Review of Australian Higher Education
Request for Research and Analysis

University student engagement and satisfaction with learning and teaching

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September 1st 2008

Index

Attachments

Preface

This report brings together a wide range of research on university student engagement and satisfaction with learning, along with a range of associated contextual information.

Particular attention is given to the following issues raised in the Higher Education Review's Discussion Paper:

- The quality and monitoring of the student experience in Australia's universities;

- How the quality of learning outcomes in Australian higher education can be measured more effectively;

- How institutions can establish that they are nationally and internationally competitive;

- Higher education's contribution to innovation and productivity and its 'fitness for purpose';

The objectives of the report are to:

- Clarify key terms and concepts;

- Identify an overall framework within which to accommodate research on the above issues;

- Provide a consolidated analysis of recent research and discussions of quality assurance for standards, outcomes and assessment in higher education;

- Identify the extent to which a broader set of change forces are having an impact on student expectations;

- Synthesise the available research on higher education student satisfaction and what engages them in productive learning and retains them at university;

- Identify effective approaches to monitoring the quality of the learning experience;

- From this analysis, identify some key implications for the Review and potential areas for national action and further research.

The report highlights recurring research themes for each of the above areas and provides references to specific studies which give further detail on the key points made. Whenever possible, the focus is on empirical literature.

The report is designed so that it can be read in a number of ways – in brief, via the Executive Summary; by going directly to a section of particular interest; or in sequence.

I would like to acknowledge the many colleagues within and beyond Australia who have helped ensure that this analysis is not only focused on the issues that count but is also coherent and comprehensive.

Executive Summary

The Executive Summary identifies the context and then highlights the key conclusions and findings that have emerged from the analysis.

Context

(Further detail –Attachment One)

A range of interlocked 'change forces' which are reshaping the behaviour of both universities and students are noted in the Review's Discussion Paper. The most significant ones have been identified in a recent study of 512 learning leaders in 20 Australian universities (Scott et al 2008). The results are given in Attachment One (a).

The research reviewed revealed that many key terms relevant to the Higher Education Review – like *learning, assessment, standards and evaluation* –either go undefined or are being used with different meanings. To ensure that key players are not talking at cross purposes a common set of definitions may be worth considering. Attachment One (b) provides an indicative set for critique.

An overall quality assurance & research framework for learning and teaching

(Further detail – Section A)

Without an overall framework within which to locate both discussions about the quality and future of learning and teaching in higher education and the research which informs it, it becomes difficult to develop a comprehensive and an integrated picture of what is being discovered or proposed.

A framework which addresses this need is outlined in more detail in Section A.

The purpose and desired outcomes of higher education

(Further detail – Section B)

Unsurprisingly, a review of the literature on this area has uncovered continued debate and disagreement about the purpose and priority learning outcomes sought from Australian higher education. Yet, without clarity about what constitutes "productive" learning in a university, it is very difficult to determine what should be given focus in assessment, where to target resources or how to determine the standards or quality of the sector.

Key areas for consideration identified in this section of the report include the need to:

- determine the relative weight to be given to different stakeholders in determining what the core focus and learning outcomes of higher education should be. These stakeholders include government, business, professional accreditation bodies, successful graduates, current students, university governing boards, academics and the broader community.

- decide what tests and evidence will be used to inform such decisions. The report identifies the potential to use studies of successful graduates in each profession and disciplinary area as an additional way to ensure that the focus in different fields of higher education is indeed on what is needed for effective early career performance by graduates.

- consider the findings from a 2008 Carnegie Foundation project on the new agenda for higher education in the U.S. This project proposes that the core focus of higher education

should be on the development of graduates capable of negotiating effectively the combined set of social, ethical, intellectual and technical challenges of their chosen profession or discipline. This is distinguished from what the project team identifies as the current focus which tends to be on the acquisition of key content, and generic skills like critical thinking or problem-solving in isolation from each other and from 'real world' practice. The increased focus on social and ethical issues is seen as not only enhancing professional and disciplinary performance but as having much broader societal benefits.

- Clarify and confirm the desired balance in the different disciplines between producing work-ready graduates and people with a broader set of creative, social and environmental capabilities.

- Identify which outcomes for higher education and vocational education and training (VET) are common and which are different. This has important implications for articulation and transition between the sectors.

Standards
(Further detail – Section C)

The key conclusions on this issue are:

- Standards for university learning and teaching reside primarily in the quality of what is assessed in our universities. A range of proxy measures are also often used. These include benchmarked, time series data on employability, salaries, employer and client satisfaction; along with data on the quality of graduate performance in their first few years of professional or disciplinary practice. Less attention is generally being given to the quality of outcomes concerned with a more liberal, creative and less vocationally oriented higher education;

- The importance of ensuring that, if standardised tests like Australia's Graduate Skills Assessment (GSA) or the U.S. Collegiate Learning Assessment (CLA) are used to determine the comparative standards of Australian higher education, they are valid and that their use will not lead universities to 'teach to the test';

In terms of international comparisons, it is suggested that alternatives to a standardised test of generic graduate outcomes be explored. These can include benchmarking data in specific fields of education or professions on assessment items, products and performance, graduate employability, performance and success, the use of common employer satisfaction surveys and a replication of the proposed DEEWR-ACER graduate tracking survey.

It is recommended that the complementary roles of the Australian Universities Quality Agency (AUQA) and the Australian Learning and Teaching Council (ALTC) in assuring and developing the standards of learning and teaching in Australian higher education be sharpened. It is also recommended that the criteria used in the Australian Qualifications Framework (AQF) be reviewed. Finally, the outcomes from the studies of successful early career graduates proposed above can be used to cross check not only the validity of the outcomes set down for higher education but to help determine the required standards of performance on them.

Assuring the quality of assessment
(Further detail – Section D and Attachment 3)

An analysis of the extensive data now available on students' university experience in Australia reveals that assessment focus, clarity, standards, consistency, marking and feedback are, in combination, key areas for national improvement action.

The research reviewed indicates that a focus on criterion-referenced rather than norm-referenced assessment is more suited to assuring the standards of learning outcomes in the sector.

One practical way to address the issue of quality assurance (QA) for assessment is to undertake a comparative study of assessment products across similar fields of education and levels of study. This study could, for example, compare the standard of a random sample of assessment products in degrees with the same title, along with the criteria and evidence used to grade them. Another option is to use a validated graduate capability framework of the type identified in this report to ensure that what is given local focus is appropriate (Attachment 3). This will not only ensure that assessment focuses on what counts for early career graduate productivity. It also has the potential to assure the quality of transition and articulation arrangements between vocational education and training (VET) and higher education.

Changing Expectations
(Further detail – Section E)

The review of the literature reveals that some expectations have always existed and are common to most student groups, including international and domestic students. These include expectations of:
o   Relevance, choice, feasibility, and clarity about what is available, along with a relevant briefing on how the university works;
o   Sound, timely and responsive advice when choosing units of study;
o   Active learning;
o   Truth in advertising – that what is promised is delivered;
o   Positive social experiences and support;
o   Easy access to responsive and skilled staff;
o   Clear requirements on what is to be produced in assessment and timely, constructive feedback on the outcomes;
o   Targeted and sustained assistance with transition into the university culture, especially for students who are the first their family to attend university.

However, the recent rapid changes in the operating environment of universities (Attachment One) have generated a range of additional student expectations that have to be effectively managed. For example:
o   The increasing diversity of the student body makes the mix of expectations more complex – including the likelihood that some students will have expectations that are too high, too low or which are uninformed;
o   The fact that more full time students are concurrently working means that expectations about more flexible, responsive and cost-effective study modes are increasing;
o   As HECS debts are rising students are increasingly focusing on making sure they get 'value for money';
o   The sound use of Information and Communications Technology (ICT) as part of a broader learning experience is expected, along with direct, up-front assistance on how to use it for learning;

- Gen Y students have different attitudes to the use of the web and what constitutes plagiarism in its use. They are likely to have up to 20 jobs in their career; and bring with them a strong interest in peer supported learning.

Some important patterns of difference have emerged between the expectations and experiences of international and domestic students.

The research reviewed suggests that students often choose a university on quite flimsy grounds. It shows that the effective management of expectations like those listed above is a key ingredient for their retention and productive engagement in learning. It also shows that what happens during transition not only tests student expectations but also shapes them. The first year withdrawal data reviewed in the report confirms this and also shows that, in some cases, students are using the university as a stepping stone to another institution.

Consolidated findings from research on university student engagement & retention
(Further detail – Section F & Attachments 4, 5 and 6)

A consolidated analysis of the extensive student engagement and retention research now available has identified a key set of quality assurance themes which need to be taken into account as higher education programs are designed, delivered, monitored and evaluated:

- It is the total university experience that shapes productive learning, not just what happens in the traditional classroom;
- Learning is a profoundly social experience;
- Expectations have to be aligned and well managed;
- Transition support needs to be targeted and sustained;
- Learning has to be distinguished from teaching ;
- It is an appropriate mix of active not passive learning methods that engages students;
- Assessment drives learning and feedback on it is a unique moment for individualised learning;
- Assessment needs to be relevant, integrated, practice-based, criterion-referenced, and reliably marked to a university standard;
- Students value a self-managed learning guide which identifies what is to be assessed, clarifies grading and shows how all of the learning methods and resources built into their unit of study will help them complete it;
- Learning designs need to be flexible, integrated and responsive;
- Accessible, responsive, high quality academic and general staff are the key ingredient in making university learning and support systems work in ways consistent with the above findings. However, the significant increase in student-staff ratios over the past 15 years and associated funding challenges, in combination with a predicted global shortage of academics as the baby boomers exit the system, are having a negative affect on the capacity of universities to provide the required staffing levels and quality. How to decrease current student-staff ratios whilst, at the same time, attracting and retaining high quality staff poses one of the core quality assurance challenges facing the sector over the coming decade.

The key findings in this section of the report are summarised in a RATED CLASS A quality assurance framework. The checkpoints below are being used to both guide program design and to ensure that feedback systems focus on what counts most to students:

Relevance
Active learning

> **T**heory-practice links
> **E**xpectations clear
> **D**irection & program structure coherent and clear
>
> **C**apabilities that count are the focus for both learning and assessment
> **L**earning pathways that are flexible
> **A**ssessment quality and feedback
> **S**taff quality, accessibility, skills and responsiveness
> **S**upport which timely & aligned
>
> **A**ccess that is convenient

This framework is explained in detail in Attachment 6

The case of ICT-enabled learning
(Further detail – Section G)

A review of the research literature on ICT-enabled learning in higher education reveals that:

- Its uses are often determined more by staff than students;
- It is often 'bolted onto' existing programs;
- ICT should always be used as part of a broader learning design;
- A wide range of ICT tools are being used. The applications most likely to receive positive ratings from students are the ones that involve active not passive learning;
- Serious methodological difficulties associated with much of the ICT "effectiveness" research undertaken to date have been identified – in terms of the ways in which "effectiveness" is defined and difficulties in separating out the influence of the ICT methods tested from the many other factors that can shape student satisfaction and learning;
- There are indications that the 'digital divide' may still exist in our universities;
- Because people use a wide range of ICT in their private lives does not automatically mean they know how best to use them for learning. The research on this area shows the a large majority of students require explicit assistance in learning how to use ICT for study;
- Student assumptions about how learning should occur at university can be influenced by their school experiences and can make the shift to online and self-managed learning challenging.

The need to adopt multiple learning designs
(Further detail – Section H)

The analysis of the expectations', engagement and retention research confirms that, in the current context, multiple designs for learning are needed and that a 'one size fits all' approach will be increasingly unproductive. This has important implications for funding and reporting across the sector.

A range of learning designs are already being used in various combinations. They include designs which are:

- traditional
- mixed mode
- work-integrated or community-based

- distance-based
- online, including those identified in the Pew Charitable Trusts Research in the U.S. (Twigg, 2003):
    - The supplemental model
    - The replacement model
    - The emporium model
    - The fully online model
    - The buffet model

Creating a productive learning environment & efficient use of resources
(Further detail – Section I)

Consistent with the finding that it is the total experience of a university that engages students in productive learning, not simply what happens in the traditional classroom, a review of research in this area reveals that:

- Because learning is a profoundly social experience, the structure, culture and curriculum of the university all need to actively foster a wide range of informal as well as formal social interactions. A lack of indexed funding and the introduction of voluntary student unionism have made achieving this increasingly difficult, especially in multi-campus universities and those with limited reserves;

- The "medium is the message". For example, the research on learning spaces reviewed for the report contrasts the way the learning environment might best be configured to achieve a traditional 19th century, teacher-centred transmission model of learning with more recent ways of configuring universities to make learning more flexible, responsive and student, rather than teacher, centred. One model of how this is being achieved is the University of Queensland's Next Generation Learning Spaces project (University of Queensland, 2008);

- A productive learning environment has both physical and virtual dimensions as well as social ones;

- Learning does not always need to take place in a formal university location to be productive;

- There is a need to optimise the use of university facilities over the whole year not simply across two main semesters. This will help optimise the 'greening' of universities as the returns from power, maintenance, water use etc will be maximised. It will also assist those students, who wish to, to complete their courses in less time. Any movement towards this option will have important implications for current Commonwealth funding and reporting processes.

Monitoring quality
(Further detail – Section J and Attachment 2)

The research reviewed has revealed a wide range of conceptions of what 'quality' means in university learning and teaching and how it might best be tracked and improved. The paper proposes that a four level quality evaluation framework, which has been extensively tested within and beyond Australia, to locate and discuss developments and research in this area.

This framework proposes that evaluation (making judgements of quality) can focus on the quality of:

1. Course design
   For example: its relevance, likelihood to engage students in productive learning;
2. The support and infrastructure put in place to enable its delivery
   For example: the quality of the staff, library resources, facilities, ICT, support programs, and services necessary for its delivery;
3. Implementation
   For example: Evidence that the planned course and its support systems are being put into practice in the way intended and to the satisfaction of both the students and staff involved. Judgments at this level typically are informed by a wide range of student and staff feedback mechanisms – including data from surveys and focus groups;
4. Impact
   For example: For students - evidence of high quality performance on valid, reliably marked assessment items; positive performance on proxy measures of impact including employability, salaries, employer satisfaction with graduates, successful further study etc. For staff – promotion as a result of involvement in the course, retention, reported satisfaction levels etc.

Attachment Two gives more detail on this framework.

Whereas judgements of quality at levels one and two are about inputs, those at levels 3 and 4 are about outcomes. The most telling measures of standards reside at level 4.

Effective ways in which this quality evaluation framework are being applied are identified in section J of the report and one case study which attracted an AUQA commendation is included.

Data gathered at levels 3 and 4 of the framework can be used to both prove and improve quality. A tendency to use data gathered for improvement purposes inappropriately to prove quality has been noted.

A number of ways to enhance Australia's monitoring systems for learning and teaching have been identified. They include:

- Giving more consistent attention to gathering and analysing qualitative data using tools like *CEQuery* (Attachment 4);
- Using 'importance' as well as 'performance' ratings on quantitative surveys;
- Validating surveys like the Australasian Survey of Student Engagement (AUSSE) against student performance on valid assessment items;
- Addressing a range of observations about the validity and reliability of the Learning and Teaching Performance Fund and the data that inform it;
- Giving greater focus to ensuring that student assessment is both valid and reliable

Emerging areas for national action
The analysis identifies the following as potential areas for consolidated national action and research:

- Assuring the quality of and synergies between assessment, standards, outcomes and articulation;
- Targeted transition;
- Adoption of a broader set of flexible and responsive learning designs, including giving greater focus to work-integrated learning;
- Giving increased focus to determining the optimum role for ICT- enabled learning as part of a broader set of learning designs, with more attention to user-focused research on the area.

A. An overall QA & research framework for learning & teaching

Without an overall framework within which to locate both discussions about the future of learning and teaching in higher education and the research which informs it, it becomes difficult to develop a comprehensive and integrated picture of where to focus our efforts.

Diagram One gives one example of what an overall framework for assuring quality in learning and teaching for higher education and locating research on it can look like. It has been extensively field tested in university development projects within and beyond Australia (Scott, 2004).

It shows how the many elements identified in this report as optimising retention and productive learning fit together and must work together to ensure student success.

The Diagram indicates that an effective approach assures:

1. the quality of the design of the course concerned (for example. its relevance, likelihood to engage students, its sequencing, coherence, and the quality of its assessment);

2. the quality of the staff allocated to it and the extent to which the various resources and support systems necessary for it to work are appropriate and in place;

3. that what was intended is actually being delivered consistently and effectively.

If each of these three elements is operating well and if they are in alignment then the course is likely to have a positive impact (4) on those intended to benefit – primarily our students, but there can be other beneficiaries – including the staff, the university, employers and wider society. The key, immediate test that a learning program has had a positive impact is seen in the quality of what students are able to do in valid and reliable assessment tasks; tasks which are reliably evaluated to an agreed university standard. The diagram also provides an overall framework within which to locate research being undertaken on learning and teaching.

Diagram One

**Quality Assurance & Research Framework
for Learning & Teaching**
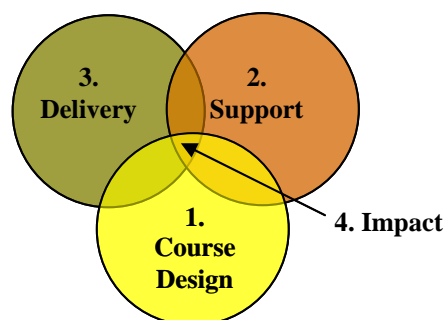
What is presented in Diagram One aligns directly with the four level quality evaluation framework outlined in the Executive Summary and which is discussed in more detail in Attachment 2. In this four level quality evaluation framework:

Evaluation at the first two levels – (1) design and (2) support - involves making judgements about the quality of *inputs.*

By contrast, evaluation at the third and fourth levels – (3) delivery and (4) impact - involves making judgements about *outcomes*.

Some observers note that, in the past, the focus has been predominantly on the quality of inputs at levels 1 and 2, but that the focus is now shifting to the quality of outcomes, triggered by the change forces identified in Attachment One. They note also that an initial focus on evaluating the quality of delivery using mechanisms like student satisfaction surveys (3) has shifted more recently to wanting to determine the quality of impact and cost-benefit (4) – using indicators like assessment and early career work performance, benchmarked employability, salaries, successful further study, and employer/client feedback.

Level 3 indicators generally focus on a wide range of student feedback mechanisms aimed at gauging the quality of the student experience. They are typically used to identify key areas for improving the implementation and support of each learning program.

However, it is data at level four – data which demonstrates whether what has been designed, resourced and delivered has had a positive impact on those intended to benefit - that is the most telling test of quality. And it is here that issues of setting and assuring the standards of Australian higher education primarily reside.

Data gathered at any level can be used to both prove and improve quality. This process is typically checked by AUQA as part of the ADRI (Approach – Deploy – Review – Improve) cycle. Some observers have noted that data gathered primarily to improve the quality of the student experience (for example level 3 CEQ data) are being used for a quite different purpose in the Learning & Teaching Performance Fund – to prove quality.

B. The purposes & desired outcomes of higher education

The Terms of Reference for the Review call for it to address higher education's anticipated contribution to innovation and productivity; its 'fitness for purpose'; its public and private benefits; and how enhanced quality and high standards might best be achieved. The Review's Discussion Paper identifies the need to determine what skills are needed; the best ways to meet national and local needs for high level skills; the extent to which VET and higher education should have distinctive missions (and therefore outcomes); the role of AUQA and other monitoring systems in assuring quality; and whether Australia's QA Framework needs revision.

Parallel issues are raised in the ALP's July 2006 Policy White Paper. These include proposals to conduct standards' reviews of major areas of study; give stronger focus to

learning outcomes; and the introduction of mission-related and evidence-based funding compacts.

Quality, standards, the desired outcomes and the assessment systems that determine if they are being achieved are shaped by the purposes and objectives set down for Higher Education, and by what is seen to be 'productive' learning.

Typical graduate attributes
Most universities identify a range of graduate attributes. These, presumably, are indicators of what, in their context, they see as constituting productive and valued learning outcomes.

An August 2008 study of 8 Australian universities' websites found, for example, a common focus on different combinations of intellectual, personal, professional and social outcomes – for example the development of graduates capable of critical, creative and analytical thinking, problem-solving, effective life long learning, high levels of communication, ethical conduct, working with diversity, and taking a global perspective; as well as possessing high levels of professional or disciplinary knowledge and being information literate. The extent to which these are valid, who decides this and the extent to which they are being systematically assessed across each university is less clear. One reason for this is that Australia does not have an external assessment moderation system for higher education.

