. The researchers conclude that 'the internet is the first port of call for information, with libraries and books taking second place' (p. 26). In their review of studies on the student experience of e-learning in U.K. higher education Sharpe and Benfield (2005) come to similar conclusions. The findings in a U.K. study by Mori (2008) suggest that the most useful applications of ICT were (in rank order): course-specific materials online, general course information online, contacting tutors or lecturers by email or text, online library resources, non-digital resources, university's portal, online submission of work, search of scholarly websites, social networking sites to discuss coursework, and participation in online communities. Respondents reported varying levels of confidence in using such applications. They reported greater comfort in using instant messaging, emails, online discussion, learning management systems like Web CT, Blackboard™ and Moodle, and accessing course materials; and less comfort in using podcasts, making wikis, submitting assignments online and using social networking sites.

In an action research project that focused on identifying the optimum ways to use internet-based systems to develop higher levels of learning Kanuka (2005) found that the most productive approach involved the use of role-play and case studies. This, stated the researcher, was because they fostered collaborative work in a structured fashion and made it possible for students to bring in and apply multiple perspectives to the problems addressed. This is consistent with approaches known to foster 'deep learning' and also the case-based based methods found by Sullivan and Rosin (2008) to facilitate the development of 'practical reason'.

Whereas most research on students' experience of university, including their experience with e-learning, utilises predominantly quantitative data gathered via closed-ended questions, this article is focused on accessing the student perspective via qualitative data — students' own written comments on the issue. These types of data are proving to be a lot richer than usually expected. Current studies analysing student and graduate comments (Bolden & Moscarola, 2000; Kabanoff, Richardson, & Brown, 2003; Scott, 2006) indicate that there are important areas of the university experience untapped by existing quantitative approaches. Thus, what this article argues is that, in order to determine how best to use ICT as part of a broader learning design, it is important to give far more attention to what students say in their own words and to incorporate such feedback into universities' strategic development of the area (Poindexter, 2006; Symons, 2006a, 2006b).

Method

CEQuery

In this context, since 2006 all student surveys at one large Australian metropolitan multi-campus university — from surveys of the total student experience to those focused on specific courses and units of study — invite respondents to identify the best aspects (BA) of

their experience and those which most need improvement (NI). The written comments are automatically classified by the *CEQuery* qualitative analysis tool.

CEQuery is a software tool that facilitates analysis of the written comments on the CEQ and any other student feedback survey upon which respondents make open-ended BA and NI comments (Scott, 2006). *CEQuery* allocates comments to 26 subdomains, which are grouped into five broad domains — Outcomes, Staff, Support, Assessment and Course Design using a custom-tailored dictionary (Attachment 1). The *CEQuery* dictionary can be adjusted by users if they are not satisfied with the accuracy of coding.

The total number of 'hits' (BA + NI) for each domain and subdomain is taken to be a proxy measure of perceived importance. This is because it is assumed that, if students choose to write (positively or negatively) about an aspect of their university experience in an open-ended comment it must be of importance to them. It is also assumed that the odds of students making a BA comment (BA/NI) is a proxy measure of perceived quality. For example, when the ratio of BA to NI comments in a subdomain is 2.0 it means that there are twice as many 'best aspect' comments as 'needs improvement' comments. When the ratio is 0.5, it means that there are half as many 'best aspect' comments as there are 'needs improvement' comments. A large number of Australian universities are now using *CEQuery* and these assumptions have been generally endorsed at workshops conducted with them, as well as at a wide range of national and international conferences.

In an earlier study of 280,000 BA and NI comments from 92,000 students in 14 Australian universities we found comparatively little mention of ICT-enabled learning methods and resources and, when they were discussed, the balance between BA and NI comments was comparatively even, indicating patchy deployment. We also found that, consistent with earlier research, ICT-enabled learning always works best as part of a broader learning design and set of university experiences (Scott, 2006; Scott & Alexander, 2000). Since the 2006 study the use of and investment in various forms of ICT-enabled learning has grown rapidly, with a parallel increase in attention to it in students' BA and NI comments on learning methods. At the same time an increasing variety of uses is being reported by students.