Establishing the desired learning outcomes for higher education
People like David Kirp (2003) note how the rapidly shifting operating context of universities in the U.S. is drawing them into giving much more focus to 'utilitarian', market-related outcomes rather than just to generic ones like those identified above :

> Entrepreneurial ambition, which used to be regarded in academe as a necessary evil, has become a virtue… The new vocabulary of customers and stakeholders, niche marketing and branding and winner-take-all, embodies this shift in the higher education 'industry'… Each department is a 'revenue center', each student a customer, each professor an entrepreneur, each party a 'stakeholder' and each institution a seeker after profit, whether in money capital or intellectual capital… Opting out of the fray by fleeing the market is not a realistic possibility… maintaining communities of scholars is not a concern of the market.
>
> (Kirp, 2003: 4 and 261)

Others see this as leading to a convergence between higher education and VET. Consider, for example, this observation in the journal *Nature*:

> Driving universities to compete for fee-paying students runs the risk of reshaping universities as sites of vocational training rather than as places of higher learning[1].

Sullivan and Rosin, in their recent (2008) Carnegie Foundation book *The new agenda for higher education*, propose a role for universities which takes into account the market and the need to educate professionals capable of assisting productivity but which also seeks to develop people with high levels of social awareness, responsiveness, moral turpitude and emotional intelligence. And they advocate that this can be done by bringing the Arts and Sciences together in a new way to focus much more on integrated, 'real world' learning in context:

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[1] Editorial: 'Pursuing diversified universities', *Nature*, 423, 465 (29 May 2003), At:
http://www.nature.com/nature/journal/v423/n6939/full/423465a.html

'The academy's mission is a formative one…. to prepare students for lives of significance and responsibility… a life of the mind for practice… (through) informed and responsible engagement'.. in complex worlds of practice… (and to) engage with one another across professional and disciplinary boundaries.

<div align="right">Sullivan & Rosin (2008: xv & xix)</div>

Validating the core learning outcomes for higher education

The process of determining and validating the key learning outcomes for a university or course and, as consequence, clarifying what assessment will focus on requires greater transparency. It requires, for example, decisions to be made about:

1. What evidence and tests will be used to determine which outcomes count most – for example, evidence that the outcomes being set are relevant, feasible and clear;

2. What weight will be given to the requirements and voice of different interest groups in setting and applying these tests – for example the University (via its mission); academics expert in the area; employers; professional accreditation groups; successful graduates in the profession or discipline concerned; current students and the broader community.

What makes for a successful graduate?

An important line of research involves using the experience of successful practitioners in the discipline or profession concerned to identify the capabilities that count most for effective practice and then using this information to determine what the learning focus, outcomes and assessment of a university program should be. This process of 'backward mapping' has been found to be a highly effective way in the current context to engage students in learning because they know that what has to be learnt and what is to be assessed is going to be directly relevant to their early career professional or disciplinary practice.

For example, drawing on a series of case studies of successful U.S. courses in a range of disciplines Sullivan and Rosin (2008) conclude that university programs should focus more specifically on the development of an integrated set of graduate capabilities which they call 'practical reason'. They cite instances of daily practice in the professions where commonly cited graduate attributes like technical competence, critical thinking and analysis were not enough. One case is the disaster at Bhopal, India in 1984 where engineers built a chemical factory on time and to specification but 2300 people died and 200,000 were injured:

> (In Engineering) solving problems in the world depends on judgement, and this involves both command of scientific knowledge and technological skill, on the one hand, and the ability to assess situations from a cultural, historical and dialogical perspective on the other…. One telling example.. is the disaster that occurred at Union Carbide Corporation's pesticide production plant in Bhopal, India in 1984… UCC neglected to consider fully enough the social and political conditions of the region when placing and establishing the plant and its production practices…. Lethal pesticide ingredients, initially thought to be merely steam, leaked… killing over 2300 and injuring over 200,000 people… This case brings engineering students into direct contact with the often abstract issue of negotiating cultural differences.

> Practical reasoning and a valid higher education experience is about participation and engagement with real world problems and perplexities not the abstract dissection associated with critical thinking and traditional university analysis.

<div align="right">Sullivan & Rosin 2008: 10</div>

The focus for university learning and assessment which Sullivan and Rosin propose is similar to the cycle of 'reflection in action' identified in studies of successful practitioners (see, for example, Schön (1983), Kolb (1984), Boud, 1985 and Scott, 1999).

This process involves a practitioner, when confronted with an unexpected or perplexing situation, seeking to make sense of what is going on by 'reading' the situation, matching what seems to be the most appropriate response, trying it, evaluating the results, and repeating the cycle until the situation is effectively addressed. In real world professional or disciplinary practice capability is most tested when things go wrong and every perplexing situation requires the practitioner to be able to evaluate the social, human and moral dimensions as well as the technical ones. And no situation is ever dealt with in a linear fashion. Rather, as Francis Bacon observed, in real world professional and disciplinary practice 'we rise to great heights by a winding staircase'.

> … practical reason values embodied responsibility as the resourceful blending of critical intelligence with moral commitment….Such reasoning is neither deduction from general principles nor induction from particulars to a universal concept. Instead, it requires moving back and forth between specific events and the general ideas and common traditions that might illuminate them, in order to interpret and engage the particular situation more fruitfully. In this way, practical reasoning is never wholly complete. It is like the work of skilled professionals such as judges, physicians or educators. Cases and decisions are always open to new possibilities, even as they resolve problems…

> practical reasoning affirms an emphasis, shared with the proponents of the critical thinking agenda, on developing self-awareness and the ability to subject opinions to analysis and critique. The core intuition is different, however, as is its larger resonance. Practical reason looks on knowledge, including representational knowledge, as founded on participation and engagement with the world. This is most evident in practical reason's assumptions that all knowing, including all criticism… takes place within particular knowledge communities, defined by specific cognitive practices…. (it) portrays knowledge as being rooted in interactions that give rise to holistic recognition of pattern, rather than in analytic distinction among elements… The vaguely intuited whole, which is the source of meaning, provides the tacit context within which the active work of inquiring, testing evidence, and drawing inferences gets point and direction.

> The educational goal of practical reasoning is the formation of persons who think and act through a back and forth dialogue between analytical thought and the ongoing constitution of meaning….

> Sullivan and Rosin, 2008 (xvi-xvii & 104)

What is critical about this perspective is that, in focusing on developing students' emotional and social intelligence as well as their intellectual skills and knowledge in the context of their 'real world' application, it is simultaneously preparing them for broader lives of significance and responsibility, including being able to work constructively with diversity. The aspects of social and personal emotional intelligence identified in Attachment 3 as most important in the studies of successful graduates align closely with many of the core values that underpin Australian society. They are also characteristic of the most productive organisations.

This perspective on what constitutes productive learning outcomes for higher education is very different from ones which argue, for example, that a university is about training for the current needs of industry, about helping students acquire and reproduce set knowledge about topics in isolation from one another, or helping them hone their problem-solving, critical thinking and analytical skills in isolation from real world human interaction and professional or disciplinary practice.

The focus advocated by Sullivan and Rosin is not new. It has a long history, going back, for example, to the thinking of people like John Dewey (1933). And it is reflected in the McMaster model of medical education. Introduced in 1969 at McMaster Faculty of Health Sciences, Canada, its problem-based learning model is now used in about 150 medical schools worldwide (see Schmidt, 1998).

When standardised tests of graduate attributes like those being considered by IMHE in its AHELO project are discussed, the focus typically is on testing capabilities like 'critical thinking', problem solving and similar generic skills. However, such concepts require much closer scrutiny. As Sullivan and Rosin (2008) observe:

" The academy is not only called to break apart the world into its constitutive relations and causes through critical thinking…. We mistake analysis and critical thinking, which are disintegrating ends, for judgement and responsibility, which are integrating and consummating ends… Our students will be called to take up concrete places and stances in the lives of others. They must learn to discern the practical salience of academic insight through integrative acts of responsible judgement in the world. What critical thinking pulls apart, responsible judgement must re-connect. The calling of higher education does not end with theory and interpretation. It culminates in the active formation of new narratives of individual and collective identity and responsibility.' (pg 143)

'Few terms are more common in contemporary discussions of the purpose of higher education than critical thinking... (it is seen as) an almost self-evident good… In fact critical thinking is a vague and often poorly conceived notion of educational purpose, more like a slogan than a well-formed educational ideal. (pg 95)

'Advocates of the critical thinking agenda rarely speak in terms of participation in communities or induction into cultures or practices of thinking.' (pg 101)

'The university's exaltation of analytical reason leaves the 'actors' that it forms with few resources for re-entering the realm of concrete social life, for living amid particulars while also striving for a wide frame of mind and sympathy.. The old humanistic discipline of rhetoric, which has been marginalised during the last century by the rise of the scientific model of higher education, turns out to have strong affinities with… how professional and liberal education might find mutual strength and purpose'. (pg 118)

So, instead of giving primary focus to the development and assessment of critical thinking and problem solving, these studies of successful practitioners indicate that what higher education should concentrate upon is the development and assessment of 'practical reason' and the ability to 'reflect in action' - processes in which critical thinking and problem solving are just two elements.

This conception aligns well with the findings from a series of Australian studies of successful graduates in a range of professions[2] (Vescio, 2005). What emerged from these studies also aligns with earlier investigations of successful Australian Skill Olympians (Scott & Saunders 1995) as well as studies of effective leaders in both school education (Scott 2003) and higher education (Scott, Coates & Anderson 2008).

Table 2 shows how important aspects of emotional intelligence and a particular, contingent and diagnostic way of thinking – both of which are key elements in Sullivan and Rosin's conception of 'practical reason' - were seen to be by these successful graduates (Vescio, 2005).

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[2] The professions studied were Accounting, Architecture, Education, Engineering, Information Technology, Journalism, Law, Nursing & Sport Management. Graduates were identified by a mix of employers, supervisors and clients as performing in a superior way to their counterparts. The key 'success' indicators these people reported using to select the graduates were that they delivered projects on time and to specification, were able to successfully modify plans in response to changing technical and human situations and that they attracted high levels of positive collegial and client feedback.

Table Two: 194 Successful graduates: capability items ranked highest on importance

Item no (Scale)	Importance rank (Mean/5)	Item description
38 (E)	1 (4.75)	Being able to organise my work and manage time effectively
7 (A)	2 (4.69)	Wanting to produce as good a job as possible
27 (C)	3 (4.66)	Being able to set and justify priorities
4 (A)	4 (4.63)	Being able to remain calm under pressure or when things go wrong
1 (A)	5 (4.53)	Being willing to face and learn from my errors and listen openly to feedback
21 (C)	5 (4.53)	Being able to identify from a mass of detail the core issue in any situation
16 (B)	7 (4.46)	Being able to work with senior staff without being intimidated
8 (A)	7 (4.46)	Being willing to take responsibility for projects, including how they turn out
19 (B)	9 (4.43)	Being able to develop and contribute positively to team-based projects
6 (A)	10 (4.42)	A willingness to persevere when things are not working out as anticipated
12 (B)	11 (4.41)	The ability to empathise with and work productively with people from a wide range of backgrounds
14 (B)	11 (4.41)	Being able to develop and use networks of colleagues to help me solve key workplace problems
11 (A)	11 (4.41)	Having a sense of humour and being able to keep work in perspective
13 (B)	11 (4.41)	A willingness to listen to different points of view before coming to a decision

A professional capability framework for Australian Higher Education
Diagram 2 presents a framework which accommodates all of the research undertaken so far on successful graduates and professionals:
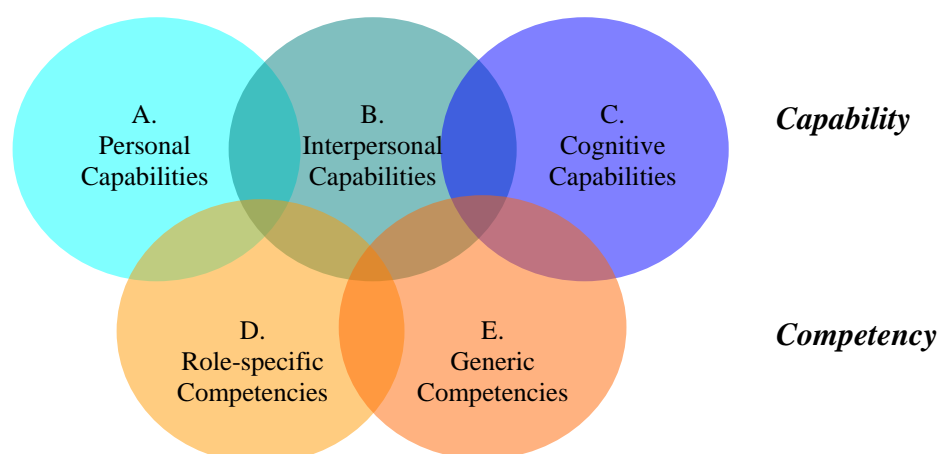

Diagram 2   Professional capability framework

Diagram 2 identifies three overlapping aspects of professional capability—personal, interpersonal and cognitive. These domains are underpinned by two linked forms of skill and

knowledge: generic competencies like the ability to use IT; along with the specific sets of role-specific competencies (job-specific skills and knowledge) which vary significantly with each profession/discipline and role.

The overlapping nature of the framework indicates that all five dimensions are necessary for effective performance in a profession or discipline and that the five domains identified both feed into and off each other.

We have clear evidence in every study undertaken so far, that one's capability is not tested when things are running smoothly but when something goes wrong, when something unexpected happens, when one is faced with a compelling perplexity which requires resolution.

Attachment Three give further detail on exactly what our research has identified as counting most in each of the five components identified in Diagram 2.

The framework in Diagram 2 helps clarify how successful graduates from across the professions and disciplines all work with, learn from and respond to changing circumstances. It blends the competency and capability perspectives found in much of the literature on post-secondary education and allows for the way the mix can play out in different proportions with different expected levels of performance at various levels of education and responsibility at work. It emphasises that possessing a high level of skill and knowledge in the role concerned is necessary but is not sufficient for effective professional performance. It is in this way that Diagram 2 seeks to show how capability and competence are both necessary for effective professional practice and for managing inevitable ongoing change. It also provides a comprehensive framework for determining what should be given primary focus in different disciplines and a means for establishing the similarities and differences in the expected outcomes of VET and Higher Education.

C. Standards

A standard is defined by Standards Australia as "a set of specifications and processes to ensure that products, services and systems are safe, reliable and consistently perform in the way they were intended to" [3]. AUQA defines a standard as: "an agreed specification or other criterion used as a rule, guideline or definition of a level of performance or achievement"[4]. In learning and teaching a standard typically consists of a criterion and the specified indictors and evidence that will be used to determine various grades of performance against it.

Standards can be applied to any aspect of Diagrams 1 and 2. However, as noted in Section A and in the Review's Discussion Paper, they have a particularly important role to play at level 4 (evaluation of impact) in ensuring that assessment is at a 'university level'. This perspective also aligns with points made at the July 2008 AUQF Conference and at the L H Martin Forum on Performance Standards and Indicators held at the University of Melbourne in August 2008.

 The description of the concept by one university is typical:

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[3] Standards Australia at: http://www.standards.org.au/cat.asp?catid=2
[4] AUQA Framework for Standards, Evidence and Outcomes at:
http://www.auqa.edu.au/qualityaudit/auditmanuals/auditmanual_v4_1/?pageid=framework_e

Standards-based assessment requires that criteria be identified and performance standards be described so that students know the level of performance required for each assessment task. Criteria are the specific performance attributes or characteristics that the assessor takes into account when making a judgement about the student response to the different elements of the assessment task.

A range of proxy measures for impact are common. They include benchmarked employment and salary rates, evidence of successful further study and employer satisfaction with graduates.

If the findings from the successful graduates' research (Section B) were taken into account, a university standard of assessment would focus on testing the candidate's ability to operate in uncertain situations and manage under adversity; to work productively with a diverse set of colleagues and clients; to be able to diagnose what is causing a problem in a unique human and technical situation, assess its significance and then match and effectively deliver an appropriate response, typically as part of a team. A university standard of performance would, therefore, entail not simply being able to replicate information or skills in isolation from their appropriate application in the real world situations of disciplinary or professional practice.

The use of a national graduate assessment test is currently being proposed as a way to assure sector standards. This, as noted earlier, is being considered internationally by IMHE as part of its AHELO project. In that project the expert committee has recommended piloting the U.S. Collegiate Learning Assessment (CLA) across a range of countries. The adoption of a standardised test like the CLA as the basis for the pilot is not, according to a range of observers, surprising, given the composition of the expert committee:

The U.S. representatives, at least, tilt heavily toward advocates of standardized testing, with three representatives from the Educational Testing Service, one researcher… who is closely aligned with the Collegiate Learning Assessment, and a former U.S. Education Department official turned – foundation executive… 'It's troubling that most of the people representing the U.S. in this have a stake invested in specific outcomes' said Hartle of the American Council of Education.

Inside Higher Education, Sept 19, 2007

Moving to the use of a single standardised test of graduate outcomes as a sole means of assessing course, institutional and sector impact may be a highly risky exercise for three reasons. First the means of assessment – a written test – may not be able to tap accurately the full set of capabilities that really count for effective and productive early career performance in different professions and disciplines. Second the focus of tests like the CLA – which appears primarily to be on generic skills like integrative thinking and critical analysis - needs to be confirmed for its predictive validity and for the extent to which it covers all of the dimensions of Diagram 2 as they play out in the context of different disciplines and professions. Third it may create, as has happened in other education sectors, a pressure to simply 'teach to the test'. A preferable approach would be to use an integrated suite of measures with much more focus on moderated assessment of assessment items, criteria and measures known to be valid in the professions and disciplines concerned.

In the same issue of *Inside Higher Education* Trudy Banta from Indiana Purdue University expressed views which she repeated at the AUQF Conference in Canberra in July 2008:

It would be extremely difficult to design one measure that could apply 'across the many cultures, languages, institutions' that are part of OECD.. 'I'm afraid that everybody is looking for a silver bullet, a magic potion, that will tell them about quality in higher education. The latest tool in that arsenal is the standardized test' which, inevitably results, she said, in oversimplified measurements of institutions', or in this case potentially countries', success or failure

Inside Higher Education, Sept 19, 2007

D. Assuring the quality of assessment

'The skills agenda can have the unfortunate effect of diverting us from the fact that universities are not about narrow competencies.

Dr Philip Esler[5]

An analysis of the extensive feedback now available from students on their university experience in Australia reveals that assessment standards, expectations, marking and feedback are, in combination, key areas for national improvement action.

Ensuring that assessment is valid
The student feedback data reviewed repeatedly indicates that the relevance of assessment is a key factor in their engagement with learning. This is why the capabilities and most challenging situations identified by successful graduates are of such interest to our undergraduates. Replicating such studies more widely is recommended. It represents an additional and relatively distinctive way to directly address the issue of how best to link higher education to the development of both a productive economy and constructive citizens. This is because the focus on the development and assessment of emotional intelligence and contingent thinking as well ask professional knowledge not only aligns with what is needed at work it is also what is needed for productive social engagement.

The findings imply that we need, as Sullivan and Rosin concluded from their research, to give more consistent focus in assessment and the learning that feeds it to all five aspects of capability and competence identified in Diagram 2 across all Fields of Education. The findings also imply that assessment is best undertaken in an integrated way around real world cases and other more direct forms of practice-oriented and problem-based evaluation. In terms of criteria, the specific studies of successful graduates in each profession identify precisely the combination and weight of what should be given focus in assessment. Table 2 gives a high level picture of what the combination can look like.

Although such capabilities cannot be taught we have evidence that they can certainly be learnt and assessed. For example in a paper on our research with successful engineering graduates (Scott & Yates, 2002) it was noted that, if the highest ranking capabilities are given specific focus during work-placements or in simulations, if the supervisor notes the extent to which the practicum student demonstrates them when things go wrong or when most challenged, then students are readily able to learn from experience. It was also noted that, by concentrating on the top ranking capabilities for the profession concerned, the feedback from the supervisor can be made more focused and helpful. To make assessment more meaningful and work-integrated, it is possible to get students to write a reflective

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[5] Head of UK Arts & Humanities Research Council. Speaking at a seminar held by the UK Council for Industry & Higher Education on knowledge transfer, June 2008

essay on their practicum using the focused feedback provided by the supervisor on the highest ranking capabilities as part of the assessment process. In this essay students can reflect on what happened, how they handled it, what they would (or would not) do again and what technical as well of human challenges had to be overcome.

> We are aware that acting on such findings will require a considerable shift in the thinking of academics and universities, away from a disaggregated, subject-based system towards a sharper, more integrated trans-disciplinary approach to assessment, teaching and learning. However, if successful, such approaches will distinguish universities from training agencies and from the burgeoning number of online providers who assume that 'information is learning'.
>
> The study's findings about making learning (and assessment) more practice-based and responsive are not new. However, by using the capability framework confirmed in this study more explicitly, we have an opportunity to give greater focus to this highly valued aspect of university study, right from the outset. For example… the university's industry placement programme can focus on using and testing the framework; and case studies which illustrate how it operates can be scrutinized more consistently.
>
> Such strategies are used in many university courses and meet the relevance tests for high-quality university learning identified in this and other studies.
>
> (Scott & Yates, 2002: 374)

Criterion referenced assessment

The discussion on standards (Section C) suggests that a criterion-referenced assessment system would be more valid and appropriate for the sector than a norm referenced one. To take a sporting analogy - under a norm referenced system an archer could still win a gold medal but not hit the target – simply because s/he missed it by the least distance of all the competitors. Under a criterion referenced system, to be eligible for any medal one would have to, at minimum, hit the target. Then the person closest to the bull's eye would be awarded the gold.

The research reviewed indicates that, if a criterion reference system is adopted, it is necessary to make clear to students from the outset exactly what performance at a fail, pass, credit, distinction and high distinction level looks like in each specific area studied.

Assuring consistency and equivalence of assessment standards & outcomes

At present, in the devolved system of Australian Higher Eduction, it is very difficult to confirm that there is an equivalent standard in the outcomes being achieved by different universities in the same Fields of Education, in degrees with the same title or the extent to which capabilities and outcomes like those identified above are given focus. For this issue to be addressed it is recommended that a system be instituted in which random samples of assessment tasks, products and the criteria used to determine their grade are compared.

This is seen as being preferable to the use of standardised tests of graduate outcomes for the reasons cited earlier. Standardised tests may be cost-efficient but they have to be valid. Put simply, it is of little benefit to reliably measure and compare what does not count.

As part of this initiative it may also be useful to undertake a national comparison of the tests and the standards set to admit students, including articulation and direct entry arrangements, along with the predictive validity and reliability of existing tests of English proficiency like IELTS.

Currently, when VET students commence their university studies our experience shows that the different approaches to assessment and learning between the sectors is making their transition unnecessarily difficult. The use of a common capability and competency framework like that proposed in Diagram 2 is one way to provide greater synergy, more seamless pathways and more valid articulation between the two sectors.

Finally, it is recommended that the complementary roles of AUQA, ALTC and the AQF in building and assuring standards be clarified.

Student feedback on the current quality of assessment in Australian Higher Education
As noted earlier, data from a wide range of studies identify that assessment standards, expectations, marking and feedback are, in combination, key areas for sector improvement.

Attachment 4(a) gives the results of one large study – the *CEQuery* analysis of 280,000 'best aspect' and 'needs improvement' comments on the CEQ in 14 Australian Universities (Scott, 2006). It shows that the odds of a 'best aspect' comment on each of the above aspects of assessment in the 14 universities involved ranged from between 1 in 10 and 3 in 10.

These findings align with the recent replication of the *CEQuery* analysis in a wide range of additional universities.

The *CEQuery* analysis uncovered regular comment from students, especially post-graduate ones, that assessment was not, in their view, of a university standard. These students call, for example, for less testing of rote learning and replication of material from set texts, less use of short answer tests and more focus on testing higher order thinking through integrated assessment tasks which are 'real world' relevant.

As Attachment Five shows they also raise a wider range of quality assurance issues. These include comments concerning industry recognition; over-assessment; the range and appropriateness of the assessment methods being used; problems with the assessment of group-generated assignments; the importance of experiencing a balanced assessment load across units of study; effective and transparent processes for plagiarism management, appeals, assessment submission, security and granting extensions. They discuss the need for better alignment between what is taught and tested; the quality of prerequisites; norm versus criterion-referenced assessment; the timing, weighting, and consistency of assessment quality and the differing demands between subjects and courses at the same level. There are also, as noted earlier, regular comments about the need to distinguish between what is required at masters compared with an undergraduate level of performance in the same field of education.

The importance of taking a more integrated, case-based, problem-based and practice-based approach to assessment has already been noted. The use of the practicum as a basis for assessment is commonly used in some fields of education (for example in education and health) but, as Attachment 4 (b) shows is little used in others (for example, in management and commerce). Similarly, case-based assessment is common in some fields of higher education (for example in management and commerce) but, again is little used in others (for example in Science and Engineering). Yet Sullivan and Rosin (2008: 13) found that case based learning and assessment is ideally suited to the development and testing of the capabilities identified in Diagram 2:

> Cases connect particulars with general principles. But they do so in a way that is quite different from scientific problem solving, where particulars are represented in the form of abstract variables, then operated upon in accordance with general formulas or algorithms in order to produce precise results. By contrast, the question of what Bhopal was a case of demands neither correct deduction from formulas nor an induction of a general rule from similar situations… (it) demands that students interpret the significance of the situation.

As part of the study of successful graduates in nine professions (Vescio, 2005) respondents were asked to look back on their university studies and, in the light of their subsequent professional experience, first to rate a set of educational quality items and then the extent to which their university had focused upon that area. The results presented in Table 3 reinforce the points just made:

Table Three: Successful graduates: results on the Educational Quality scale

Mean Importance	Mean University Focus	Item No and Description
4.38	2.99	48. Make assessment more real-world and problem-based and less focused on memorising factual material
4.33	2.51	40. Use real-life workplace problems identified by successful graduates as a key resource for learning
4.26	2.99	47. Ensure that teaching staff have current workplace experience
4.23	2.74	44. Include learning experiences based on real-life case studies that specifically develop the interpersonal and personal skills needed in my particular profession
4.09	2.79	39. Focus more directly on the capabilities identified as being important by this study in university courses and assessment
4.08	2.45	42. Use successful graduates more consistently as a learning resource in university courses (eg. as guest speakers)
4.08	2.64	41. Make work-placements which test out the capabilities identified in this study a key focus in each course
3.86	2.70	46. Ensure that all teaching staff model the key attributes identified as being important in this study
3.81	2.64	49. Use performance on the capabilities identified as the most important in earlier parts of this study as the focus of assessment and feedback on all learning tasks
3.67	2.73	45. When relevant, use IT to make learning as convenient and interactive as possible
2.76	2.42	43. Decrease the amount of formal classroom teaching of basic technical skills and use self-instructional guides and IT to develop these

When taken in combination, the research reviewed in this section of the report indicates that a national initiative around assuring the quality and standards of assessment in higher education appears warranted. This could focus on ensuring that what is being assessed in similar programs is valid; that the assessment tasks being used are measuring what counts; that the criteria and evidence being used to grade students are comparable and of a university standard; and that the key areas for quality improvement identified in the *CEQuery* research are being addressed.

E. Changing Student Expectations

Some expectations which students have about their university studies are enduring and are common for most student groups. These include an expectation of personal and vocational relevance and coherence in what is studied and assessed; ease of attendance; experiencing a responsive learning environment; having opportunities to meet and work with a supportive peer group; encountering responsive and knowledgeable staff; having clear assessment guidelines; and receiving prompt and helpful feedback on their learning. Other expectations, however, are shaped by the times and by the generation and culture to which one belongs, as well as by specific aspects of each individual's background, abilities, needs and experience.

The broader change forces outlined in the Review's Discussion Paper and Attachment One have influenced not only the behaviour, focus and priorities of universities but the expectations of students about what will/should happen during their studies. Such expectations include getting 'value for money' as personal contributions to higher education have grown; an increasing readiness to exercise one's rights as an educational 'consumer'; expectations that Information and Communications Technology (ICT) will be used effectively as part of a broader learning experience; and attendance patterns that help them to balance the increased levels of work they now have to undertake whilst concurrently studying at university.

Findings from studies on student expectations
James & Beckett (2002) report that the 'massification' of higher education has made the student body (and its expectations) more diverse; and rising fees have made them more consumer minded; that, in recent years, there has been a sizeable increase of 9% in the proportion of full time students working full time and, because of this, they expect a more responsive engagement with their university; that students are seen by staff as now being 'more instrumental'; but that, contrary to perceptions of their vocationalism, many students have strong personal interests; that there can be a mismatch between university and individual expectations – students can, for example, develop unrealistically high/low expectations of themselves and what will happen; and that they bring with them clear expectations of quality (value for money) and relevance.

The authors identify some misconceived expectations which university applicants can have:

> University applicants' rely heavily on a superficial set of ideas about curricula,
> questionable sources, and are highly influenced by word-of-mouth. This situation has
> resulted because required university entrance scores within a highly competitive entry
> system have come to serve as a proxy for both quality and personal relevance. Student faith
> in the appropriateness of particular courses is tied closely to the selectivity of entry.
>
> Prospective students trust the market; thus the attractiveness of a course at a university
> increases with the selectiveness of admissions. School-leavers act to maximise the
> 'earnings' from their school results in a largely reputable market. The irony of this situation
> is that faith in competitive admissions acts against the development of complex or
> sophisticated expectations of university, while at the same time raising the level of
> expectations. Faith in the market diminishes involvement in vigorous information-seeking
> while potentially establishing unrealistic expectations of quality and relevance linked to
> selectivity of entry.
>
> <div align="right">James & Beckett (2002: 2)</div>

They go on (pgs 2-3) to report that transition experiences not only test expectations but shape new ones, with the consequences of a mismatch being, in some cases, withdrawal and in others less active engagement in university life. Not just 'hygiene' factors, like a positive learning environment, are necessary for retention - inspirational teaching and a thriving peer group also play a key role. The authors conclude that students can make sound judgements about the quality of facilities, staff teaching, and teaching spaces but they are less equipped to make judgements about how best to design and sequence the curriculum to give a coherent overall educational experience.

Krause (2005) studied differences in the expectations and experiences of domestic and international students. She found (pg 13) that international students had higher levels of unmet expectations and generally lower levels of satisfaction with teaching. She also found lower levels of social integration for international compared with domestic students.

Tricker (2003) notes the importance of ensuring that expectations match what is delivered. He cites Davies' (2002) findings that student and parental expectations are now very high and include increasing interest in:

- flexibility of choice in delivery;
- access to 'cutting edge' technology;
- 2 way communication with the university;
- consultation about the learning process;
- accurate information on courses, assessment procedures, and complaints processes;
- honesty about whether their needs can be met.

In addition, Tricker notes growing expectations about receiving high quality service provision; having access to high quality teachers; and there being direct links between study and career.

Tricker endorses James (2002) suggestion that student expectations can be shaped significantly by a two way dialogue between 'provider and customer'.

A UK study of senior high school students' expectations of the use of technology at university (Conole et al, 2006) found that they see ICT as a complement to the key focus of their studies which, they say, should remain on established methods of teaching and administration. These, and the positive face-to-face friendships experienced at school, shape what they expect to happen at university. Importantly, the study found that, although ICT is part of this age group's lives, they find it hard to project how it could best be used to help them learn, especially as they had not yet experienced all of its educational applications. The authors conclude:

> "Fundamentally, this age group suspects that, if all learning is mediated through technology, this will diminish the value of the learning" (Conole et al, 2006: 2)

Again Roberts (2004: 2-3) found that teacher and class experiences are still fundamental but that the Net Generation have high expectations of faculty's knowledge and skill in using technology to enhance learning.

In their study Kirkwood and Price (2006) cite Kember (2001):

> "students who commence higher education with didactic/reproductive beliefs can find the process difficult and even traumatic. They are uncomfortable with teaching approaches that do not correspond with their model of teachers presenting information to be passively absorbed by students"
>
> (Kember, 2001: pg 217)

In a study of new student expectations about what would happen at university undertaken with 979 first year students' at the University of Adelaide in 2006 (University of Adelaide, 2006) it was found that: a large majority underestimate the time they will need to commit to private study; that 52% expect staff to read drafts of their work; that they expect quick turn around times for assessment (57% expected it back in 2 weeks); that they expect they can use emails to staff to identify and resolve problems. 71% expected to work and study at the same time (less for international students); 86.9% expected ready access to lecturers and tutors out of class and to experience interactive group work (85%). The study found that almost all of the sample needed coaching on how to manage their own learning.

If all of this research is brought together it is fair to say that students expect:

- 'truth in advertising' and clear management of their expectations;
- the presence of a supportive peer group;
- consistently accessible, responsive and capable staff;
- prompt and effective management of their queries;
- "just-in-time" and "just-for-me" transition support, including the provision of self-teaching and orientation materials, sound advice on their study program and on how the university works, peer support, information on how to get the most value from new methods of learning, including ICT-enabled learning systems;
- the use of a coherent, responsive, flexible, relevant and clear course design – a design that uses a variety of learning methods;
- efficient, conveniently accessed and responsive administrative, IT, library and student support systems; all working together to support each course's operation; and
- relevant, clear, consistent and integrated assessment with prompt and constructive feedback.

Changing expectations from a new generation of students

Unlike earlier generations it is estimated that Generation Y may have up to 20 jobs over their career. This creates a profound challenge for how universities structure their programs, and for their flexibility and responsiveness. It throws up decision-making dilemmas around how specifically focused programs should be, whether helping students learn 'how to learn' should be the focus and to what extent students want or should do the bulk of their higher education before they start their career. This is not a new dilemma but the current context throws its importance into sharp relief.

In a paper presented at the 2006 Australian Association for Institutional Research Conference Sally Nimon (2006) from the University of South Australia presented research on the distinguishing characteristics of Gen Y – the so called Millennial generation of higher education students born after 1980. The focus was on how their expectations of university study are quite different from older generations. Another study by Kennedy et al (2006) of the extent and nature of Gen Y use of new technologies also indicates that the old, transmission modes of learning used in the traditional university learning paradigm will increasingly fail to resonate with younger students, despite the

fact that, at present, such modes are predominantly what they experience prior to attending university. As Nimon notes:

> The Millennial generation has been raised in an environment very different from that of its predecessors, and this has fostered a distinctly different set of experiences, expectations and characteristics, many of which have highly significant implications for higher education. While it is not yet clear exactly what approaches *will* work with this group, there is sufficient evidence to suggest that practices that were successful with Baby Boomers and Generation X-ers are likely to fail with their children and younger siblings. Millennials are the future, both literally and figuratively, and it is worth our while to invest in ways to bring them to their full potential.
>
> (Nimon, 2006: pg 8)

Nimon suggests, for example, that Gen Y students are likely to expect access to the university's services 24 – 7 - 365, that they can be expected to have limited institutional loyalty and will rapidly shift elsewhere if not happy; that they cannot be expected to engage in long term planning; that they tend to look for more immediate personal returns from their higher education than older generations; that they are likely to have different attitudes to web-based plagiarism and knowledge ownership, and look to the internet as their first port of call for information; that they expect to be consulted and catered to; that their strong peer group bonding can make them less competitive or interested in standards and that they are more likely to expect a passing grade irrespective of the standard of what is handed in. It is the peer group, says Nimon, not older people, that shapes the Gen Y student response to a university. This can be seen in the widespread use of online sites like *Bored of Studies* or *My Space* to discuss which university to go to.

Handling the challenge posed by this so called generation of 'digital natives' is now front and centre for higher education. For example, one of the most popular sessions at the 2007 annual meeting of academic librarians in Washington DC was on how to help students who have learned many of their information gathering and analysis skills from video games apply that knowledge to learning how to use the library. Speakers said that younger students expect to learn how to use a university library in the same way as they learn their gaming skills – by intuited trial and error and not by reading the instruction manual. This, they said, was in many ways representative of a broader cultural divide between today's college students and the librarians who hope to assist them[6].

Some likened the current challenge in this area as being akin to people brought up with 33 rpm vinyl trying to teach people who are used to working with an MP3.

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[6] See *Inside Higher Education Today*: 'When digital natives go to the library', June 2007 at:
http://insidehighered.com/news/2007/06/25/games

F. What engages higher education students in productive learning & retains them?

> Currently in higher education, both on campus and online, we individualize faculty practice (that is, we allow faculty members great latitude in course development and delivery) and standardize the student learning experience (that is, we treat all students in a course as if their learning needs, interests and abilities were the same).
>
> <div align="right">Twigg, CA (2003: 38)</div>

> Technology is only a means. Everything turns on how it gets used.
>
> <div align="right">Kirp, D.L. (2003: 262)</div>

> Challenging and supportive learning environments, and environments that support students' participation in enriching experiences, play an important role in enhancing satisfaction and student outcomes
>
> <div align="right">Coates, H (2008)</div>

In this section the extensive research on what engages students in productive learning and retains them in higher education is consolidated. It addresses the question from the Review Panel: What constitutes a quality learning experience for students?

Given the volatile operating context currently faced, it is imperative that Australia's universities not only gain but retain students. Retention is important financially but it is also important morally. Students who drop out early represent a loss of income and national productivity (Price Waterhouse Coopers, 2007) but, even more importantly, the life chances of those who fail to complete their degree and their contributions to society are significantly constrained compared with those who do. This is especially important for Indigenous and LSES[7] students.

So what does the available research say about what engages students in productive learning and retains them at university?

The national CEQuery study
The national *CEQuery* study of 280,000 comments on the Course Experience Questionnaire is outlined in detail Attachments Four and Five. It gives deep insights into what optimises retention and engagement in learning from the student's perspective. The study's findings (Scott, 2006) align with later, more local analyses undertaken by many different universities across Australia using the same tool. They give useful insights down to the field of education level on the relative importance of different aspects of the student experience of university and their perceived quality[8].

The top ranking sub-domains on importance from this analysis are given in Table Four, with more detail provided in Attachments Four and Five.

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[7] Our preferred definition of low socio-economic status entails being first in one's family to attend university and being on a benefits card and/or from a low income background. We have found post-code to be an unreliable indicator.

[8] 'Importance' is defined as the total number of comment 'hits' (Best Aspect + Needs Improvement) made about a particular *CEQuery* Sub-domain (Attachment 5). 'Quality' is defined as the odds of a 'best aspect' comment in any particular sub-domain (BA/NI).

Table Four: *CEQuery* Findings:
Subdomains ranked highest on importance

Subdomain	Count (total = 280,000)
Course design – methods	40569
Staff – quality	30929
Staff – accessibility	23359
Course design – flexibility	23333
Course design – structure	19247
Course –practical theory links	16815
Course design – relevance	15993
Staff – teaching skills	15517
Support – social affinity	10932
Outcomes – knowledge & skills	10783

It is important to look at the specific definitions for each of the above sub-domains (Attachment Five) in order to understand exactly what students had in mind when making comment.

When taken together the results in Table 4 indicate that what engages and retains students in learning is the right focus (relevant, practice oriented) matched to the right combination of course design, structure, flexibility and methods, supported by ongoing social interactions and underpinned by accessible and high quality staff. This aligns well with the framework presented in Diagram One.

The results of the *CEQuery* analysis have been benchmarked and refined against the findings of parallel work by people like Kerri-Lee Krause and colleagues (Krause et al, 2005) and Hamish Coates (2005) in Australia and with the national work of Scott Watson Swail (2006), the AAHE (1998), George Kuh (1999, 2003 & 2005) and Pascarella and Terenzini (2005) in the U.S. They have also been critically appraised and validated in a series of national workshops undertaken with more than 1000 higher education leaders, teachers and researchers across Australia in from 2005 to 2008, along with international workshops and discussions with an additional 1000 higher educators across South Africa, New Zealand, the U.K., Oman and Canada over the same timeframe.

Other studies of student satisfaction and engagement
Local data from Australian universities align well with the national findings. For example, in the UWS Student Satisfaction Survey, students are invited to rate every aspect of their university experience on its relative importance to them as well as its performance. The results for the 2007 SSS are given in Table 5. The importance patterns generally align with the rank order on importance for different sub-domains identified in the *CEQuery* analysis (Table 4 and Attachment Four). However, in the UWS studies, growing importance is being given by students to online learning and electronic access to library resources.

Table Five: Importance ratings on the SSS 2007
(in rank order, highest first)

- Item 60: WebCT for online learning
    Mean importance rating in 2006 - 4.81/5 (up from 4.65 in 2004)
- Item 42: Ease of access to the Library
    Mean importance rating in 2006 - 4.81/5 (up from 4.76 in 2004)
- Item 8: My course is conducted by staff who are good teachers
    Mean importance rating in 2006 - 4.73/5 (up from 4.71 in 2004)
- Item 59: Electronic access to Library resources
    Mean importance rating in 2006 - 4.71/5 (up from 4.67 in 2004)
- Item 43: Ease of access to computers
    Mean importance rating in 2006 - 4.70/5 (up from 4.64 in 2004)
- Item 12: Provision of clear assessment requirements
    Mean importance rating in 2006 - 4.66/5 (up from 4.61 in 2004)
- Item 64: Quality of computing equipment
    Mean importance rating in 2006 - 4.65/5 (up from 4.58 in 2004)
- Item 36: Quick and convenient enrolment and re-enrolment
    Mean importance rating in 2006 - 4.63/5 (up from 4.58 in 2004)
- Item 21: Provision of up-to-date knowledge and skills needed by employers
    Mean importance rating in 2006 - 4.63/5 (up from 4.58 in 2004)
- Item 58: Photocopiers and printing
    Mean importance rating in 2006 – 4.63/5 (up from 4.59 in 2004)

In Krause et al's (2005) study of the first year experience in Australia's universities the following factors linked to university engagement and retention emerged:

- High quality orientation programs;
- Ensuring that students receive adequate advice about subject choices;
- Ensuring that students find themselves in courses about which they are well informed and prepared;
- Students' involvement in both social and academic activities;
- Students' sense of belonging to the university community, strong support networks;
- Students' sense of personal connectedness to those who teach them at university - students are able to regularly approach academic staff for advice;
- Encouraging classroom discussion ;
- Engaging with peers both in an out of class on projects or assignments;.
- Students' use of course web-based resources on a daily or weekly basis.