With this in mind, this article reports on an analysis of more than 76,000 BA and NI comments in a survey of student feedback on units undertaken in one university over the period 2007–2008. The article first identifies the overall patterns of what students give most attention to in their comments and indicates for each *CEQuery* domain and subdomain the balance of BA and NI comments. Then it looks specifically at the learning methods subdomain and identifies the different clusters of learning methods students refer to as a best aspect of their university experience — of which more than 60 particular strategies have been cited. Finally, it hones in on what students identify as the best aspects of their experience with the methods specifically involving ICT-enabled learning.

Participants

The survey that generated the data for the study evaluates individual subjects each time they are offered. It is sent to all of the university's currently enrolled students each year.[1] The response rate ranges from 50% to 55% and the response samples are generally representative of the university's profile in terms of a wide range of demographic variables. The proportions of survey respondents and total student population do not vary considerably by gender (difference range = 7.6%–9.2%), college (0.8%–4.0%), campus (0.2%–4.0%), level of study (1.9%–9.0%), Aboriginal or Torres Strait Islander descent (0.0%–0.1%), students

speaking a language other than English at home (9.3%–10.6%), students with a disability (2.7%–3.0%), and international students (1.2%–1.6%). Some 71,240 BA and NI comments were made on the survey by students in the Humanities and Social Sciences field of education and in related areas over semesters 1 and 2 in 2007 and semester 1 in 2008.

Data analysis and results

CEQuery analysis of the 71,240 comments

Attachment 2 provides the overall results. Of the 71,240 comments made by students 31,983 were made about various aspects of course design (flexibility — 4,749; learning methods — 15,443; practical–theory links — 2,017; relevance — 3,718; and structure — 4,444). Some comments (e.g., 'it was good', 'yes', 'don't know', etc.) could not be allocated to any *CEQuery* subdomain and are classified as 'unspecified'.

The learning methods subdomain attracted the highest number of BA and NI comments of all 26 subdomains that make up the *CEQuery* analytical categories. Attachment 3 gives the full range of learning methods identified in our *CEQuery* studies in 14 universities across Australia (Scott, 2006). The range identified in the present study is similar.

The 15,443 comments on learning methods made by students were made up of 10,214 BA comments and 5,229 NI comments giving the odds of a BA comment for this subdomain of 2 to 1. Attachment 4 provides more specific data sorted by learning methods category.

A study of the 10,214 BA comments for learning methods was then undertaken. This revealed that, in this field of education:

- 8,119 of the BA comments were about various face-to-face methods with the odds of a BA comment for this area being 1.9 to 1
- 790 were about various forms of ICT enabled learning (odds of a BA comment 7 in 10)
- 569 were about independent learning methods (odds of a BA comment 6 in 10)
- 1333 were about practical and real world learning (odds of a BA comment 2.6 to one)
- 165 were about the use of simulations and lab-based learning (odds of a BA comment 2 to 1).

The BA results for ICT-enabled learning

An analysis of the 790 BA comments for ICT-enabled learning was then undertaken. It revealed that some 26 different types and uses of ICT-enabled learning were identified by students as a 'best aspect' in their comments. A study of the 1,076 NI comments on the ICT-enabled learning methods area revealed that the large majority were simply calling for more systematic application or more effective delivery of the uses identified as a best aspect. Table 1 shows the specific uses of ICT-enabled learning identified as a BA, with the number of times each was mentioned.