Entwistle & Ramsden (1983), Ramsden (1992) and colleagues (Biggs, 1999, Prosser & Trigwell 1991, Trigwell & Prosser, 1991) have made a distinction between 'surface' and 'deep' learning, with indications of the latter being associated with stronger outcomes for students and more active engagement. In drawing out the implications Jackson (1997) observes:

> We can identify some of the signals that cause students to adopt a surface approach. A course where students' responsibilities are not clear, where the learning goals are not stated, where assessment is extensive and its relation to the course content and learning goals is not articulated, when there is no apparent plan of procedure in a syllabus or reading list, these are courses in which students will be more likely to adopt surface approaches, usually reproductive. Even students who adopt deep approaches in other courses will shift to surface approaches in response to their perceptions of a lecturer and of a course.

> A deep approach to learning is one that aims at meaning…. Students who have adopted a deep approach speak of making comparisons between the ideas, arguments, or evidence in different courses and within different parts of the same course in the search for similarities and differences. When a lecturer dismisses these as irrelevant to the syllabus to be covered, it discourages deep learning.

Research on the reasons for student withdrawal from university provides a complementary perspective on the findings so far.

Studies of student withdrawal
In terms of the academic reasons for students leaving before completing their program, many studies have shown a positive relationship between student withdrawal and poor academic preparation or performance (e.g., Ashby, 2004; Krause, Hartley, James, & Mclnnis, 2005; Rickinson & Rutherford, 1996). Insufficient information about the course or institution before students enrol has been highlighted more recently as another major reason for withdrawal (Yorke & Longden, 2007). Some studies discuss more generic factors associated with student withdrawal, such as incompatibility between the students and their course and a lack of commitment to it (Rickinson & Rutherford, 1996; Williford & Schaller, 2005).

In 2004 a national research project investigating attrition from first year university undergraduate degree courses involving 4,390 domestic students was carried out in 34 Australian universities (Long, Ferrier, & Heagney, 2006). The rationale for limiting the retention study to first-year students was that the most significant loss of students, as a result of withdrawal, was reported to occur during the first year of their program (Tinto, 1999). If students can be retained beyond the first year of their studies, their probability for success increases in each subsequent year (Williford & Schaller, 2005). Based on the responses of 1,917 students who did not re-enrol at the same university in the first semester of 2005, the study identified the 10 most important reasons for withdrawal out of the 64 surveyed. These are listed in rank order in Table 6.

Table Six: Reasons for Student Withdrawal (2005 National Data)

Reasons for student withdrawal in rank order	% large influence	Rank
I needed a break from study	24.3	1
Difficult to balance study and work commitments	23.7	2
I changed my career goals	21.6	3
I found something I'd like to do better	19.3	4
I found a better path to my career goals	15.5	5
The course or program wasn't what I expected	15.1	6
I felt stressed and anxious about my study	14.0	7
Course would not help me achieve my career goals	13.3	8
I didn't like the way the course was taught	12.9	9
The subjects weren't as interesting as I expected	12.6	10

Additional factors identified in our own research (Scott et al, 2008) include experiencing difficulties with enrolments, unclear expectations about what to do in assessment, a timetable that made class attendance difficult, pressure to enrol in a course in which one was not really interested, family pressures, difficulty in accessing staff, and financial difficulties.

These findings show that the top reasons for student withdrawal arise from both personal and university related sources. However, personal motivators appear to be the most commonly reported reasons for leaving. Such studies also demonstrate considerable inter-

correlation between the many factors. For example, students experiencing a conflict between study and employment are also likely to have financial difficulties.

There is also a large body of research and theory exploring the individual, social, and organisational factors which impact on student retention. As noted by Tinto & Pusser (2006, p. 4), "it is easily one of the most widely studied topics in higher education over the past 30 years". Some of these factors have a well-developed empirical record supporting them, others need to be explored further. It is not surprising that many factors reported as contributing positively to retention, for example student academic preparedness and accurate expectations, are the exact reverse of those causing student withdrawal.

Factors associated with retention and success
Over the last decade there has been a substantial focus on the factors pertinent to retention that are internal to universities and are within immediate institutional control and action (Tinto & Pusser, 2006). For example, factors like the social climate established on campus, the academic, social, and financial support provided by the institution, student in-class and out-of-class involvement in campus life, and frequent feedback provided to students and staff about their performance have received increasing attention in current research (Berger, 2001; Braxton, Hirschy, & McClendon, 2004; Braxton & McClendon, 2001; Kuh, 1999; Kuh, Kinzie, Schuh, & Whitt, 2005; Tinto & Pusser, 2006; Yorke, 2000).

Many studies have focused particularly on student involvement, or what is frequently termed "engagement", "persistence in learning" or "academic and social integration" as a predictor of retention (Baker & Pomerantz, 2001; Borglum & Kubala, 2000; Braxton, Milem, & Sullivan, 2000; Hoffman, Richmond, Morrow, & Salomone, 2003; Kaya, 2004; Krause, Hartley, James, & McInnis, 2005; Kuh, 2003; Zhao & Kuh, 2004; Upcraft, Gardner, & Barefoot, 2004). In this regard, the measures reported to affect retention positively include: established first-year programs, such as freshman seminars and orientation programs; provision of sufficient on-campus university-supported housing (a particularly important factor in some North American universities); peer support programs; peer tutoring or study groups; and the extended availability of academic staff for teacher-student interaction.

Of interest to universities with a wide diversity of students, including high proportions of LSES students, is the U.K. case study by Thomas (2002). Thomas investigated a modern university in England that had both a diversity of student intake (with a large proportion from low-income groups) and good performance on student retention. A key finding from this research was that prizing diversity, difference, flexibility and willingness to change promotes higher levels of student persistence and program completion.

These findings align well with the summary of institutional strategies found to improve retention in Australian universities in another study (Long, Ferrier, & Heagney. 2006). The strategies identified in that study included:

- provision of accurate and detailed information about courses before students enrol;
- general and academic support services specifically customised to suit a variety of students and disciplines;

- assurance that no students feel isolated or lonely by providing a responsive social environment, active orientation and transition programs, the support of campus-based clubs and societies;
- provision of financial support to students in the form of scholarships, emergency funds, containing non-tuition costs such as books, internet access, printing costs, library fines and parking fees and fines;
- the results of regular student-based assessments of teaching made known to the staff and explicitly linked to promotion and recognition systems;
- regular monitoring of withdrawal and reviewing patterns of attrition.

In 1998 the American Association for Higher Education (AAHE, 1998) undertook a national review of research on learning in higher education. It identified ten key principles underpinning what it called a 'shared responsibility for learning', principles which also align well with those upon which the NSSE and AUSSE are based, along with the assessment, engagement and retention research cited above.

For the AAHE, productive learning is:

(i)   fundamentally about making and maintaining connections;

(ii)   enhanced by taking place in the context of a compelling situation that balances challenge and opportunity;

(iii)   an active search for meaning by the learner—constructing knowledge rather than just receiving it;

(iv)   a developmental, cumulative process involving integrating new with old, past with present;

(v)   undertaken by individuals who are intrinsically tied to others as social beings;

(vi)   strongly affected by the educational climate in which it takes place: the settings and surroundings, the influences of others;

(vii)   a process which requires frequent feedback, practice and opportunities for application;

(viii) a process that takes place informally and incidentally, beyond explicit teaching or the classroom, in casual contacts with faculty and staff, peers, campus life, active social and community involvement and unplanned but fertile, complex situations;

(ix)   grounded in particular contexts and individual experiences, requiring effort to transfer specific knowledge and skills to other circumstances; and

(x)   most effective when individuals are able to monitor their own learning, understand how knowledge is acquired, and are helped to develop strategies for learning based on discerning their capacities and limitations.

(AAHE, 1998)

The 2008 Report on the outcomes from the initial administration of the Australasian Survey of Student Engagement - AUSSE[9] (ACER, 2008; AUSSE, 2008; Coates, H, 2008; Hare, 2008) with 20 Australian and 5 New Zealand universities found the following positive links between facets of student engagement and a range of outcome indicators:

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[9] This is a variant on the U.S. National Survey of Student Engagement (NSSE).

Links found between facets of student engagement and outcome indicators

- Supportive Learning Environment – Feelings of legitimation within the university community (positive link with overall student course evaluations, negative link with intentions to change courses or institutions);

- Active Learning – Students' efforts to actively construct their knowledge (positive link with self-reported achievements);

- Work Integrated Learning – Integration of employment-focused work experiences into study (positive link with self-reported achievement outcomes, negative link with intentions to change courses or institutions)

In their extensive review of the literature Pascarella and Terenzini (2005) conclude that active engagement with a wide range of university activities and opportunities facilitates university success:

> A student's coursework and classroom experiences shape both the nature and extent of his or her acquisition of subject matter knowledge and academic skills … what the student does to exploit the academic opportunities provided by the institution may have an equal, if not greater, influence … other things being equal, the more the student is psychologically engaged in activities and tasks that reinforce the formal academic experience, the more he or she will learn. (p. 119)

Segall and Freedman (2007), in their study of 50 U.S. universities, conclude:

> The challenges concerning student engagement involve much more than academics—it's about the overall higher education experience students encounter on a day-to-day basis, from the moment they set foot on campus to commencement (if they get that far). Facing the challenges concerning student engagement requires a keen understanding about remediation issues, retention rates and the expectations of a diverse student population (adults, Millenials, NetGeners and everyone in between); providing timely and efficient student services; getting faculty to modernize from a technology perspective; and making meaningful lifelong learning connections.

All of the research reviewed indicates that the accessibility and the quality of staff are, in combination, key ingredients for student retention and engagement (see, for example, Attachment 4(a)). And it is high quality staff in sufficient numbers[10] that are necessary to enact consistently and effectively each of the following ingredients identified as being critical to student engagement and retention. For example:

- timely and constructive feedback on assessment;
- the development of the personal relationships, peer support and the sense of belonging so important to retention;
- creation of the responsive and flexible learning designs and active learning experiences students find so engaging;
- design and implementation of the transition support systems that reduce withdrawals;
- provision of key aspects of administrative and learning support and the development of a welcoming, responsive and productive learning environment for students.

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[10] The Review's Discussion paper (pg 39) reports that student-staff ratios increased from 12.9:1 in 1990 to 20.3:1 in 2005.

Key quality assurance checkpoints for student retention and success
When all of the findings reviewed in this and the previous section are taken together, what emerges is a set of quality assurance principles or checkpoints for ensuring that universities not only gain but retain students and engage them in productive learning. They are principles which, if appropriately addressed, will help universities not just to survive but to thrive in the challenging operating context now faced. The key quality principles and checkpoints are as follows:

It is the total experience that shapes productive learning, not just what happens in the traditional university classroom.
Students' judgements of quality can be shaped just as much by what happens as they enrol, by the quality of their encounters with academic and administrative staff when they have a query, the quality of the learning resources they can access and their overall sense of being supported by and belonging to an institution as by the actual quality of the teachers and the classroom learning experiences they encounter.

This implies that, as courses are designed (Diagram One), the way in which the broader university experience (e.g. enrolment processes, course advice, support for students at risk, library resources, IT facilities etc) can best be aligned to directly reinforce what is intended must be explicitly considered. Equally, it implies that what is tracked during implementation must cover the total experience not just what happens in the classroom. The *CEQuery* sub-domains and dictionary (Attachment Five) identify most of the key areas that are involved and can be readily located in the overall framework presented in Diagram One.

Learning is a profoundly social experience.
As Gay and Hembrooke (2004) conclude:

> Learning is built up through conversations between persons or among groups and involves the creation of shared understanding through social interactions.

The quality and net effect of encounters with both academic and support staff, along with the extent to which one becomes part of a supportive peer group, have a strong impact on student focus, engagement, persistence and retention.

This implies that how students can best be assisted to form positive networks needs to be more directly considered, using the 'best aspects' on this sub-domain from the *CEQuery* analysis as one source of ideas. It also implies that all staff need to be alerted to the importance of being positive and responsive in their encounters with students. Statements such as 'that's not my job'; 'go to another campus'; or 'it's on the web' may lead students to transfer out of the institution and take their funding with them with a consequent financial threat to staff jobs and a loss of social capital.

The increase in student-staff ratios (SSRs) over the past two decades, due in part to a lack of full indexation, is noted in the Review's discussion paper. There is evidence that this is making productive personal interactions between staff and students increasingly difficult. As Alan Gilbert, Vice-Chancellor at the University of Manchester recently observed in the U.K. context:

> …personal learning and teaching interactions between students and teachers are becoming more strained by the dramatic growth in student numbers – the so-called massification of higher education… Such trends are antithetical to the personal dimension of learning that is absolutely

> fundamental if we want to produce world class graduates… Every learner needs opportunities for frequent personal engagement both with other learners and with a teacher, mentor or adviser.
>
> <div align="right">Times Higher Education Supplement, 28th February, 2008</div>

However, as the *CEQuery* research (Attachment 4) shows, although staff accessibility is highly important to students, the quality and responsiveness of the staff they encounter is of equal importance; and this is reported by students to be patchy. Optimising staff numbers <u>and</u> their quality is a key challenge for the sector as the baby boomers exit the system, as higher education in countries like India and China grows exponentially and a world wide shortage of academics unfolds.

Aligned & well managed expectations

Students value clear and explicit information on what they can expect and what is expected of them. There are numerous cases in the literature where what was promised in a prospectus was not delivered. In some instances this results in withdrawal and in others it can result in litigation[11].

As the *CEQuery* data indicate and as the high volume of appeals around assessment suggest, assessment expectations is an area for very careful management. It is an area where students look, in particular, for a clear indication up front of what a fail, pass, credit, distinction and high distinction looks like in the specific subject studied and then careful adherence to these criteria in marking and feedback.

Targeted & sustained transition support

This area is the focus of extensive work across the sector at present and has been selected as a key theme in a range of Cycle 2 AUQA audits. It is also the focus of Sally Kift's ALTC Senior Fellowship. A useful case study of how a targeted and sustained transition support program is being implemented at one Australian university is given by Nelson, Kift, Humphries and Harper (2006) and Kift (2008). Another is the benchmarking currently underway between UWS, Griffith and Charles Darwin Universities.

All of these sources identify the following as being key elements of an effective transition strategy:

- Pro-active assistance is given at enrolment to ensure that the correct units of study and a feasible workload are selected;

- Students are specifically alerted to 'how things work around here' and have access to a mechanism which allows them to find the answers to questions as they arise, rather than having them all covered in an up-front orientation day;

- Direct use is made of what students in specific target groups who have already succeeded at university have found works best. The notion here is that 'fellow travellers' ('students just like me who have done well') are a key source of relevant information and support for those new to the university. This approach is especially valuable for Indigenous, LSES and International students and is akin to having a "Lonely Planet" guide.

- Orientation is seen as being a process not an event. It can extend back into the schools, or the Colleges that feed the university and needs to operate in a sustained way during the early months of university study;

- Transition assistance is targeted to the particular needs of specific groups of students and fields of education;

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[11] There are numerous cases from around the world. One useful overview article comes from University Affairs, Canada at: http://www.universityaffairs.ca/issues/2008/may/students_sue_01.html

- Targeted study skills' help is provided, especially for those returning to study after a long break or those who are unfamiliar with how assessment, research and writing work at university. Situated knowledge that relates directly to the subject at hand is more valued and engaging than generic workshops on academic writing;

- Transition support is available not just for those entering first year. For example, TAFE students with articulation into the 2nd year of an U.G. program also typically require considerable assistance;

- Transition support covers all aspects of the university experience identified as important to new students (Attachment 5);

- Students showing the signs typically associated with disengagement or withdrawal are actively identified and contacted. Risk indicators include failure to activate one's university email account, poor class attendance, failure to submit the first assessment task or low performance on it, repeated requests for an extension on assignments, expressing concern in class etc. The data from the institution's exit interviews or surveys are used to sharpen these indicators;

- Both academic and administrative staff understand the important, complementary roles they have to play and are alerted to what motivates student engagement and retention. This work is not left just to a specialist unit and there is widespread understanding that investing in transition has both a moral and financial benefit;

- A range of peer mentoring and support strategies are used, particularly in the first six months of university study;

- A key staff contact person manages all queries – in some universities this is a first year coordinator, in others a designated member of the course staff. This is complemented by giving students access to an easily located "Need Help?" page on the University's website and a system for ensuring that queries are answered promptly and accurately;

There are indications that, if such a personal, timely and proactive approach is adopted, withdrawals can be significantly reduced. There are clear overlaps here with the retention and first year experience research cited earlier.

Learning is not teaching
It is critical, as noted in Attachment One, that the terms 'learning' and 'teaching' are not conflated. 'Teaching' is what teachers do, 'learning' is what students do. Many contemporary analyses and structures surrounding quality assessment in higher education tend to focus unduly on teaching rather than learning.

Active learning
The learning methods' sub-domain consistently attracts the highest number of hits of any subdomain in the *CEQuery* analyses of student comments (Attachment 4 (b)). Although traditional 'sage on the stage' lecturing approaches do have a role, the *CEQuery* analysis has identified more than 60 learning methods rated as a 'best aspect' of their university experience by students (Attachment 4 (b)). It reveals that the preferred learning methods all entail some form of active rather passive learning, learning by doing not just by listening and practical engagement with real world issues, dilemmas and problems in their chosen professional or disciplinary area - often in the context of group rather than individual or traditional classroom learning experiences.

ICT-enabled learning strategies do have a role but, as noted in the section to follow, they are neither flexible nor engaging when used as the prime mode of delivery or simply to deliver content.

Other major studies (e.g. Coates, 2008 and University of Queensland, 2003) come to similar conclusions.

Multiple methods for learning
There is significant variation by field of education in what learning strategies and resources are identified in the *CEQuery* study as being a 'best aspect' of their university experience and as being most engaging (Attachment 4 (b)).

The analysis raises the issue of whether there is a need to look beyond the current disciplinary bias for particular methods towards the deployment of new types and combinations of learning methods found to be both engaging and productive by students in other fields of higher education.

A focus on assessment
As already noted, all of the research reviewed reveals very clearly how poorly managed and patchy assessment design and delivery continue to be.

The *CEQuery* research (Attachment 4 (a)) shows that the odds of a 'best aspect' comment on assessment expectations, marking and feedback varies between one in five and one in ten, with the odds of a best aspect comment about assessment standards being three in ten.

It confirms that it is assessment more than anything which drives learning, that students tend to look first at what has to be produced to get through a course before they look at other aspects of their subject outline. They look to see if what is required in assessment appears to be relevant and engaging; that the way in which they are to be graded is clear and then to how all of the learning methods and resources identified in their subject outline might help them complete these assessment tasks efficiently and effectively. They repeatedly call for more timely and constructive feedback on their assessment tasks, for examples of good practice on how to do assignments at the subject level, for clearer expectations' management, more consistent marking and better coordination between subjects to ensure that assessment deadlines are staged so that not all assessment tasks across subjects are due at the same time.

Assuring assessment quality and standards is, as noted earlier, of increasing interest and importance to the sector. As the discussion on outcomes, standards and assessment (Sections B & C) suggests, there needs to be explicit attention to its validity – in particular to ensuring that what is assessed focuses on the capabilities essential to successful disciplinary and professional practice, as well as to the key graduate attributes set down in each university's mission. Equally, the quality of the assessment tasks themselves must be assured. In this regard integrated, problem-based assessment items have been identified by graduates and a range of researchers as being much more telling and to be more characteristic of a university standard of assessment than those which require simple factual recall of course content. Finally, grading must be demonstrably at a university level, and the criteria and evidence that will be used to allocate different grades need to be made clear from the outset.

As noted in Sections B and C, addressing such issues is a critical quality assurance issue for higher education in the current context because it is through valid and reliable assessment of the type identified earlier in this paper that the quality of our graduates and sector standards are determined.

Self-managed learning

The research reviewed indicates that what students respond best to is a 'self-teaching guide' for each subject which:

* outlines the assessment tasks to be produced;
* says why each is relevant to successful professional or disciplinary performance
* shows how the subject at hand fits in with and directly complements the other subjects that make up the program

and then makes clear

* how grading will occur (with annotated examples);
* when and how feedback will be given and
* how the full range of learning experiences and resources designed into the subject can best be used to complete each assessment component.