Table 1

Best Aspects of ICT-enabled Learning by Frequency of Occurrence in Student Comments

Aspect of ICT-enabled learning	Count
WebCT as a convenient, one stop access point to resources	120
Provision of online lectures[2]	117
Online discussion forum/discussion board	97
A range of active, online learning activities, e.g., simulations	80
Online tutor/tutorials	78
Use of ICT-enabled learning to support a more flexible time table[3]	68
Online quiz	55
Use of images for analysis	31
Viewing a DVD	26
Online assessment/web-based assignments	19
Online assignment submission	14
Photography, including use of photoshop	14
Online help/support	10
Blog	10
Lectures provided on CD	10
Online audio files/sound clips etc	9
Designing and creating a web-site	8
Being able to contact & get feedback from lecturer via email	8
Use of the net for peer feedback	4
Online planning of group work	3
Online debate	2
Online learning games	2
Online portfolio	2
Online video	1
Online experiment	1
IT practical	1
Total	790

Discussion and conclusions

As Table 1 shows, ICT-enabled learning has a wide range of BA uses but, as Attachment 3 demonstrates, it must always be seen as being just one component of the much broader set of active, practice-oriented and integrated strategies that engage students in productive learning.

The BA uses of ICT-enabled learning identified in Table 1 are consistently concerned with active learning — online search, peer-supported learning, experiment, receipt of feedback and so on. Equally, the preferred uses are those that make learning as convenient and cost-productive as possible. What does not attract support is the passive delivery of large amounts of content unrelated to assessment content or material that is not directly and meaningfully located within a broader learning structure. Attachment 2 indicates that course structure and integration continue to be a key area for overall quality improvement with the current odds of a BA comment in this and other datasets being 3 in 10.

The analysis also reveals some support for the use of more flexible learning designs — including considerable (but not total) support for the use of alternative weeks of face-to-face learning complemented by ICT-enabled learning via WebCT or an equivalent system when students are not in attendance.

There is considerable alignment between comments on this specific area and the broader findings from *CEQuery* — that what engages students in productive learning and

optimises their retention is the total experience of the university — peer support, 'just-in-time' and 'just-for-me' assistance; the ability for students to 'learn in their own time'; active problem-based learning; easy access to online learning resources and so on — not just what happens in the 'traditional' classroom.

The results also show that ICT-enabled learning involves the use of far more than the internet. There are also some suggestions in the data that not all students have the broadband to enable them to 'learn in their own time' at home, suggesting that the digital divide may, as our 2000 study (Barraket & Scott, 2001) found, still exist. A key predictor in this regard is coming from a low income background and being the first in one's family to attend university.

One more important message from this analysis is that *CEQuery* can be a valuable complement to the other tracking and improvement systems already being used in universities. At the university that has been the focus of this study a specific breakdown of comments in all *CEQuery* domains and subdomains is undertaken not only for each college, but also for each school. This enables the colleges to identify subdomains in *CEQuery* attracting high odds of a BA comment in one unit and to determine what is being done for possible dissemination to similar units elsewhere where the odds of a BA comment in the same subdomain are lower. It also enables each college to ascertain potentially relevant solutions to key improvement priorities identified in the qualitative data from a range of feedback surveys. Because *CEQuery* enables the user to look at all of the comments for a particular subdomain in one file, insights into what students had in mind when allocating their ratings for quantitative items can be rapidly gained.

This article identifies the potential to access the student voice more consistently when seeking to develop effective uses of IT-enabled learning as part of a broader learning system. It confirms that it is the total experience of the university that shapes students' judgments of quality, engages them in productive learning and retains them, but that IT-enabled learning certainly has an important role to play. It indicates that the general rules for effective learning — that it should be active, not passive, 'just in time' and 'just for me', that it should link theory with practice and be collaborative — apply specifically to best aspect uses of ICT identified in studies like the present one.

The analysis of what students say in their own words about the best aspects of their learning using the *CEQuery* tool is of increasing interest to higher educators. Its use in the present study to first explore 'best aspect' learning methods in general, and then those identified by students as being productive in the specific subdomain of IT-enabled learning, is very much a first step. Its further use as part of a coordinated project across all of Australia's universities and not just in this field of education but others is commended.

Endnotes

1. The survey comprises 13 items relating to the quality of individual subjects, including their content and relevance, assessment, learning environment, learning experience and outcomes, and workload. Each item is ranked by students on a five-point Likert scale where 1 represents strong disagreement and 5 – strong agreement. At the end of the survey respondents are asked to provide comments on the best aspects (BA) of the University's performance, and on those most needing improvement (NI).