This focus first on outcomes and then on how to achieve them addresses a recurring 'needs improvement' finding in the *CEQuery* research: that learning designs which are more input and content oriented rather than assessment and outcome oriented, are both confusing and unengaging.

Flexible, integrated and responsive learning designs

The *CEQuery* research and a wide range of other studies indicate that a 'one size fits all' approach will neither engage students in productive learning nor retain them. Nor, as the *CEQuery* data on course structure indicate (Attachment 4 (a)), will a course which lacks coherence and integration. What works best is what OISE's David Hunt found in his landmark research more than 30 years ago (Hunt, 1971 & 1976) – that educators have to be more responsive and be able to 'read' (diagnose) what is likely to engage each new group of students by looking at their particular backgrounds, abilities, needs and experiences and then to 'match' the learning design, methods, attendance patterns, assessment strategies and resources that best fit this diagnosis, keeping in mind the capabilities necessary for effective subsequent professional or disciplinary performance and available resources.

It is in this way that the flexibility, relevance and responsiveness identified in the *CEQuery* analysis as a 'best aspect' of some students' university experience can be more consistently achieved. This finding calls into question the drive in some contexts to opt for cost-efficiency by seeking to 'modularise' the curriculum into set of fixed learning packages or modules and 'putting it all online'.

It also presents universities with a major design challenge as they are driven to provide more with less funding per student. However, as some universities have clearly succeeded in achieving this in their *CEQuery* feedback, it is clearly possible.

Consistently accessible, responsive and high quality staff

The *CEQuery* analysis shows (Attachment 4 (a)), having convenient access to responsive staff attracts the second highest number of hits of any *CEQuery* sub-domain, with staff quality ranked third. The analysis also shows that both the accessibility and quality of staff is viewed by students as being patchy, with the odds of a 'best aspect' comment being made in this sub-domain being 1.2 to one and 1.3 to one respectively.

As noted earlier, sufficient staff of consistent quality have to be available to implement the more flexible and responsive learning systems and enact the quality assurance principles identified in this section of the report.

However, the combination of decreased funding per capita in real terms and a predicted global shortage of academics as the baby boomers exit the system (Hugo, 2004, 2005a, 2005b, 2005c; Winchester, 2005 and Coates et al 2008) are having a significant negative affect on the capacity of universities to provide the required number of staff with the capabilities required.

Sorting out how best to respond is probably one of the key challenges facing the sector in the coming decade.

The RATED CLASS A quality assurance framework

The key findings from the research on student engagement and retention reviewed so far can be summarised as a set of key quality checkpoints for course design, delivery and monitoring in universities – the so-called 'RATED CLASS A' framework. If each of the elements in this framework is attended to as courses are designed, implemented, monitored and improved then the indications are that student engagement and retention will be optimised[12]:

The framework is summarised below, with further Details given in Attachment 6.

Relevance
Active learning
Theory-practice links
Expectations clear
Direction & program structure coherent and clear

Capabilities that count are the focus for both learning and assessment
Learning pathways that are flexible
Assessment quality and feedback
Staff quality, accessibility, skills and responsiveness
Support from staff, students, infrastructure and systems which timely & aligned

Access that is convenient

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[12] In the ALTC study of 512 L&T leaders in Australian higher education (Scott et al, 2008) the same set of tests emerged as key checkpoints for our leaders in making judgements about the quality of the leadership and staff development programs they had experienced.

G. Research on the productive uses of ICT-enabled learning in universities

The following quotes outline the key dimensions of the challenge facing Australia in determining how best to deploy ICT-enabled learning in ways that are consistent with the RATED CLASS A quality assurance checkpoints. The first gives a U.S. perspective, the second and third a U.K. one, and the fourth is from Canada:

> Every college and university in the US is discovering exciting new ways of using information technology… For most institutions, however, new technologies represent a black hole of additional expense. Most campuses have simply bolted new technologies onto a fixed plant, a fixed faculty, and a fixed notion of classroom instruction. Under these circumstances, technology becomes part of the problem of rising costs rather than part of the solution .
> `
> Twigg, 2003: 28

> .. the overwhelming majority of e-learning research to date has focused on establishing the value of particular e-learning course designs, teaching methods, or tutor interventions. The objectives have been teacher- rather than student-focused.
> Sharpe & Benfield, 2005: 1

> If technologies are used purposefully to enhance student learning they need to be integrated not just in terms of pedagogical tactics, but must also reflect and align with the fundamental educational philosophy and aims.
> Kirkwood & Price (2006)

> How might we measure the success of e-learning? Do we really know it is making a positive impact?.. Is it being successful?... It is important that public policy makers, higher education administrators, leaders and teacher-practitioners who are using e-learning technologies remain sceptical about the truisms presented about them (e.g. 'best practice' claims).

> The literature in higher education on e-learning technology is replete with research that tinkers with, and then tests the effects of instrumental practices… the focus on tinkering and testing… with the aim to determine what works, just does not work.
> Kanuka, H and Kelland, J (forthcoming: 25-6)

What the collapse of a range of ventures aimed at setting up a solely online university confirms is that ICT-enabled learning must always remain just one (albeit very important) element amongst the many 'best aspect' learning methods identified in Attachment 4 (b) which 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 our evidence is clear – learning is a profoundly social experience, students like to learn by doing, they particularly like practice oriented methods, active learning in groups, and being able to contact a tutor for 'just-in-time', '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 down load them, and to rapidly search large databases, along with a range of active learning options including simulations and social networking.

The expectations' research cited earlier reported that 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. 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 Australia, segmented primarily on 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. JISC (2008) has identified a similar pattern in the U.K.

The links between ICT use outside and inside universities
A range of studies have sought to tap the uses of ICT by students outside of university and then look at the links to using them to enhance learning.

In 2006 ACER undertook a study of some 2224 students, 237 teachers and 728 parents in 15 NSW High Schools to clarify how students use ICT inside compared with outside school (Coates & Rosicka, 2006). The researchers found similar patterns of out-of-school use to the Kennedy study of first year university students (below), with the reported levels of ICT use by school students being, in rank order, computer, mobile, game systems, MP3 player, Internet and TV. Coates and Rosicka found that:

> Teachers.. provided more positive reports of students' attitudes to ICT than did students themselves…
> … Overall, students reported using much less ICT at than outside school … (with).. more outside of school interaction with current social, synchronous, interactive and multimedia softwares. These are likely to be the major levers which might be used at school to change students' use of ICT to engage with learning.
>
> <div align="right">Coates & Rosicka, (2006: 2)</div>

In another study (Kennedy et al, 2006) almost 2000 students at one Australian university who were born after 1980 were surveyed during the first two weeks of their first semester of study on their uses of and levels of proficiency with an array of ICT. Extensive use of mobile phones, computers, digital cameras and MP3 players were found. These were used for email, creating documents, playing music files, searching for information and messaging. Emerging uses were noted including – blogs, file sharing, social networking, and, to a lesser extent, VOIP telephony and web-conferencing. In the context of their university studies the main uses of ICT were: computers for general study purposes, searching for information and course administration; communications via SMS, messaging; and using a Learning Management System.

In a parallel longitudinal study at another Australian university Zimitat (2004) found that the 500 students over the period of his study (2002-4) were using communication and learning technologies with increasing frequency - including email and SMS to contact staff and fellow students; discussion forums; and course websites accessed from home. Importantly he found that:

> There was no correlation between overall frequency of CIT use and perceptions of teaching overall or overall satisfaction with university experience.
>
> <div align="right">Zimitat (2004:6)</div>

Kennedy et al also report that:

> In a recent U.S. study of undergraduate students' uses and perceptions of technology in their learning, Katz (2005:7) concludes that:
>
> > *Freshman students arrive at our institutions with a set of electronic core skills. Such skills include communications (telephone, email, text-messaging, and IM), Web-surfing (not to be confused with research skills), word processing and video gaming… these*

young people can make technology work but cannot place these technologies in the service of (academic) work.

It is not that first year students are incapable of using technology for specialised, context-appropriate purposes; … The critical point is that while first year students might use technology in a range of ways and may, apparently, be digitally literate, we cannot assume that being a member of the 'Net Generation' is synonymous with knowing how to employ technology-based tools strategically to optimise learning experiences and outcomes in university settings.

<div align="right">Kennedy et al (2006: 16)</div>

Assessing the quality of research on ICT-enabled learning in higher education

Limited, robust empirical research could be located on exactly how the many forms of ICT-enabled learning now being used in universities around the world may or may not add to the quality of learning or what different applications might work better in some fields of eduction or with some types of students than with others. There are important reasons why this is the case.

As Heather Kanuka (forthcoming) [13] observed recently when appraising an extensive Canadian Council of Learning review of E-learning in Canada (Abrami et al 2006):

… achievement is one of the areas identified as an important impact of e-learning. But what does achievement mean? Does it mean successful completion of a course? Or a program? Does it mean achieving better grades than other forms of learning? If achievement is defined as better grades, what kinds of learning outcomes were researched? For example, how is achievement with e-learning different from surface learning versus deep learning (e.g., Biggs, 1999; Entwhistle & Ramsden, 1983; Prosser & Trigwell, 1991; Trigwell & Prosser, 1991)?

Or was achievement based on learning domains (e.g., Bloom, 1956; Gagné, 1965)? If so, how is achievement different with e-learning in the cognitive domain versus the affective domain versus the psychomotor domain? Or does e-learning impact all of these domains equally? Does e-learning impact achievement equally across the disciplines?

…. Also missing in the review on achievement are research findings which have revealed students infrequently engage in the communicative processes that comprise critical discourse… a conclusion by the team is that "online technologies facilitate the development of higher-order critical thinking; providing great potential for educative dialogues"… Canadian researchers… have had research results that do not support this conclusion.

What Kanuka is saying confirms the importance of clarifying and validating the outcomes we are seeking from higher education as emphasised in Section B.

As McAndrew et al (2004: 4) from the Open University note in the U.K. context:

The ability to both measure pedagogical effectiveness and to understand the causes of variations in pedagogical effectiveness is a perquisite for sophisticated decision-making within the sector of higher education.

The equivocal results of earlier effectiveness studies in the ICT-enabled learning area have been put down to flawed design and a confused definition of what 'effective' learning in higher education means. For example, Strother (2002) reports that the reason why effectiveness studies like those of Wegner, Holloway and Garton (1999) and the well known "no significant difference" studies of Russell (1999) came up with one result whereas other studies (e.g. Maki et al 2000) did find a significant difference is because they failed to ensure that the dependent variables (results on university exams, tests,

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[13] Professor Kanuka is a former Canadian Research Chair in E-learning.

assignments and projects) used to determine 'effectiveness' were comparable and valid in the ways suggested in Section C of this report. For example, a matched sample of students studying one version of a course online might perform better on a test of recall than another sample undertaking it under normal classroom conditions but is the distinction drawn valid?

> Even when the results are positive in favor of e-learning, are we obtaining and/or measuring quality learning in areas that matter? … Joy and Garcia (2000) warned that many of the earlier studies lack scientific validity because the research designs are seriously flawed. This makes many of those results questionable. They point out that if researchers do not carefully control for the most likely factors explaining the variance in student achievement, one may not find significant differences between experimental and control groups.
>
> Joy and Garcia also stress another crucial point - namely, that it is extremely difficult to develop a solid scientific method for comparing the various delivery methods… One way to obtain meaningful results is to design more effective assessment methods.
>
> <div align="right">Strother (2002: 9 & 11)</div>

This aligns with Reeves' (1999) observation (cited Kanuka, forthcoming):

> Much of the research in IT is grounded in a "realist" philosophy of science, i.e., conducted under the assumption that education is part of an objective reality governed by natural laws and therefore can be studied in a manner similar to other natural sciences such as chemistry and biology.

Strother identifies a set benchmarks which indicates that ICT must always be used as part of a broader learning system (Diagram One):

> These benchmarks were grouped under the categories of institutional support, course development, teaching/learning, course structure, student support, and evaluation and assessment
>
> <div align="right">(The Institute for HE Policy, 2000)</div>

This is also consistent with the conclusions of Kirkwood and Price in their UK studies of the use of ICT by distance learners:

> When ICT is pedagogically integrated into course design and adapted for the current environment, it can enable and support enhanced forms of learning… For example, if students are required to work in small groups on a collaborative task, where the Internet is used to find information sources, and conferencing or email is used as a means to communicate and construct a joint project which is assessed, the use of ICT has clear pedagogic value… Teaching and learning in higher education is unlikely to be improved simply by the application of new technology. As Bates (1995) points out 'Good teaching may overcome a poor choice in the use of technology, but technology will never save poor teaching; usually it makes it worse (pg 8). We suggest, however, that learning can be enhanced when innovations take account not only of the characteristics of the technology, but also the pedagogic design, the context within which learning takes place, student characteristics and their prior experience, and learners' familiarity with the technologies involved.
>
> <div align="right">Kirkwood & Price (2006: 9)</div>

And with the conclusions of O'Neill et al (2004: 321):

> There is a need to acknowledge that active learning within a technologically based environment necessitates the establishment of a theoretical framework as part of the learning process, (Manning, Cohen & DeMichiell, 2003). This realisation will mean that the use of technology is not about replacing learner processes, but enhancement and extension of such. This is most important if we are not to simply 'cut and paste' content, which may have worked in the lecture theatre, in virtual and technology based learning environments.

There is clear alignment here with the idea that ICT-enabled learning methods and technologies must always be part of the broader learning and support system depicted in Diagram One, and that their use needs to be consistent with the QA and engagement

checkpoints identified in Attachments 4, 5 and 6. It confirms that a sole use of online learning is neither flexible nor responsive and engaging.

This was the conclusion of Alexander et al (1998: 3) in their national CUTSD evaluation of ICT projects for university learning:

> The use of a particular information technology did not, in itself, result in improved quality of learning or productivity of learning. Rather, a range of factors were identified which are necessary for a successful project outcome, the most critical being the design of the students' learning experiences.

And out conclusion in 2000 in reviewing the findings of the CUTSD study:

> …. a successful learning outcome for students was a result of a complex system of appropriate learning design, adequate preparation and support of students using the projects, an environment in which students had adequate access to CIT equipment, appropriate assessment of learning activities, and a positive experience of group work where that was required.
>
> <div align="right">(Scott & Alexander, 2000)</div>

Understanding CIT use in higher education from the student perspective
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, L, Trinder, K, Gowan, G and Howells, C (2006) with 55 learners. The researchers found that 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%), online discussion board (22%). Less experience with video conferencing, learning on a mobile device were reported.

Creanor et al (2006) found that:

- learning with ICT at university often takes place in informal settings (pg 9),
- the most effective learners are highly skilled at networking and often use technology to pull in support when needed (pg 11),
- the Internet is taken for granted (pg 12),
- many experience a strong and mixed emotional response to using technology and E-learning including frustration, gratitude, fear and even love (pg 14);
- a number of the students separate out MP3 and mobile phones for use in leisure not study (pg 14),
- successful use of ICT can build self-esteem, especially in older learners (pg 15),
- the effective involvement and expertise of tutors and lecturers is a key ingredient (pg 15),
- although ICT enables students to 'learn in their own time' and fit study around their other obligations and demands (pg 16), many report the distractions that can come from their multiple uses of ICT when studying – e.g. concurrent use of TV, MP3, checking social sites and doing email (pg 17),
- family support plays an important role – it can help or have a detrimental effect (pgs 18-19),
- there were mixed views on the benefits of online discussion forums – if they are not well focused and moderated they can descend into being the equivalent of an 'online bar' (pg 19),
- watching video lectures and other forms of one-way, passive learning can be very boring (pg 20),
- there is a potential disjunct between how one learns on the net and how one is assessed (pgs 20-21),
- providing online access to materials can save money (pg 22).

The researchers conclude that "the internet is the first port of call for information, with libraries and books taking second place" (pg 26).

In their review of studies on the student experience of E-learning in higher education in the U.K Sharpe and Benfield (2005) come to similar conclusions:

> Students commonly positively evaluate having access to course materials and key contacts online although there is still more to do to provide induction into the use of such environments which will engage all learners.
>
> As e-learning developments do more to change the well established roles and activities of students and tutors in the teaching and learning process, students experience intense emotions characterised by one learner as ranging from inspiration to frustration. Unfortunately frustration appears to be a common experience, at least for the typical higher education student. Students are also concerned with time, particularly at the start of courses as they establish new patterns of study and activity.
>
> E-learning developments based on radical changes in traditional pedagogy, particularly those requiring collaboration and/or a significant change in the role of the tutor, evoke the most inconsistencies in student perceptions. …It is clear that we need to be more explicit in our explanations to students of the purposes of online work and our expectations for the activities they will undertake…. we suggest that future research should focus on eliciting the experiences, habits and strategies of effective e-learners.
>
> <div align="right">Sharpe & Benfield (2005: 6-7)</div>

Our own investigations of the 'best aspect' uses of ICT-enabled learning have identified a wide range of preferred uses, all of which involve some form of active learning:

• Online access to library materials (print, video, sound etc); • Net searches; • Simulations (including 'hypotheticals', trigger films, a model UN, medical simulations, and the use of simulators); • Case-based and problem based learning – including team-based projects in partnership with groups of students within and beyond Australia; • Online experiment; • Online access to audio, photographic and video files, including computer animations; • Workplace support and reflection – for example, a site that allows people on a practicum placement to compare notes and get feedback from both fellow students and the practicum coordinator;	• Gaining easy access to class materials and learning guides; • One stop virtual shop for all administrative and support matters; • CAD – CAM; • Online debate (sometimes undertaken internationally); • WebCT, Blackboard, Moodle and similar learning management systems; • UTube; • Social Networking (for example students setting up their own action group on the green agenda using Facebook); • Convenient interacton with staff and students; • Use of eleconferencing and Skype; • Phone – mobile and landline; • Radio/TV/CDs.

These uses generally align with the findings in a large U.K. study by JISC (2008) where the most useful applications of ICT were (in rank order): course-specific materials online; general course information online; contacting tutor online/by email/by text; online library resources; non-digital resources; university's portal; online submission of work; search of scholarly websites; social networking sites to discuss course work; online communities (pg 30). Respondents reported varying levels of confidence in using such applications with greater comfort reported in using instant messaging, emails, online discussion, Web CT and accessing course materials; and less comfort in using podcasts, making wikis, submitting assignments online and using social networking sites (pg 18).

In an action research project which 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, said the

researchers, 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' which were identified in Section B.

The need for training on using ICT for university learning

There is evidence (Schramm, Wagner & Werner, 2001, Tham & Werner 2005) that, to use the active ICT-enabled learning tools outlined above effectively, both students and staff will require specific upfront training.

> For example, student satisfaction with their online classes has been considerably higher when students felt they had received adequate training to use the necessary technology
>
> (Schramm, Wagner, & Werner, 2001).

As Kember (2001)[14] found and, as the student expectations' research reviewed in Section E highlights, 'novice students frequently held a set of beliefs about teaching and learning that could be labelled didactic/reproductive'. Kember discovered that:

> … students who commence higher education with didactic/reproductive beliefs can find the process difficult or even traumatic. They are uncomfortable with teaching approaches that do not correspond with their model of teachers presenting information to be passively absorbed by students.
>
> Kember (2001: 217).

There are important implications here, also, for developing more systematic links between schools and higher education to ensure that the ICT-enabled learning, teaching and assessment methods being used are engaging, synchronised and valid.

The challenges of effectively managing the overall transition of students to university identified earlier also apply specifically to the area of ICT-enabled learning. As Craig Zimitat (2004:11) concluded in his longitudinal study of 500 students in one Australian university:

> These data offer support for Taylor's (2000) argument that more should be done to inform students of the aims of flexible learning and to prepare them better to make the transition to more independent modes of thinking.

Finally, O'Neill et al (2004: 321) suggest that:

> Higher education institutions can help students to achieve success by doing three things. Firstly, a face-to-face session familiarising students with the courseware will help to overcome the issue of prior experience. Secondly, the functionality of the technological infrastructure should be ensured before the course is implemented. This should be backed up by technical support from either the lecturer or a course facilitator. Finally, human resources should be committed to the project at an early stage and lecturers should be selected based on their attitude towards technology, teaching style and ability to control to technology.
>
> For lecturers, eLearning programmes represent a change in teaching style.

The key implications of the analysis in this section include the need to assure quality of research being undertaken in this area; to increase the focus on research that taps the student experience of ICT along the lines of that undertaken by JISC (2008) and to establish more consistent transition training for ICT use in universities. A follow-up study on the IT-equity issue is recommended.