2. The preference here was to have the lecture slides, notes in advance of a formal lecture. Other options cited included the use of videotaped lectures online. Less mention was made of audiotaped lectures or podcasts as a BA method.

3. A large number of these comments spoke favourably of the use in some units of a flexible timetable in which one week involved face-to-face activities and the next used various forms of ICT-enabled and online learning. Note, however, there was also a considerable number of 'needs improvement' comments on this issue, indicating that implementation is currently patchy.

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Attachment 1

CEQuery Domains and Subdomains

Domain	Subdomain
Outcomes	Intellectual Work application/career Further learning Personal Interpersonal Knowledge/skills
Staff	Accessibility and responsiveness Teaching skills Practical experience (current) Quality and attitude
Course Design	Practical-theory links Relevance (to work/life/discipline) Flexibility/responsiveness Methods of learning and teaching Structure and expectations
Assessment	Relevance Marking Expectations Feedback/Return Standards
Support	Library Learning resources Infrastructure/environment Student administration Student services Social affinity/support

CEQuery Subdomains: Specific Definitions

OUTCOMES

Intellectual

Development of analytical skills, critical thinking, creativity, problem-solving, diagnostic abilities; ability to 'see the key issue' in a welter of information, come to a justified decision in a tricky situation, trace out the consequences of various options for action, understand one's key assumptions, see 'the big picture' and 'think on one's feet'. Intellectual capabilities interact with Personal and Interpersonal ones.

Work application/career

Includes gaining promotion, improved employability, improved workplace performance, direct application of what was learnt at work.

Further learning

Going on to further and higher study as a result of the course; commitment to life-long learning. In the case of NI comments students may talk more about the blocks they experienced or the reasons why the course didn't motivate them to go on to further study.

Personal

All aspects of personal Emotional Intelligence identified in recent studies of successful graduates and other research (see Vescio, 2005) for example, the ability to remain calm when things go wrong, self-confidence, sense of 'efficacy', willingness to take negative feedback, ability to tolerate ambiguity, persevere and maintain self-motivation, independence, self understanding etc). Also includes comments about the personal satisfaction that comes from completing a higher-education program.

Interpersonal

This covers not just written and verbal communication skills but key aspects of *social* Emotional Intelligence identified in the successful graduate studies (e.g., the ability to work with a wide diversity of people, a developed understanding of cultural differences, an ability to work productively as part of a team, development and use of peer/other networks). See Scott and Yates (2002), Vescio (2005) for more detail on these concepts. NI comments tend to talk about the blocks in communication during the course that prevented the development of the desired interpersonal outcomes — staff and students with poor communication skills in English are regularly cited in this context.

Knowledge/skills

Includes both generic skills/knowledge (e.g., the ability to chair a meeting, use computers; self-teaching skills, library search skills, information literacy and skills of observation) and profession/discipline-specific skills/knowledge (e.g., knowledge of a particular statute in law, or specific skills for use in a laboratory, etc). Also includes research skills.

STAFF

Accessibility and responsiveness

Ability to contact staff (face-to-face, online, by telephone etc), staff availability, how and when they respond, their willingness to support students, as well as comments about the interface between staff– student ratios and staff accessibility and responsiveness.

Teaching skills

Staff ability to teach and convey knowledge; their effectiveness, creativity, organisation and enthusiasm as lecturers as distinct from comments on how knowledgeable they are, or how they behave outside the classroom.

Practical experience (current)

How up-to-date, 'in touch' and linked staff are with current professional or disciplinary practice through, for example, being a current practitioner. Extent to which there is use of guest lecturers; staff ability to use 'real world' anecdotes to make their teaching more relevant.

Quality and attitude

Staff members' ability to inspire; their enthusiasm, promptness in coming to class, reliability, levels of organisation, engagement; their professionalism, organisation, commitment to the area taught, interpersonal skills and clarity of communication including English-language skills.