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[14] cited Kirkwood & Price (2006: 10)

H. Multiple designs for learning

There is a range of learning designs that pick up, to varying degrees, the student engagement and retention checkpoints identified in Sections F and G. What emerges from that analysis and the study of changing student expectations (Section E) is that a 'one size fits all' approach will neither optimise retention nor encourage productive engagement in learning. The art, as already noted, is to 'read' what its most likely to engage and retain the specific group at hand by understanding their backgrounds, abilities, needs and experience, along with the requirements of the profession or discipline and the university's mission and then to 'match' the most appropriate assessment, learning times, locations, learning methods, content and resources to this, whilst taking into account the institution's capacity to deliver. In every case ICT-enabled learning is just one element of the overall design.

All of the following designs for learning are being used to varying degrees across Australia:

Traditional learning designs
> In traditional university models of learning students come along to set classes to study set content in a set order. These typically entail a one-size-fits all, content based model. Classes are lecturer or tutor led and typically move at the pace set by the instructor. The majority of study takes place on-campus in classrooms or labs, with individual study occurring sitting in a library or using books borrowed from that library at home. There are set, unnegotiable, assessment tasks and, typically, there is an end of course examination. Much of what happens focuses on the transmission of content. In some professionally-accredited courses a set period of clinical or practical placement is added.

Mixed mode designs
> Mixed mode designs can still include aspects of the traditional model. However, they may vary the time, location or the intensity of classes, with some models using an intensive workshop, followed by several weeks of self-directed learning, often assisted by a range of online, teleconference and practice-based learning activities.

Work-based or community-based designs
> Courses using these designs take place not at a university but in a community location, often at place which is convenient to the participants. In some cases this can involve the use of a purpose built section of a community-based library or community centre with online access, peer support groups and some tutorial help[15]. In others it can take place in the workplace. In the case of fully work-integrated learning models the strategic changes and improvement priorities of the organisation can become the focus of the curriculum, with assessment and input all concentrating on their achievement. In some cases this model has overlap with both the traditional distance education model and online learning.

Distance education designs
> These have elements of the mixed mode model and aspects of online learning, depending on the institution and the course concerned.

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[15] The Swedish NetUniversity uses this model. See: http://english.netuniversity.se/

Online models

In an $8 million project funded by the Pew Charitable Trusts in the U.S. Twigg (2003: 30-37)[16] identified five models involving online learning, each of which has, Twigg reports, been found to operate cost-effectively in particular contexts. It should be noted that the dependent variable used to test 'effectiveness' in these projects requires careful scrutiny but the results are indicative. They show how various forms of ICT-enabled learning can complement or enhance the broader set of learning models outlined above.

They are:

The supplemental model

This retains the basic structure of the traditional course, particularly the number of class meetings. Some designs in this model simply add technology-based, out-of-class activities to encourage increased student engagement with course content. Other versions of this model also modify what goes on in class.

The replacement model

The key characteristic of this model is a reduction in class meeting time, replacing it with online, interactive learning activities

> Rather than assuming face-to-face meetings are the best setting for student learning, these projects have thought through about why (and how often) classes need to meet in real time and the content of that meeting in relation to the desired learning outcomes.
>
> Twigg, CA (2003: 33)

The emporium model

This was first developed at Virginia Tech. It is based on the core idea that the best time to learn mathematics is when the student wants to do so rather than when the instructor wants to teach. The model replaces all class meetings with a learning resource centre featuring online materials and on-demand personalised assistance. It is staffed by a combination of faculty, GTSs and peer tutors. Their key role is not to answer students questions but to direct them to the best resource to answer it. Some emporiums allow open attendance; others require mandatory attendance.

The fully online model

Consistent with research on student engagement and retention, few of the redesign courses in the Pew project ended up being fully online. They tended, instead, to combine elements of the supplemental, replacement and emporium models.

The buffet model

> Although all of the models discussed above have demonstrated that they can successfully improve the quality of student learning while reducing the cost of instruction, each of these models tends to be attached to one way of doing things and treats all students as if they were the same. In essence, like the traditional classroom model, these course-redesign models represent a one-size-fits all approach, albeit a much improved one.
>
> Twigg, CA (2003: 36)

In addressing this challenge, Ohio State University redesigned its introductory statistics course for 3250 students into a 'buffet' which customises the learning environment. In doing this it offers students an assortment of interchangeable paths that match their individual learning styles, abilities and tastes at each stage of the course- they can choose when exploring the same concept to see a video, encounter the problem in a group session, explore it by working in a data-analysis laboratory, doing tests, undertaking an individual web-based

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[16] Twigg, Carol A (2003) ibid, pgs 30-37. This project empirically evaluated the cost-effectiveness of the 30 education online learning models tested. In each case there was whole course redesign, active learning, the use of computer-based learning resources, mastery learning, on-demand help and alternative staffing.

activity, in a facilitative discussion session or by explaining the concept to others. Florida Gulf Coast University has applied the buffet model to its fine arts course.

In recent years the online learning systems being used by universities have themselves moved from a passive, teacher and content-focused structure to one which is more learner focused and which concentrates on active search and interaction, in conjunction with close links to online search engines and digital library collections.

I. Designing learning spaces & optimising access

In the July 2005 issue of EDUCAUSE Review a series of articles addressed the challenge and opportunities for designing learning spaces that have arisen with the changed expectations of the new generation of 'digital natives', along with recent rapid developments in technology.

The articles show how campus planning and the design of learning spaces must directly take into account the extensive research now available on how students learn, along with the changing needs and expectations of the new generation and the many options for ICT-enabled and online learning reviewed above. Failure over the coming decade to align the design of learning spaces to research on what will attract and retain students and to develop facilities which create more flexible and responsive learning environments was identified as a major area of risk management for universities. The use of what some called a 19th century industrial production-model of learning delivery and space design - a traditional class-room in which students all passively learn the same content, in the same way, and at the same time by taking down notes delivered by a lecturer – just does not exploit the potential for multiple learning designs and methods now available. Yet high cost investment in such specialised forms of architecture persists.

Of equal importance is the need to take into account rapid developments in online library access. Current examples include the Google Library Project - which aims to set up a common digital storage system for the libraries of places like Harvard, Princeton, Stanford, Ghent and Oxford - and the well known open courseware initiatives of MIT with its hundreds of university partners around the world.

As already noted, work-integrated and community-based learning designs take a quite different approach by using existing community or business resources as a site for learning in order to make participation in learning as convenient as possible. Such models, especially where high level, purpose-built facilities are not required, have considerable efficiencies and help, in part, to reduce the high costs of capital infrastructure and address the 'green' agenda by ensuring that the use of facilities is maximised. The use by the University of Phoenix of shopping centres as a place for learning is a well known example[17].

A range of developments is underway within Australia's universities to achieve better alignment between how spaces are constructed and what promotes the sorts of active

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[17] For example University of Phoenix's Northwest Indiana Campus is located in Merrilville, Westfield Southlake, one of the largest shopping malls in Indiana. See: http://www.earnacollegedegree.com/university-of-phoenix/campus/northwest-indiana-campus.htm?CampusId=88

learning and social interaction found in the engagement research reviewed in Section F of this paper. A good example is the University of Queensland's Next Generation Learning Spaces (NGLS) project which includes the Collaborative Learning Centres (CLC) located at both the St Lucia and Gatton Campus, the Biological Sciences Libraries, and the Advanced Concept Teaching Space (ACTS) which is currently under construction[18].

Finally, how younger people use technology needs to be reflected in how we design libraries, organise information search and retrieval and help users learn. For example, James Paul Gee from the University of Wisconsin at Maddison when addressing the 2007 national meeting of Academic Librarians in Washington DC[19] argued that university librarians must urgently adapt their techniques to match the way 'digital natives' now use technology:

> A digital native would never read an instruction manual with a new game before simply trying the game out, Gee said. Similarly, students shouldn't be expected to read long explanations of tools they may use before they start experimenting with them.
>
> "We should never read before we play," Gee said. "… tools students will use should be designed with this in mind, Gee said, just the way video games are designed. With video games, "you can play while you are inept," he said. There is also an assumption that players of games are rewarded for "exploring," even if they don't achieve the goal they have set out to achieve. "Lowered consequences of failure" is a key value to embrace, he said.

J. Effective approaches to monitoring and evaluating the quality of the student experience in higher education

The Terms of Reference for the Review and its Discussion Paper raise a range of key issues/questions concerning efficient, valid and reliable ways to track the quality of learning and teaching and the student experience in Australian higher education.

The earlier discussion of standards (Section C) was focused on how we determine the quality of impact that university learning is having on students' capabilities (i.e. level 4 in Attachment 2). Whereas further work on measuring impact appears necessary, in terms of gaining student feedback on the quality of their university experience (level 3 of Attachment 2) Australia is an international leader.

The country has a well developed national survey system via the CEQ and more recently the AUSSE. In addition, most universities have their own range of student feedback systems which cover not only students' total student experience of the institution but also their specific program and subject experience.

The University of Western Sydney's Tracking & Improvement System for Learning and Teaching (TILT) is a typical example of how a nested tracking system can operate. The system attracted an AUQA commendation. It shows one way in which the level 3 and 4 processes and indicators identified in Attachment 2 can be tracked and their results acted upon with a positive impact on retention and overall student satisfaction.

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[18] See: http://www.uq.edu.au/nextgenerationlearningspace/
[19] *Inside Higher Education Today*: 'When digital natives go to the library', June 2007 at: http://insidehighered.com/news/2007/06/25/games

Case Study

UWS Tracking & Improvement System for Learning & Teaching (TILT)[20]

This system consists of a 'nested' series of interrelated data gathering and reporting systems. It allows the University to 'drill down' and link data from many sources such as:
- the UWS Student Satisfaction Survey and UWS Research Student Satisfaction Survey which measure the student's total experience of the University;
- the Course Experience Questionnaire (CEQ), Post Graduate Research Evaluation Questionnaire (PREQ) and the Graduate Destination Survey (GDS) surveys which cover course level experiences;
- the Student Feedback on Unit survey (SFU) which covers the student experience of each unit;
- the Student Feedback on Teaching survey (SFT) which provides student feedback on teaching;

These core tracking instruments and processes are complemented with data from the University's:
- Offshore Student Satisfaction Survey which measures offshore student experience of the University;
- Employer Survey which measures employer perceptions of UWS graduates' capabilities;
- Image Survey, Exit Survey, Retention Survey and Commencing International Student Survey;
- the DEEWR staff and student collections; and
- the University Admissions Centre data.

From which the following reports are prepared:
- Annual Course Reports which include benchmarked performance data on student demand, enrolments (EFTSL), retention, progression, completions, graduate outcomes and feedback on the course experience, including the (CEQ) and (GDS) qualitative and quantitative data at overall University, College and Course level;
- Vital Signs Reports for the Board of Trustees which shows the University's benchmarked performance against a number of key indicators;
- aggregated performance reports prepared for review and analysis by the UWS Strategy and Quality Committee and the UWS Executive each year;
- SFU reports showing school and unit performance with cleaned open ended comments analysed using *CEQuery*;
- a range of reports covering the other surveys mentioned above; and
- the ability to quickly produce an extensive range of custom-tailored management information for all users across the University using Cognos 8 software.

A number of recent developments in tracking the student experience of higher education have seen strong sector support. They include:

- *CEQuery* – which, as noted earlier and as Attachments Four and Five demonstrate, enables qualitative analysis of comments written on any survey provided students enter them under two headings: 'best aspect' and 'needs improvement'.

- The use of importance as well as performance ratings in feedback surveys. This enables universities to identify areas of high importance and low performance in order to ensure that their improvement resources are well targeted. Importance ratings also enable analysts to validate items and to track movements in student priorities over time. It is recommended that this system be used more consistently.

- The Australian Survey of Student Engagement (AUSSE) has recently been introduced. Whereas many other student feedback surveys track levels of student satisfaction with

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[20] For further details see the AUQA good practice database at: http://www.auqa.edu.au/gp/about/index.php
or see Tracking & Improving Performance on the UWS website at:
http://www.uws.edu.au/opq/planning_and_quality/tracking_and_improving_performance

various aspects of their university experience, the AUSSE looks at how engaged they are in the activities known to be associated with productive learning. It would be useful if an importance dimension to the AUSSE were added, for the reasons identified above.

Confirming the correlation between the results of the AUSSE and levels of performance on valid assessment tasks is another potentially relevant area for development. The AUSSE also invites students to write BA and NI comments that can be analysed using *CEQuery* – this is an additional way to validate the quantitative items in the survey.

With the introduction of the Learning and Teaching Performance Fund (LTPF) issues concerning both the validity and reliability of what is being tracked in national surveys have emerged. Concern has also been expressed about the use of student feedback data, primarily gathered for improvement purposes (for example, CEQ data), to make summative judgments about quality and to inform funding allocations.

The following points about the LTPF and the potential misuse of CEQ data were noted at the national forum on performance standards and indicators hosted by the L.H. Martin Institute at the University of Melbourne in August 2008.

- The LTPF is contentious and flawed but it has given focus to the importance of learning and teaching in higher education;
- The data are extensively lagged;
- Small differences between institutions and field of education are exaggerated;
- Some of the indicators used are dubious measures of institutional performance – e.g. the Generic Skills scale is self-report. This, said one commentator, is like asking students to mark their own assignments;
- There is evidence that at least some of the indicators are invalid – in that they do not align with the current ways in which students learn;
- There is a need to assure the reliability of the data, including scrutiny of how effectively raw data are being entered across all institutions and checking the different response rates on sections of the same survey.

Conclusion

This report has sought to develop a consolidated picture of what influences student satisfaction, retention and engagement in productive learning in Australian higher education. In doing this it has proposed that there is a need for more shared understanding of the key terms and concepts that underpin debates about the future of the sector and for an overall framework within which to locate and make sense of the research and key propositions being put forward to the Higher Education Review.

It has sought to clarify what might constitute 'productive learning' in Australian higher education, how the standards and quality of assessment for that learning might best be managed and has brought together the research on changing student expectations, retention/withdrawal and engagement in productive learning to produce a suggested set of quality assurance guidelines for the area. The available research on ICT-enabled learning has been reviewed and the implications for both learning design and further

research have been noted. The need to consider multiple designs for learning and a new approach to the design and use of learning spaces has been identified.

These are challenging times for Australian higher education. In many real senses the sector is at a watershed - not just nationally but internationally. How well we respond is critical. This response needs to address concurrently two complementary dimensions that our research on learning leaders in times of change has identified (Scott et al, 2008). We need not only to get the 'what' of higher education reform right but the 'how' – how exactly we will ensure that the new agenda for higher education in Australia is effectively and consistently put into practice, continuously improved and sustained.

As my colleague Canada's Michael Fullan would say: "Good ideas with no ideas on how to implement them are wasted ideas".

Attachment One (a)
Context

Key change forces impacting on higher education

All of the education leaders (in the US) we interviewed understand the importance of more market-oriented, student-centred and businesslike management and accountability strategies, while preserving their academic mission, focus and values … The four greatest challenges facing higher education today (are): student engagement, institutional accountability, revenue generation and globalisation.

Segall & Freedman (2007: 1-2)

I believe, and I am not alone, that (in Europe) we are witnessing a seismic shift in higher education … embracing the unprecedented opportunities offered by the global technology-fuelled society and embracing collaboration are the major strategies for survival in this new world … (However, we) have to ask ourselves some tough questions…., not only because our model is an expensive one but also because it is relatively slow in a world growing so accustomed to the swift satisfaction of consumer needs …Otherwise, while we are all talking about diploma supplements and Erasmus programmes and whether or not we believe in quality assurance, China and India are going to come and take our lunch.

Gourley (2007)

Many of the change forces bearing down on universities are outlined in the Higher Education Review Discussion Paper (e.g. sections 1.2. 2.3. 2.5). Over the past quarter century these forces have created a profoundly different operating context for universities and student learning in higher education.

Some of these forces are global, some are unique to Australia, some are specific to the higher education sector and some a uniquely local. Table 1 summarises the set of broader and higher education-specific change forces identified by 512 learning leaders in higher education as having the most impact on their work in a recently completed national study (Scott, Coates & Anderson 2008: Chapter 2: pgs 29ff)

Table One
Change Forces identified by 512 Learning and Teaching Leaders

Broader Change Forces	Higher Education Specific Change Forces
A global economy Emergence of powerful new players Climate change Exit of the Baby Boomers The ICT revolution Cheaper travel	Opening up of access & a recent softening in demand Changed funding sources and levels Pressure to generate new sources of income Rapid growth in the HE 'export market' Growing competition onshore and offshore Pressure to maintain 'standards' A trend towards 'user pays' and the concurrent emergence of a 'student as consumer' movement Changing patterns of participation Changing expectations from a new generation of HE participants Emergence of a set of key dilemmas including how best to balance mission and market, income with standards

It is important to note that the change forces identified in Table 1 both feed into and off each other (Scott, Coates & Anderson 2008: 40); and that, in order to navigate them successfully and to develop the learning designs, assessment systems and tertiary education experiences known to retain students and produce effective learning and successful graduates, universities have to have a "change capable" culture (Scott, Coates and Anderson 2008: 40-42 and 137-8).

How this context is shaping student expectations, the way universities are behaving in the learning and teaching area and what is happening to the changing student experience of universities will be noted as the paper unfolds.

In such a context the expectations for higher education to deliver relevant and cost-efficient outcomes – from both students and those who fund it, as well as broader society – have grown.

Because of this university leaders and their staff have become increasingly aware that it is important not only to gain but to retain students. Retention counts morally. As the Review's Discussion Paper notes, the life opportunities for students, especially those who are first in their family to attend university, are profoundly enhanced if they graduate. It also matters financially – both for the student and the university. For example, lose one international student at the end of first year in a three year course and at least $20,000 in income is forgone; fail to retain 25 and a quarter of a million dollars is lost. A loss of income can mean a loss of jobs and fewer resources with which to improve the student experience.

(b) Key Terms

Assessment
>   The act of gathering data about the attributes, qualities, skills, knowledge and capabilities of students in order to ensure that evaluation of student learning is valid and evidence-based (Scott 1999).

Capability
>   The combination of attributes, qualities, skills and knowledge that enables a person to perform to a high standard in a given context and role (Scott 1999). In particular it entails the ability to work creatively, responsively and productively in situations of uncertainty and challenge

Competence
>   What has to be known or performed to a specified standard and in a specified context. Whereas competence focuses on specified skills and knowledge, capability concerns the ability to know when and when not to deploy them.

Criteria
>   specific performance attributes or characteristics that the assessor takes into account when making a judgement about the student response to the different elements of an assessment task;

Engagement
>   Students' involvement with activities and conditions likely to generate high quality learning. The term is distinguished from student satisfaction which focuses on feedback

on the quality of a range of inputs to learning rather than the extent to which students are actively and productively engaged in using them[21].

Evaluation

Making judgements of quality

Learning

A positive change in the capabilities known to count most for effective early career professional or disciplinary practice and constructive societal participation

Outcomes

What happens as a learning program and its support systems are implemented.

Quality

Judgements of quality can be about inputs – e.g. 1) the relevance, desirability, feasibility, fitness-for purpose of a learning program's design or 2) its resourcing or about its outcomes – e.g. 3) the quality and consistency of implementation of the learning program and its support system or 4) the extent to which the impact on learners and other stakeholders has been positive.

Judgements of quality can be about the 'fitness for purpose' and/or 'fitness of purpose' of what is designed and delivered.

Retention

Retention can be measured in a range of ways: the percentage of students returning to or staying in a course, faculty, university or in the sector.

Standards

Statements describing the level or quality of student performance against specified criteria, indicators, evidence and marking scales used to assess learning.

Teaching

Teaching is one (key) input to learning. Teaching is what teachers do whereas learning is what students do with this and the many other experiences they have at a university. The terms teaching and learning are often wrongly conflated.

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[21] For further details see ACER (2008): Australasian Survey of Student Engagement (AUSSE), Institution Administration Manual, ACER, 3rd July 08.

Attachment Two

Four level quality assurance and evaluation framework for learning and teaching in higher education

Level One: Quality of design

Evaluating quality at this level involves making judgements about the relevance, desirability, feasibility and likelihood that a proposed learning program will engage students in productive learning and retain them. The empirical evidence from the *CEQuery* research and associated studies which is brought together later in this paper has identified the following quality tests for this design process:

- Relevance, including consistent theory-practice links and a focus on the capabilities found to count most for successful performance in early professional or disciplinary practice, along with the key graduate attributes the University wishes to see developed;

- A direct focus in assessment on these capabilities with particular use of problem based assessment and learning tasks; along with mechanisms to ensure prompt and constructive feedback, and transparent marking;

- Using the right combination of those just-in-time, just-for-me, self-directed and active learning methods identified as a 'best aspect' in the *CEQuery* studies for the field of education concerned. As noted later in the paper more direct empirical research on what forms of ICT-enabled learning work best with what sorts of students across different fields of education is necessary (green paper pg 36);

- Clear up-front management of student expectations on what the university will (and will not) provide and, in particular, how assessment works - including what different levels of assessment performance (standards) look like in the particular subject being studied;

- A clear course direction and processes for ensuring that various units of study in the program complement each other and fit together into an integrated whole;

- Putting in place mechanisms to ensure that both academic and administrative staff are accessible, committed, responsive, knowledgeable and that teaching staff are competent teachers and student focused;

- Ensuring that learning support, library and administrative systems are directly aligned to the program, reliable and easily accessed;

- Confirming that the times and locations for learning make access to the program and the university as convenient and productive as possible.