COURSE DESIGN

Practical-theory links

The consistency with which a course seeks to link and balance theory with practice, designs in a range of practice-oriented experiences directly connects to related theory. The extent to which it is professionally oriented and applied in its design.

Relevance (to work/life/discipline)

How interesting, engaging, current, and relevant course *content* is. Also includes comments about courses being personally relevant to the key interests and meeting students' other needs.

Flexibility/responsiveness

This includes comments on the extent to which the course design provides flexible/responsive learning paths (electives/majors/submajors); choice; negotiated learning; flexible attendance patterns; flexible delivery; ease of access to learning and assistance to determine which path is best. This subdomain has links to course

design but here the focus is on the extent to which the course is able to respond to the particular backgrounds, abilities, needs and experiences of students as opposed to having a single 'one size fits all' model.

Methods of learning and teaching

Approximately 60 different learning and teaching methods have been identified including: lectures, group work, seminars, tutorials, specific practical, real-life learning methods (practicum, internships, coop ed., moots, simulations, work placements, field trips, clinical placements, industry and practical legal training, etc); use of prior learning of students; camps; lab-work to learning contracts, site visits, experiments, various forms of IT-enabled learning, simulations, teleconferences, guest speakers, specific peer/team learning methods and case-study analysis. Appropriate use of interactive learning methods is a recurring theme in students' BA comments.

Structure and expectations

Structure: subject balance and distinctiveness from each other, subject quality, overall load and amount of content to be learnt, appropriate sequence of learning, overlap between subjects, prerequisites, admission levels, timetable, overview of field, recognition of prior learning (RPL), the appropriateness of the modes of learning used (pt/ft, mixed mode, multi-site, intensive, work-based, distance, online etc.). Also includes comments about the appropriateness, timing, length and variety of mix of learning methods used, the extent to which the course has depth, a clear direction, is integrated, and has an overall integrity.

Expectations: management and clarity of information provided, course rules, access to staff, resources, university processes. Also includes comments about alignment between course prospectus and delivery and actual availability of advertised electives.

ASSESSMENT

Relevance

Extent to which assessment tasks are perceived to be real-world, applied, up-to-date, integrated, relevant to current and future professional or disciplinary practice and focused on 'real world' problems. Also covers comments where students discuss the extent to which assessment is interesting, challenging, engaging, appropriate and how well it matches what was taught and the stated subject/course objectives.

Marking

Consistency and reliability of marking; fair assessment of group work projects and NESB student work. Covers reliability across different assessment methods: short answer; online; practice-based; group-based etc. Also includes extent to which plagiarism and cheating are detected, comments about 'soft-marking' and the confusion between norm-referenced and criterion-referenced assessment in determining grades.

Expectations

Provision of clear assessment tasks and expectations on how to tackle and present them; clear submission deadlines, guidelines rules and grading criteria. Provision of examples of work, to give an operational picture of different grades and quality of work in each subject.

Feedback/return

Promptness with which assignments are returned, use of staged deadlines, quality of the feedback received including the extent to which markers comment on what was done well, explicitly identify key areas for improvement and say how improvements could have been achieved — with specific attention to the grading criteria distributed at the start of the subject.

Standards

Assessment which is at a university standard, which requires higher-order thinking more than rote memorisation from text books; is interesting, and negotiated; assessment that is valid (i.e., demonstrably focuses on the key capabilities that graduates will need to succeed in the first years of work in a specific profession or discipline). Includes comments about rote learning, industry recognition, over-assessment, range and appropriateness of assessment methods used, assessment load, plagiarism management, appeals, extensions, alignment between what is taught and tested, prerequisites, norm versus criterion-referenced assessment, submission and security, timing, weighting, and consistency of assessment quality and demands between subjects and courses at the same level.

SUPPORT

Library

Library collections, services, ease of access, facilities, equipment, efficiency, online services as well as face-to-face services, borrowing services and rules, fines.

Learning resources

Quality and availability of textbooks, print & digital support materials, course outlines, study guides, lecture notes, course readings, online learning resources, self-teaching materials, CD-ROMs, video, TV, photographic and sound resources.

Infrastructure/environment

Classroom and lab quality, class sizes and levels of crowding, quality of computers and technical infrastructure, equipment levels and quality, ease of access to physical facilities and their quality, campus environment, equipment levels, social spaces. Also comments about funding levels for facilities and financial support at universities.

Student administration

Enrolment systems (online and offline), exam scheduling, fees processes, administrative advice, exemptions, graduation processes, delivery of transcripts, accuracy of fees' invoices, grievance processes, results, scholarships, admission, admin staff responsiveness, timetabling. Includes ease of access to student administration services and the extent to which queries and problems are followed up promptly and resolved. Also includes comments about efficiency, levels of bureaucracy.

Student services

Learning support services (English for academic purposes, study assistance, information literacy, transition to university programs, orientation etc), careers. Services to DEST-defined equity groups including ATSI and NESB students, along with counselling services. Comments about the helpfulness of support service staff including IT-enabled learning support. Both IT-enabled and face-to-face.

Social affinity/support

Comments that relate to the sense of 'belonging' that comes from a welcoming, friendly, approachable environment and culture and set of relationships among both staff and students. Comments which indicate that the student feels s/he is seen not as a number but an individual. Comments about levels of engagement or isolation felt by students. Also covers comments on the wide range of formal and informal types of social support, in particular peer support but also a general culture of support and service, ability to network, interaction with others, the development and use of reciprocal relationships. For interactions with staff it includes the presence of a 'service-oriented' culture.