Level Two: Quality of resourcing and support

Evaluating Quality at this level involves making judgements about what sorts of infrastructure, IT, learning support & resources, library resources, administrative systems, staff and staff development programs are necessary to support the consistent and effective delivery of the program as approved at level one.

Key indicators at this level centre around the cost-efficiency, alignment, relevance and quality of the resources and support systems to be used. In a period of rapid climate change this now also entails giving consideration to a relatively new set of issues concerning the carbon cost of having purpose-built facilities unoccupied for significant periods, the potential for joint use of community resources as an alternative, how to minimise intercampus travel and the need to consider running universities over a three semester year to optimise both efficiency and just-in-time access.

The recent ALTC *Learning Leaders* research (Scott et al, 2008) identifies what is necessary to address the emerging leadership succession crisis for the area. Other studies have identified the importance of building up the image of the profession in order to attract and retain high quality staff in a highly competitive employment environment. Increasing numbers of sessional staff add a further dimension to the resource quality challenge and there are indications that the optimum way to build their capability is to model in our staff development programs for them exactly the same just-in-time, just-for-me, relevant and situated learning approaches as we require them to undertake with their students.

Level Three: Quality of implementation

Evaluating quality at this level involves making judgements about the extent to which the program's design and the resources allocated to support it are being put consistently and successfully into practice.

As noted earlier, the key measures here focus on feedback from students, especially on questions related to the key quality tests applied during program design (see level one). There is increased potential to use qualitative data not just quantitative data at this level and to self-validate quantitative survey items by asking students to rate their importance as well as their performance.

Data gathered at this level is especially useful for improving the quality of implementation but it is a less valid source for proving quality – the key tests for which lie more at level 4.

Level Four: Quality of impact

Evaluating quality at this level involves making judgements about the extent to which the university experience for students has consistently developed the capabilities that count for early career professional or disciplinary performance, along with the key graduate attributes identified in the university's mission. To do this assessment has to be both valid and reliable. And it is here that the issues raised by writers like Sullivan and Rosin and our own studies of successful graduates in nine professions have relevance.

Other key impact indicators that can be used include benchmarked retention; assessment of the quality subsequent professional performance of graduates; including employer satisfaction with them; the number of students going on to successful further study; and comparative graduate salaries. The relative weight of other, broader impact indicators like profitability, income, subsequent demand and staff commitment and retention is increasing.

Attachment Three
Professional capability framework
Key dimensions

Studies of effective professionals (for example, Schön, 1983) and successful early career graduates (for example Scott and Yates, 2002, Rochester et al 2005, Vescio, 2005) all indicate that their capability is most tested when things go awry, when an unexpected but perplexing event occurs, not when things are running smoothly.

Personal and Interpersonal Capabilities
At such times it is important for professionals first to be able to manage their own emotional reactions to the uncertainty and discomfort; for example, not to overreact, to tolerate the uncertainty and to be able to remain calm. At the same time, as all key challenges of professional or disciplinary practice have a human dimension, it is important to have a high level of interpersonal capability in order to better understand what is happening and to sort out what might work best to resolve the situation. Both personal and interpersonal capabilities have been extensively researched over the past decade by people like Dan Goleman (1998; 2000) and are often referred to as 'emotional intelligence':

> Emotional intelligence refers to the capacity for recognising our own feelings and those of others, for motivating ourselves and managing emotions well in ourselves and in our relationships.
>
> Goleman (1998)

The key components of personal capability identified (Scott et al, 2008: pgs 22ff) include: self-regulation, decisiveness, and commitment. The key components of interpersonal capability are: influencing and empathising.

The central importance of emotional intelligence to effective professional and disciplinary practice has emerged in every study undertaken so far including those which have focused on effective leadership in school education (Scott 2004) and higher education (Scott, Coates and Anderson, 2008).

Cognitive capability
The dimension of cognitive capability in Diagram 2 refers to the practitioner's capacity to diagnose accurately what is happening when the unexpected occurs, to identify what the human as well as technical or administrative dimensions are, to determine if the problem is worth addressing in detail, and then having the ability to match an appropriate course of action to this diagnosis. Donald Schön explored how this form of contingent intelligence operates in studies of effective professionals in a wide range of occupations in his 1983 book *The Reflective Practitioner.*

> When a practitioner makes sense of a situation he perceives to be unique, he sees it as something already in his repertoire … It is to see the unfamiliar situation as both similar to and different from the familiar one … The familiar situation functions as a precedent, or a metaphor, or – in Thomas Kuhn's phrase – an exemplar of the unfamiliar one … It is our capacity to *see-as* and *do-as* that allows us to have a feel for problems that don't fit existing rules.
>
> Schön (1983: 138–40)

Goleman (2000) found that the 'contingent' use of six complementary management styles works best in business contexts.

David Hunt (1970 and 1971)[22] captured this notion in his research on successful teachers when he identified that the best of them were able to 'read' each student, group of students and learning situation and 'match' an appropriate course of action to this reading (diagnosis). It is an intellect, therefore, that is skilled not just at problem solving but at working out what the problem is. This has close links to the notion of reflection-in-action (Scott, 1999: 161).

> Only when (practitioners) have a better handle on what the problem might really be … (do) they set about designing a way of changing the situation … That is, they seek to 'custom tailor' or *match* a plan of action that seems to best suit the unique requirements, limits and possibilities of the situation. In this way their response is 'contingent' upon their reading of the situation … Then they act—that is they put their plan into action and assess the effects … In this way they ultimately come to understand the problem only by trying to change it … If their selected solutions don't work, they conclude that their interpretation of the problem was inaccurate and the spiral starts again. In this way research, learning, action and workplace improvement are constantly intermingled in the spiral staircase of continuous change.
>
> (Scott, 1999: 122–123)

The key components of cognitive capability (Scott, et al, 2008: 24) are: diagnosis, strategy, flexibility and responsiveness.

A high level of interpersonal capability is necessary to undertake the process of 'reading' and 'matching', and an ability to personally manage the uncertainty and ambiguity of an unresolved situation is needed if one is to be able to clearly and effectively think through what is causing the troubling situation and figure out how best to respond. It is in this way that the three top circles in Figure 1 are interlaced—one cannot function without the other two being present.

Key competencies

Also integrated into this process is the practitioner's level of generic and role-specific skill and knowledge (the bottom circles in Diagram 2). These generic and job-specific areas of competence help provide not only a scaffold for diagnosis but also a source for shaping the right response and delivering it in partnership with all the other players concerned.

It is in this way that the practitioner's ability to manage ongoing change is linked directly to the discussion so far about capability and competence and to our view that it is most tested when uncertainty and change are in the air.

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[22] Hunt's groundbreaking book in 1971 describes models to coordinate student characteristics with educational environments, and describes how educators can be trained to provide such environments. It identifies the general characteristics of matching models, objectives, the characteristics of the person the characteristics of the environment that must be taken into account, then the nature of the person-environment interaction, and presents three specific examples of matching models that work.

CEQuery Analysis of 280,000 CEQ comments from 90,000 students in 14 Australian Universities 2006

Overall pattern of hits and odds analysis

Rank Order BA/NI 1-high	Subdomain	Rank Order Hits 1-high	BA/NI Odds	Count BA	Count NI	Total Hits (BA + NI)
1	Outcomes – personal (OP)	25	19 to 1	1,668	88	1,756
2	Outcomes – further learning (OF)	30	14.5	347	24	371
3	Outcomes – intellectual (OI)	14	13.3	7,197	541	7,738
4	Outcomes – unspecified (OU)	27	6.5	1,126	173	1,299
5	Support – unspecified (SU)	31	5.1	277	54	331
6	Outcomes – interpersonal (OIP)	19	4.1	2,455	595	3,050
7	Outcomes – knowledge/skills (OK)	10	2.9	8,037	2,746	10,783
8	Support – social affinity (SSA)	9	2	7,249	3,683	10,932
9	Course design – unspecified (CU)	26	1.9	1,079	574	1,653
10	Assessment – relevance (AR)	17	1.8	2,537	1,400	3,937
11	Staff – practical experience (SP)	24	1.4	1,030	759	1,789
12	Staff – quality (SQ)	2	1.3	17,417	13,512	30,929
13	Course design – methods (CM)	1	1.2	22,231	18,338	40,569
14	Course design– flexibility (CF*)*	4	1.2	12,754	10,579	23,333
15	Staff – accessibility (SA*)*	3	1.2	12,748	10,611	23,359
16	Course – practical/theory links (CP)	6	1.2	9,157	7,658	16,815
17	Staff – unspecified (SU)	28	1	347	334	681
18	Outcomes – work application (OW)	12	0.9	4,715	5,248	9,963
19	Assessment – unspecified	29	0.7	179	251	430
20	Support – learning resources (SR)	11	0.7	3,970	6,006	9,976
21	Course design – relevance (CR)	7	0.7	6,335	9,658	15,993
22	Staff – teaching skills	8	0.6	5,548	9,969	15,517
23	Support – infrastructure/environment (SI)	13	0.5	3,423	6,353	9,776
24	Support – library (SL)	20	0.5	1,018	1,933	2,951
25	Support – student services	21	0.4	784	1,808	2,592
26	Assessment – standards (AS)	15	0.3	1,873	5,449	7,322
27	Support – student administration (SAd)	16	0.3	1,078	4,095	5,173
28	Course design – structure (CS)	5	0.2	3,579	15,668	19,247
29	Assessment – marking (AM)	22	0.2	386	2,045	2,431
30	Assessment – expectations (AE)	23	0.2	308	1,794	2,102
31	Assessment – feedback (AF)	18	1 in 10	316	2,792	3,108
Totals				**141,168**	**144,738**	**285,906**

Source: Scott, G (2006): *Accessing the student voice*, HEIP, DEST/DEEWR, Canberra

Attachment 4 (b)
Learning methods identified as a 'best aspect' in the national *CEQuery* study

Source:
Scott, G (2006)

Of the 280,000 CEQ comments analysed in this national project some 27,000 comments identified a wide range of learning methods as a 'best aspect' (BA) of the respondents' university experience. It is assumed that, if a learning method was identified as a "best aspect" by students, this means they perceive it to be engaging and productive. For the purposes of the analysis a range of items was admitted from other parts of the *CEQuery* analysis. These included some 2971 BA comments on writing essays and assignments and 276 BA comments on writing a research report coded under Assessment.

Table A shows that more than 60 different learning methods and learning 'tools' emerged from a detailed content analysis of this methods' database. It should be kept in mind that the names for each of these methods have been generated from the words used by the students themselves, and that what is presented should only been seen as being indicative.

If the results are taken as a whole then the learning methods that attracted the highest number of "best aspect" hits were, in rank order:

> Small group project work
> Learning by completing assignments and essays
> Lectures where there was interactivity
> Class-work exercises of various types
> Hands-on practice
> Practical experience
> Tutorials
> Practicum placement
> Clinical placement
> Discussion and sharing ideas

If the 'hands-on practice' and 'practical experience' categories are combined, then this group of methods is ranked first. Similarly, if the 'practicum' (the favoured term in Education) and 'clinical placement' (the favoured term in Health) are combined, they move into third place for the number of BA hits they attract.

When the 30,000 BA comments are read in detail what emerges is that, although lectures clearly have a role, what particularly impresses students is active/interactive rather than passive learning. What they particularly like is, for example, working in small group projects around real world cases along with practice-oriented, real world, 'learning by doing' and opportunities for them to discuss, consolidate, critique and make sense of these experiences. It also makes clear that assignments, essays and other assessment items are, in their own right, important individual learning strategies. Similarly feedback on them emerges as being the unique opportunity for 1 on 1 discussion between lecturer and student. This aligns with both the wider body of research and writing reviewed in the study's literature review and the areas given emphasis in other related areas of Course Design—like the high number of hits attracted by the Relevance and Flexible Learning Design sub-domains and the high number of hits attracted by the Support: social affinity sub-domain.

Interestingly, when an analysis of the Best Aspect comments on lectures are examined in more detail, what students are responding to positively is not only excellence in imparting breaking information on the area being studied or communicating enthusiasm for the topic but also the use

of a range of modified lecture techniques that involve students in a wide variety of active learning processes as the lectures unfold. It is surprising how few BA comments were made at this time about ICT-enabled learning methods, although the range identified is extensive. There is clear evidence in the 'needs improvement' comments for this area that the effective deployment of such methods is the next step. At UWS this is now happening, as the results for Blackboard/WebCT on the 2006 Student Satisfaction Survey clearly show. However, effective use of such methods as part of a broader learning design is still patchy

What is evident in Table A is the overlap between the different terms used for what might be very similar methods across the various fields of higher education (FOE). This outcome requires further detailed and more targeted investigation. It is also clear that some methods are characteristic of one Field of Education but not another and that in some FOEs just one or two methods attract most of the BA comments where, in others, a much wider variety is identified. An important example is the widespread use of case-based learning in Business but not in Science.

Table A. *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,
	• Supervised practice
	• Professional mentor
	• 'Learning by doing'
	• Field study/work/trip/ experience, site visit
	• Camps
	• Addressing real-life problems
	• Use of guest speakers,
	• industry/professional 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 - WebCT etc
				• 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

Table B shows the Best Aspect Methods identified by students sorted by aggregated field of education. Where one method has attracted a large proportion of the BA comments in a particular field of education it is underlined. What is evident in this table that in some fields of education a spread of methods attracts a 'best aspect' comment, whereas in others it is just one or two. What is also evident is that some methods which are used widely in one field are not used at all in another.

Table B

'Best aspect' learning methods in rank order x aggregated field of education

Science & Built Environment Team/group project, assignments, field study/site visit, hands on practice, lecture, class exercises, laboratory work, practical work, practical experience **Health** Clinical placement, practical experience, lecture, hands on practice, assignments, tutorial, class exercises, group project work, labs, practicum, work experience **Education** Practicum, practical experiences, assignments, hands on practice, lecture, tutorial, class discussion, class exercises, team/group project work	**Management & Commerce** Team/group project, assignments, lecture, class exercises,, seminar – individual presentation, tutorial, discussion, case study, real world problems to solve, work experience **Society, Culture & Creative Arts** Assignments, class exercises, lecture, tutorial, group project, class discussion, hands on practice, practical experience, seminar – individual presentation, practical work *Note: In some Fields of Education most comments went to just one or two methods (underlined)*

Attachment Five

CEQuery **Domains & 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) e.g. 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 & 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 Six
'RATED CLASS A' QA framework & checkpoints

R - Relevance
Confirm that the content and focus of the course is immediately relevant to the backgrounds, abilities, needs and experiences of the students concerned. For further details see Attachments 4 & 4: Course design – relevance.

A- Active learning:
Use an appropriate mix of the active learning methods identified in the *CEQuery* and other research as being a 'best aspect' for each particular field of higher education. More than 60 such learning methods and tactics have been identified (Attachment 4B). They range from almost 40 face to face and practice oriented methods (lecture, group work, debates, forums, seminars, field trips, work-placements, site-visits, use of guest speakers etc), to the use of a wide variety of simulation techiques (case-studies, in-tray exercises, role-play etc), self-managed learning resources (assessment-focused self-teaching booklets, distance education materials) and a suite of ICT-enabled learning strategies (teleconference, video, CD, pod-casts, Skype, U-Tube, various web-learning products, SMS, online library search and downloads etc) . Peer-supported learning is also a particularly important ingredient in retaining students.

T - Theory-practice links
Consistently use practical, real world problems, experiences and cases to test and inform theory and as use practice, whenever possible, as a site or source for learning. The use of problem-based assessment methods, rather than simply testing factual recall, is especially important. For further details see Attachments 4 & 5: Course design – theory practice links.

E - Expectations management
Ensure clear management of expectations from the outset on what levels of service, support and contact students are entitled to, along with what they are expected to do, with particular emphasis on how assessment will be managed and their obligations in relation to it. For further details see Attachments 4 & 5: Course design – expectations.

D – Direction & coherence
Ensure clarity about where a course is heading and how the various subjects and study units which make it up all contribute to it working as a coherent whole. Staged assessment deadlines and vertical integration of learning and assessment are also important aspects of the clear direction test. For further details see Attachments 4 & 5: Course design – structure.

C - Capabilities that count
In assessment and the inputs which enable it focus on the professional and disciplinary capabilities known to count most for effective performance in the first five years of professional practice.. A high level of technical and practical skill is necessary but it is not sufficient for effective professional performance. For further details see Attachments 4 & 5: Assessment – relevance and all of the Outcomes subdomains.

L - Learning pathways that are flexible
Students like both clear direction and a core of key subjects to develop the necessary capabilities. However, they also like the ability to take sub-majors and electives that suit their particular interests. For further details see Attachments 4 & 5: Course design - flexibility

A - Assessment
This is the key test of an engaging and effective higher education program. Assessment needs to be valid (i.e. to focus on the capabilities that count) but also to test these using assessment items which are integrated and problem based, rather than focused on simply testing factual recall.

Students need to have a clear, operational picture in each subject of exactly what constitutes a high distinction, distinction, credit, pass or fail. Targeted feedback explaining why a particular grade was awarded, along with what might have been done to achieve a higher grade, is particularly valued. Students see prompt and constructive feedback of this nature as being a unique opportunity for individualised learning.

As learning entails demonstrating that a positive change in the capabilities that count for effective disciplinary or professional performance has occurred assessment becomes the central focus in all higher education programs which accredit professionals for practice. This means that all of the learning experiences and resources need to link directly to enabling students to address a valid, telling set of assessment tasks. As noted earlier self-teaching packages which start with the assessment, explain how it is focusing on the capabilities necessary for early career performance, and then clarify how grades will be allocated before explicitly identifying how the various learning methods and resources built into the subject can enable students to successfully complete the assessment are particularly valued. Issues surrounding assessment are emerging as being a key issue in assuring the quality of higher education in the twenty first century. For further details see all of the Assessment subdomains in Attachments 4 & 5.

S - Staff
Staff – both academic and general staff - need to be flexible, accessible, responsive and enthusiastic if students are to be motivated to learn and are to be retained. Academic staff need to take on the role of being a learning designer, the so-called 'guide on the side' rather than continue to see themselves as the 'sage on the stage'. They need to see their role, therefore, as being about designing active and responsive learning programs focussed on enabling students to achieve well in carefully integrated and problem-focused assessment tasks. Administrative and support staff play a key role in ensuring learning programs are consistently and effectively supported during their delivery. For further details see all of the Staff subdomains in Attachments 4 & 5.

S - Support
This includes ensuring that a responsive and efficient student administration and enrolment system is in place; that there is an easily accessed online library; a wide range of student assistance opportunities; the existence of peer support networks and that the overall quality of campus life is optimised. For further details see all of the Support subdomains in Attachments 4 & 5.

A - Access
Convenient times and locations for learning are important factors for many students in ensuring their continued participation in higher education. This is especially true for mature-aged students who often have to balance work and family obligations with study. For further details see Attachments 4 & 5: Course design – flexibility and responsiveness.

The above quality assurance checkpoints need to be given direct focus as new programs and subjects are designed, as new course proposals are considered and as they are tracked and evaluated to determine the quality of delivery during implementation.

References & further reading[23]

AAHE (1998): *Powerful partnerships: A shared responsibility for learning*. American Association for HE, ACPA & NASPA. Washington DC, available online: http://www.aahe.org/assessment/joint.htm

Abrami, P. et al (2006): A review of e-learning in Canada: A rough sketch of the evidence, gaps and promising directions. *Canadian Journal of Learning and Technology*, *32*(3), available online: http://www.cjlt.ca/content/vol32.3/abrami.html

Alexander, S. et al (1998): *An evaluation of information technology projects for university learning (executive summary)*. CUTSD, Canberra, available online: http://www.dest.gov.au/archive/cutsd/publications/exsummary.html

Allan, B. (2004): 'E-learners' experiences of time. *Proceedings of the Networked Learning Conference*, available online: http://www.shef.ac.uk/nlc2004/Proceedings/Individual_Papers/Allan.htm

Ashby, A. (2004): Monitoring student retention in the Open University. *Journal of Open and Distance Learning*, *19*(1), 65-77.