Attachment 2

CEQuery Analysis by School, 2007.1–2008.1

CEQuery **Analysis by School, 2007.1-2008.1**

Domain / Sub Domain	Contemporary Arts				Education				Humanities & Law				Psychology				Social Sciences				College of Arts			
	BA	NI	BA+NI	Odds BA	BA	NI	BA+NI	Odds BA	BA	NI	BA+NI	Odds BA	BA	NI	BA+NI	Odds BA	BA	NI	BA+NI	Odds BA	BA	NI	BA+NI	Odds BA
assessment	**529**	**1,137**	**1,666**		**463**	**2,115**	**2,578**		**581**	**1,417**	**1,998**		**425**	**1,255**	**1,680**		**571**	**1,439**	**2,010**		**2,569**	**7,363**	**9,932**	
expectations	39	411	450	0.1	91	824	915	0.1	86	423	509	0.2	67	384	451	0.2	87	515	602	0.2	370	2,557	2,927	0.1
feedback	53	170	223	0.3	47	317	364	0.1	67	239	306	0.3	27	212	239	0.1	49	223	272	0.2	243	1,161	1,404	0.2
marking	18	91	109	0.2	21	211	232	0.1	51	133	184	0.4	21	114	135	0.2	30	160	190	0.2	141	709	850	0.2
relevance	155	59	214	2.6	107	107	214	1.0	108	104	212	1.0	110	89	199	1.2	147	86	233	1.7	627	445	1,072	1.4
standards	193	343	536	0.6	153	600	753	0.3	185	440	625	0.4	126	398	524	0.3	178	383	561	0.5	835	2,164	2,999	0.4
unspecified	71	63	134	1.1	44	56	100	0.8	84	78	162	1.1	74	58	132	1.3	80	72	152	1.1	353	327	680	1.1
course_design	**2,915**	**1,724**	**4,639**		**4,064**	**3,145**	**7,209**		**4,860**	**3,400**	**8,260**		**3,334**	**2,101**	**5,435**		**3,856**	**2,584**	**6,440**		**19,029**	**12,954**	**31,983**	
flexibility	470	212	682	2.2	621	457	1,078	1.4	740	419	1,159	1.8	635	306	941	2.1	551	338	889	1.6	3,017	1,732	4,749	1.7
methods	1,588	668	2,256	2.4	2,131	1,359	3,490	1.6	2,670	1,345	4,015	2.0	1,645	806	2,451	2.0	2,180	1,051	3,231	2.1	10,214	5,229	15,443	2.0
practical theory links	390	83	473	4.7	541	163	704	3.3	119	79	198	1.5	244	81	325	3.0	239	78	317	3.1	1,533	484	2,017	3.2
relevance	232	224	456	1.0	477	297	774	1.6	641	443	1,084	1.4	446	194	640	2.3	463	301	764	1.5	2,259	1,459	3,718	1.5
structure	133	450	583	0.3	137	807	944	0.2	362	956	1,318	0.4	150	608	758	0.2	179	662	841	0.3	961	3,483	4,444	0.3
unspecified	102	87	189	1.2	157	62	219	2.5	328	158	486	2.1	214	106	320	2.0	244	154	398	1.6	1,045	567	1,612	1.8
outcomes	**830**	**138**	**968**		**980**	**192**	**1,172**		**1,199**	**233**	**1,432**		**417**	**110**	**527**		**854**	**135**	**989**		**4,280**	**808**	**5,088**	
further learning	0	0	0	n.a	8	0	8	n.a	13	0	13	n.a	1	0	1	n.a	8	0	8	n.a	30	0	30	n.a
intellectual	305	11	316	27.7	324	11	335	29.5	395	20	415	19.8	161	5	166	32.2	330	5	335	66.0	1,515	52	1,567	29.1
interpersonal	67	9	76	7.4	21	7	28	3.0	119	17	136	7.0	14	9	23	1.6	41	7	48	5.9	262	49	311	5.3
knowledge / skills	291	91	382	3.2	325	95	420	3.4	541	165	706	3.3	135	74	209	1.8	313	90	403	3.5	1,605	515	2,120	3.1
personal	34	0	34	n.a	47	1	48	47.0	28	1	29	28.0	28	0	28	n.a	31	1	32	31.0	168	3	171	56.0
unspecified	38	6	44	6.3	42	8	50	5.3	45	8	53	5.6	23	2	25	11.5	43	10	53	4.3	191	34	225	5.6
work application	95	21	116	4.5	213	70	283	3.0	58	22	80	2.6	55	20	75	2.8	88	22	110	4.0	509	155	664	3.3
staff	**1,168**	**494**	**1,662**		**2,340**	**903**	**3,243**		**3,267**	**729**	**3,996**		**1,363**	**341**	**1,704**		**2,204**	**685**	**2,889**		**10,342**	**3,152**	**13,494**	
accessibility	366	189	555	1.9	617	283	900	2.2	652	189	841	3.4	297	92	389	3.2	469	207	676	2.3	2,401	960	3,361	2.5
practical experience	15	4	19	3.8	20	4	24	5.0	6	2	8	3.0	12	0	12	n.a	13	1	14	13.0	66	11	77	6.0
quality	508	132	640	3.8	1,078	308	1,386	3.5	1,622	260	1,882	6.2	640	116	756	5.5	1,071	216	1,287	5.0	4,919	1,032	5,951	4.8
teaching skills	231	163	394	1.4	582	294	876	2.0	860	266	1,126	3.2	352	127	479	2.8	568	238	806	2.4	2,593	1,088	3,681	2.4
unspecified	48	6	54	8.0	43	14	57	3.1	127	12	139	10.6	62	6	68	10.3	83	23	106	3.6	363	61	424	6.0
support	**652**	**806**	**1,458**		**974**	**996**	**1,970**		**2,029**	**2,092**	**4,121**		**500**	**798**	**1,298**		**715**	**1,181**	**1,896**		**4,870**	**5,873**	**10,743**	
infrastructure	197	277	474	0.7	261	273	534	1.0	54	205	259	0.3	18	132	150	0.1	64	219	283	0.3	594	1,106	1,700	0.5
learning resources	304	389	693	0.8	411	465	876	0.9	1,628	1,601	3,229	1.0	348	535	883	0.7	411	783	1,194	0.5	3,102	3,773	6,875	0.8
library	3	13	16	0.2	1	11	12	0.1	10	44	54	0.2	5	18	23	0.3	4	29	33	0.1	23	115	138	0.2
social affinity	137	84	221	1.6	265	181	446	1.5	306	202	508	1.5	107	87	194	1.2	205	105	310	2.0	1,020	659	1,679	1.5
student administration	2	25	27	0.1	10	52	62	0.2	14	37	51	0.4	14	23	37	0.6	4	40	44	0.1	44	177	221	0.2
student services	5	3	8	1.7	10	11	21	0.9	4	3	7	1.3	2	3	5	0.7	11	2	13	5.5	32	22	54	1.5

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Attachment 3

***CEQuery* 'Best Aspect' Learning Methods Sorted by Type**

FACE-TO-FACE	PRACTICE-ORIENTED & 'REAL WORLD'	INDEPENDENT STUDY	SIMULATIONS & LABS	ICT- SUPPORTED LEARNING METHODS
• Lecture (interactive) • Group project small group work • Tutorial • Class-work exercises • Discussion, sharing ideas • Seminar/ individual presentation • Workshop • Debate • 1:1 consultation • Mentor (peer or staff) • Conference/symposium • Forum/panel • Exhibition • Peer learning & support • Group dynamics exercises • Critique of student • Production/creation • Buzz group	• Clinical placement • Practicum / practical teaching • Teaching 'rounds' • Practical legal training • Cooperative Education • Work experience or placement for work-based learning, • Professional mentor • "Learning by doing" • Field study/work/trip/site visit • Camps • Addressing real-life problems • Use of guest speakers, industry/prof. representatives • Practical work at university • Design Studio • Artistic production • Placement or study overseas, or in another Australian university • Real life case study • Applying learning to work problems	• Learning by completing assignments /essays • Writing a research or community service report • Use of self-teaching/distance education packages • Self-teaching guide • Project report writing • Proposal writing • Learning contract	• Mock trial • Role play • Simulated interview • Hypothetical • Educational game • Discovery learning • Experiments • Lab work • In tray exercises • Use of a simulator	• Online search for information/web sites • Web-based learning e.g,WebCT • Blogs, My Space, etc. • On-line study • Email contact with staff/students • SMS with staff/students • Individual phone contact with Staff/students • Teleconference • Tele-tutorial • Video conference • Learning using Podcasts, MP3 Radio Audio Tapes, CDs TV Video/DVD Photos, slides, Digital images

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Attachment 4

Learning Methods by School, 2007.1–2008.1

Learning Method	Contemporary Arts				Education				Humanities & Languages			
	BA	NI	BA + NI	Odds BA	BA	NI	BA + NI	Odds BA	BA	NI	BA + NI	Odds BA
face-to-face	1,060	488	1,548	2.2	1,422	891	2,313	1.6	2,425	1,232	3,657	2.0
ICT supported lrng methods	119	115	234	1.0	239	495	734	0.5	195	225	420	0.9
independent study	87	106	193	0.8	169	395	564	0.4	117	163	280	0.7
prac oriented/real world	233	63	296	3.7	418	171	589	2.4	137	59	196	2.3
simulation & labs	42	22	64	1.9	22	14	36	1.6	9	11	20	0.8

Learning Method	Psychology				Social Sciences				College of Arts			
	BA	NI	BA + NI	Odds BA	BA	NI	BA + NI	Odds BA	BA	NI	BA + NI	Odds BA
face-to-face	1,370	689	2,059	2.0	1,842	904	2,746	2.0	8,119	4,204	12,323	1.9
ICT supported lrng methods	150	116	266	1.3	87	125	212	0.7	790	1,076	1,866	0.7
independent study	69	105	174	0.7	127	167	294	0.8	569	936	1,505	0.6
prac oriented/real world	248	90	338	2.8	297	124	421	2.4	1,333	507	1,840	2.6
simulation & labs	76	29	105	2.6	16	8	24	2.0	165	84	249	2.0

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