Association for Learning Technology (2005): *ALT Research Strategy – 2005*, available online: http://www.alt.ac.uk/docs/ALT_2005_Research_Strategy_20050420.pdf

Atack, L. & Rankin, J. (2002): A descriptive study of registered nurses' experiences with web-based learning. *Journal of Advanced Nursing*, *40*(4), 457-465.

ACER (2008, June): *AUSSE research briefing*, Vol 1. ACER, Mebourne (contact: Hamish Coates).

Australian Council for Educational Research (2008): *Attracting, engaging and retaining: New conversations about learning*. AUSSE Report, Melbourne.

Australian Education Network (2006): *Historical development of Australian university sector*, available online: http://www.australian-universities.com/history-of-australian-niversities.php/

Australian Vice-Chancellor's Committee (2005): *Funding universities - budgeting for the future,* available online: http://www.avcc.edu.au/documents/publications/policy/submissions/ AVCCBudgetSubmission06.pdf

Baker, S. & Pomerantz, N. (2001): Impact of learning communities on retention at a metropolitan university. *Journal of College Student Retention, 2*, 115-126.

Baptista-Nunes, M. & McPherson, M. (2002): No lectures on campus: Can e-learning provide a better learning experience? *Proceedings of IEEE International Conference on Advanced Learning Technologies*, available online: http://ittf.ieee.org/icalt2002/proceedings/t1404_icalt124_End.pdf

Barraket, J. & Scott, G. (2001): Virtual equality? Equity and the use of information technology in higher education. *Australian Academic and Research Libraries Journal, 32*(2), 204 – 212.

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[23] Please note that a number of the U.K. references on E-Learning have been drawn from the 2005 review by Sharpe and Benfield 2005

Beasley, N. & Smyth, K. (2004): Expected and actual student use of an online learning environment: A critical analysis. *Electronic Journal of E-learning, 2*(1), available online: http://www.ejel.org/volume-2/vol2-issue1/vol2-issue2-papers.htm

Beetham, H. (2005): E-learning research: Emerging issues? *ALT-J (Research in Learning Technology), 13*(1), 81-89.

Berger, J. (2001): Understanding the organizational nature of student persistence: Recommendations for practice. *Journal of College Student Retention, 3*, 1.

Biggs, J. B. (1999): *Teaching for quality learning at university*. Buckingham: SRHE and Open University Press.

Bird, C. (2004): Sinking in a c-m sea: A graduate student's experience of learning through asynchronous computer-mediated communication. *Reflective Practice, 5*(2), 253-263.

Bloom, B. (1956): *Taxonomy of educational objectives*. New-York: Longmans-Green.

Borglum, K. & Kubala, T. (2000): Academic and social integration of community college students: A case study. *Community College Journal of Research and Practice, 24,* 567-576.

Boud, D. (1985): *Reflection: Turning experience into learning*. London: Kogan Page.

Braxton, J. & McClendon, S. (2001): The fostering of social integration and retention through institutional practice. *College Student Retention: Research, Theory and Practice, 3,* 57-71.

Braxton, J., Milem, J., & Sullivan, A. (2000): The influence of active learning on the college student departure process. *The Journal of Higher Education, 71,* 569-590.

Braxton, J., Hirschy, A., & McClendon, S. (2004): *Understanding and reducing college student departure*. San Francisco: Jossey-Bass.

Browne, T. & Jenkins, M. (2003): *VLE surveys: A longitudinal perspective between March 2001 and March 2003 for higher education in the United Kingdom*. UCISA, available online: www.ucisa.ac.uk/groups/tlig/vle/index_html

Coates, H. (2005): The value of student engagement for higher education quality assurance. *Quality in Higher Education, 11*(1), 25–36.

Coates, H. (2008): *The Australasian student engagement report*, ACER, Melbourne.

Coates, H., Goedegebuure, L., van der Lee, J. & Meek, L. (2008). *The Australian Academic Profession: A first overview*. University of New England: Centre for Higher Education Management and Policy.

Coates, H. & Rosicka, C. (2006): *Engaging learning: Connected schools learning project – preliminary result*. Melbourne: ACER.

Conole, G. et al (2006): *JISC LXP: Student experiences of technologies*. Final report of the JISC-funded LXP project, Southampton: University of Southampton, available online: www.jisc.ac.uk/elp_learneroutcomes.html

Cramphorn, C. (2004): An evaluation of the formal and underlying factors influencing student participation with e-learning web discussion forums. *Proceedings of the Networked Learning Conference*, available online: www.shef.ac.uk/nlc2004/Proceedings/Individual_Papers/Cramphorn.htm

Creanor, L, Trinder, K, Gowan, G and Howells, C (2006): *LEX – The learner experience of E-learning*. Open Learning and Glasgow Caledonian University, U.K, available online: http://www.jisc.ac.uk/uploaded_documents/LEX%20Final%20Report_August06.pdf

Crook, C. (2002): The campus experience of networked learning. In: C. Steeples & C. Jones (Eds.) *Networked learning: Perspectives and issues.* London: Springer-Verlag.

Davies, S (2002): Marketing in higher education: Matching promises and reality to expectations. *Responding to Student Expectations. OECD Report,* 103-113.

DEST (2003): *Our universities: Backing Australia's future*. Canberra, ACT, available online: http://www.backingaustraliasfuture.gov.au/

DEST (2006): *Higher education*. Canberra, ACT, available online: http://www.dest.gov.au/sectors/higher_education/default.htm

Dewey, J. (1933): *How we think: A restatement of the relation of reflective thinking to the educative process*. Massachusetts: Heath.

Dickey, M. D. (2004): The impact of web-logs (blogs) on student perceptions of isolation and alienation in a web-based distance-learning environment. *Open Learning, 19*(3), 279-291.

Donald, J. (2002): *Learning to think*: *Disciplinary perspectives*. San Francisco: Jossey-Bass.

Durkin, C. (2003): *University of Bath Blackboard pilot excerpts*, available online: http://www.bath.ac.uk/e-learning/vlecmap/Resources/bbstviews.htm

Ellis, R. A. & Calvo, R. A. (2004): Learning through discussion in blended learning environments. *Educational Media International, 41*(3), 263-274.

Entwhistle, N. J. & Ramsden, P. (1983): *Understanding student learning*. London: Croom Helm.

Fox, S. & MacKeogh, K. (2003): Can e-learning promote higher-order learning without tutor overload? *Open Learning, 18*(2), 121-134.

Gagné, R. (1965): *The conditions of learning*. New York: Holt Reinhart & Winston.

Gay, G. & Hembrooke, H. (2004): *Activity-centered design: An ecological approach to designing smart tools and usable system*. Cambridge: MIT Press.

Goleman, D. (1998): *Working with emotional intelligence*. London: Bloomsbury.

Goleman, D. (2000): Leadership that gets results. *Harvard Business Review,* 79-81.

Gourley, B. (2007): Speech given at the European HE Ministers meeting in London, May 2007, available online: http://www.eua.be/fileadmin/user_upload/files/newsletter/COM_NL_9_2007_1.html

Grabinger, R. S. & Dunlap, J. C. (1995): Rich environments for active learning: A definition. *ALT-J (Research in Learning Technology), 3*(2), 5-34.

Graduate Careers Australia (2006). *The graduate grapevine - number 5*. GCA releases 2005 Australian Graduate Survey Reports, available online: http://www.graduatecareers.com.au/content/view/full/2618

Hare, J. (2008, April): Engagement a matter of enrichment. *Campus Review*, 3.

HEFCE (2005): *HEFCE strategy for e-learning*. Higher Education Funding Council for England, Higher Education Academy and the Joint Information Systems Committee, available online: http://www.hefce.ac.uk/pubs/hefce/2005/05_12/.

Hoffman, M., Richmond, J., Morrow, J., & Salomone, K. (2003): Investigating "sense of belonging" in first-year college students. *Journal of College Student Retention, 4*(3), 227-256.

Holtham, C. & Courtney, N. (2005): Virtual learning environments: practitioner perspectives on good practice. The observatory on borderless higher education, available online: http://www.obhe.ac.uk/products/reports/ftpdf/May2005.pdf

Hughes, M. & Daykin, N. (2002): Towards constructivism: Investigating students' perceptions and learning as a result of using an online environment. *Innovations in Education and Teaching International, 39*(3), 217-224.

Hughes, G. & Lewis, L. (n.d.): Who are successful online learners? Exploring the relationship between learner identities and their new experiences of online pedagogies and technologies. University of East London, available online: http://www.uel.ac.uk/lds/internal_resources/docs/icepaper.pdf

Hugo, G. (2004). *The demography of Australia's academic workforce: patterns, problems and policy implications*. Monash Seminars on HE, Monash University, 7 September 2004.

Hugo, G. (2005a). *The demography of Australia's academic workforce: the ATN universities*. Paper presented at the ATN Conference, 9–11 February 2005.

Hugo, G. (2005b). Demographic trends in Australia's academic workforce. *Journal of Higher Education Policy & Management,* 27(3), 327–343.

Hugo, G. (2005c). Some emerging demographic issues on Australia's academic workforce. *Higher Education Policy*, 18, 207–229.

Hunt, D. (1971): M*atching models in education. The coordination of teaching methods with student characteristics*. Toronto: OISE.

Hunt, D. (1976): Teachers' adaptation: 'Reading' and 'flexing' to students. Journal of Teacher Education, *27*, 268-275.

The Institute for Higher Education Policy (2000): *Quality on the line: Benchmarks for success in internet-based distance education,* available online: www.IHEP.com/quality

Jackson, M. (1997): Learning to teach in higher education: A review, available online: http://ultibase.rmit.edu.au/Articles/june97/learn1.htm

James, R. (2002): Students' changing expectations of HE and the consequences of mismatches with the reality. In *Responding to Student Expectations*, OECD Report, 71-83.

James, R. & Beckett, D. (2002): *The changing expectations of university students and the implications for learning*. Centre for the Study of Higher Education, University of Melbourne, available online: http://www.cshe.unimelb.edu.au/people/staff_pages/James/James&Beckett=Singapore.pdf

JISC (2003): *Managed learning environment activity in further and higher education in the UK*. A supporting study for the Joint Information Systems Committee (JISC) and the Universities and Colleges Information Systems Association (UCISA), available online: http://www.jisc.ac.uk/uploaded_documents/mle-study-final-report.pdf

JISC & Ipsos MORI (2008): Great expectations of ICT: How Higher Education institutions are measuring up, JISC, U.K. at: http://www.jisc.ac.uk/publications/publications/greatexpectations

Joy, E. & Garcia, F. (2000): Research paper questions 'No Significant Difference' claims. *Journal of Asynchronous Learning Networks 6*(1), 21-39.

Jung, I., Choi, S., Lim, C., & Leem, J. (2002): Effects of different types of instruction on learning achievement, satisfaction and participation in web-based instruction. *Innovations in Education and Teaching International, 39*(2), 153-162.

Kanuka, H. (2005): An exploration into facilitating higher levels of learning in a text-based internet learning environment using diverse instructional strategies. *Journal of Computer-Mediated Communication*, *10*(3), available online: http://jcmc.indiana.edu/vol10/issue3/kanuka.html

Kanuka, H. (2006): A review of e-learning in Canada: A commentary on a rough sketch of the evidence, gaps and promising directions. *Canadian Journal of Learning and Technology, 32*(3), 85-100.

Kanuka, H. & Kelland, J. (in press): A deliberative inquiry with experts in on e-learning technology: Contentions in need of further research. *Canadian Journal of Higher Education*, 25-26.

Katz, R. (2005): Foreword: Growing up digital. In J. B. Caruso & R. Kvavik (Eds.) *ECAR study of students and information technology, 2005: Convenience, connection, control, and learning*. EDUCAUSE, available online: http://net.educause.edu/ir/library/pdf/ers0506/rs/ers05060.pdf

Kaya, N. (2004): Residence hall climate: Predicting first-year students' adjustment to college. *Journal of the First-Year Experience, 16,* 101-18.

Kember, D. (2001): Beliefs about knowledge and the process of teaching and learning as a factor in adjusting to study in higher education. *Studies in Higher Education, 26*(2), 205 – 221.

Kennedy, G. et al (2006): *First year students' experiences with technology: Are they really digital natives.* Internal report, the University of Melbourne, available online: http://www.bmu.unimelb.edu.au/research/munatives/natives_report2006.pdf

Kift., S .(2008): The next, great first year challenge: Sustaining, coordinating and embedding coherent institution – wide approaches to enact the FYE as "everybody's business". *Proceedings of the 11th International Pacific Rim First Year in Higher Education Conference*, available online: http://www.fyhe.qut.edu.au/past_papers/papers08/FYHE2008/content/pdfs/Keynote%20-%20Kift.pdf

Kirkwood, A. & Price, L. (2006): Adaptation for a changing environment: Developing learning and teaching with information and communication technologies. *The International Review of Research in Open and Distance Learning*, 7(2), available online: http://www.irrodl.org/index.php/irrodl/article/view/294/624

Kirp, D. L. (2003): *Shakespeare, Einstein and the bottom line: The marketing of higher education*. Cambridge MA: Harvard University Press.

Kolb, D (1984): *Experiential learning*. New Jersey: Prentice Hall.

Krause, K. (2006): *Student voices in borderless higher education: the Australian experience*, Observatory on Borderless Higher Education, London.

Krause, K., Hartley, R., James, R., & McInnis, C. (2005): *The first year experience in Australian universities: Findings from a decade of national studies.* Centre for the Study of Higher Education, Canberra: DEST, available online: http://www.cshe.unimelb.edu.au

Kuh, G. (1999): How are we doing? Tracking the quality of the undergraduate experience, 1960s to the present. *The Review of Higher Education, 22*, 99-119.

Kuh, G. (2003): What we're learning about student engagement from NSSE. *Change, 35*, 24-32.

Kuh, G. (2005): *Exploring different dimensions of student engagement: 2005 annual survey results. National Survey of Student Engagement*. Blomington, Indiana, Center for Postsecondary Research, Indiana University.

Kuh, G., Kinzie, J., Schuh, H, & Whitt, E. (2005): *Student success in college: Creating conditions that matter*. San Francisco: Jossey-Bass.

Littleton, K. (1999): Productivity through interaction: An overview. In K. Littleton & P. H. Light (Eds.) *Learning with Computers: Analysing productive interaction*. London: Routledge.

Long, M., Ferrier, F., & Heagney, M. (2006): *Stay, play or give away? Students continuing, changing or leaving university study in first year.* available online: http://www.dest.gov.au/ sectors/ higher_ education/publications_ resources/profiles/stay _play_giveaway.htm

Macdonald, J. (2003): Assessing online collaborative learning: process and product. *Computers & Education, 40*(4), 377-391.

Macdonald, J. (2004): Developing competent e-learners: The role of assessment. *Assessment and Evaluation in Higher Education, 29*(2), 215-226.

Maki, R. et al (2000): Evaluation of web-based introductory psychology course. *Behavior Research Methods, Instruments and Computer, 32*, 230-39.

Manning, R., Cohen, M., & DeMichiell, R. (2003). Distance learning: Step by step. *Journal of Information Technology Education, 2,* 115-130, At: http://jite.org/documents/Vol2/v2p115-130-96.pdf

Mason, R. & Weller, M. (2000): Factors affecting student satisfaction on a web course: education at a distance. *Australian Journal of Educational Technology, 16*(2), 173-200.

McAndrew, P., Brasher, A. and Hardy, P. (2004): Determining research questions in e-learning. *Proceeding Networked Learning 2004*, April 5-7 2004, Lancaster, UK., available online: www.networkedlearningconference.org.uk

McConnell, D. (2000): *Implementing computer supported cooperative learning,* 2nd Edition. London: Kogan Page.

Moore, K. & Aspden, L. (2004): *Coping, adapting, evolving: The student experience of e-learning*. Library and Information Update, Sheffield Hallam University, available online: http://www.cilip.org.uk/publications/updatemagazine/archive/archive2004/april/update0404a.htm).

Nelson, K. S., Kift, S., Humphreys, J., & Harper, W. (2006): A blueprint for enhanced transition: Taking an holistic approach to managing student transition into a large university. *Proceedings of the 9th International Pacific Rim First Year in Higher Education Conference,* available online: http://www.fyhe.qut.edu.au/past_papers/2006/Papers/Kift.pdf

Nimon, S. (2006): *Generation Y and higher education: The other Y2K*. Paper presented at the Australasian Association for Institutional Research 2006 Forum, available online: http://www.aair.org.au/jir/Nov07/GenY.pdf

OCSLD (2004): The student experience of eLearning, *Brookes eJournal of Learning & Teaching,* Vol 1, Issue 3. Key contacts: Rhona Sharpe and Greg Benfield At: http://www.brookes.ac.uk/publications/bejlt/volume1issue3/academic/sharpe_benfield.html!

O'Neill, K., Singh, G. & O'Donoghue, J (2004): Implementing e-learning programmes for higher education: A review of the literature. *Jnl of Information Technology Education*, (3), 313-323.

O'Regan, K. (2003): Emotion and e-learning. *Journal of Asynchronous Learning Networks, 7*(3), available online: http://www.sloan-c.org/publications/jaln/v7n3/pdf/v7n3_oregan.pdf

Pascarella, E. T. & Terenzini, P. T. (2005): *How college affects students (Vol 2): A third decade of research*. San Francisco: Jossey-Bass.

Price Waterhouse Coopers (2007): *Research report: The economic benefits of a degree*. London: Universities UK, available online: http://www.bournemouth.ac.uk/conservation/newsandevents/UUKfulltext

Prosser, M. & Trigwell, K. (1991): Student evaluations of teaching and courses: Student learning approaches and outcomes as criteria of validity. *Contemporary Educational Psychology, 16*, 269–301.

Ramsden, P. (1991): A performance indicator of teaching quality in higher education: The Course Experience Questionnaire. *Studies in Higher Education, 16*, 129-150.

Ramsden, R. (1992): *Learning to teach in higher education*. London: Routledge

Reeves, T. C. (1999): Rigorous and socially responsible interactive learning research. *Journal of Interactive Learning Research (JILR)*, available online: http://www.aace.org/pubs/jilr/intro.html

Rickinson, B. & Rutherford, D. (1996): Systematic monitoring of the adjustment to university of undergraduate: A strategy for reducing withdrawal rates. *British Journal of Guidance and Counselling*, *24*(2), 213-225.

Roberts, G (2004): *Technology and learning expectations of the Net Generation*. EDUCAUSE, available online: www.educause.edu/TechnologyandlearningexpectationsoftheNet Generation/6056

Rochester, S., Kilstoff, K., & Scott, G. (2005): Learning from success: Improving undergraduate education by understanding the capabilities of successful nurse graduates. *Nurse Education Today*, *25*, 181-188.

Rourke, L. & Anderson, T. (2002): Using peer teams to lead online discussion. *Journal of Interactive Media in Education, 1,* available online: http://www-jime.open.ac.uk/2002/1

Russell, T. L. (1999): *The no significant difference phenomenon*, 5th Edition. Raleigh, NC: North Carolina State University.

Salmon, G. (2002): Mirror, mirror, on my screen...exploring online reflections. *British Journal of Educational Technology, 33*(4), 379-391.

Salmon, G. (2004): *E-moderating: The key to teaching and learning online*, 2nd Edition. London: Kogan Page.

Segall, P. & Freedman, G. (2007): *Building the 21st century campus*. White Paper, Blackboard Leadership Survey, available online: http://www.blackboard.com/clientcollateral/21st%20Century%20-%20View%20from%20the%20Top%20White%20Paper.pdf

Schmidt, H. (1998): Problem-based learning: Does it prepare medical students to become better doctors? *The Medical Journal of Australia, 168,* 429-430.

Schön, D. (1983): *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Schramm, R. M., Wagner, R. J., & Werner, J. M. (2004, May): *Student perceptions of the effectiveness of web-based courses.* Pamphlet distributed by Distance Education Report.

Scott, G (1999): *Change matters: making a difference in education and training*, Allen & Unwin, London and Sydney.

Scott, G. (2003): Effective change management in higher education. *EDUCAUSE Review, 38*(6), 64–80.

Scott, G. (2003): *Learning principals: Leadership capability & learning research in the NSW Department of Education & Training*. NSW DET, Sydney. available online: https://www.det.nsw.edu.au/proflearn/docs/pdf/sld_lpw.pdf

Scott, G. (2004): *Change matters in higher education.* Keynote address given at AUQF Conference, Adelaide, July 2004. Also presented at the European Universities Association's Senior Leadership Conference, Dublin, February, 2004, available online http://future.uws.edu.au/__data/assets/pdf_file/0007/6982/Change_Matters_Keynote.pdf

Scott, G. (2005): *Promoting student retention and productive learning in universities: Research and action at UWS 2004-05.* Unpublished manuscript. Office of Planning and Quality, University of Western Sydney, Penrith, NSW.

Scott, G. (2006): *Accessing the student voice: Using CEQuery to identify what retains students and promotes engagement in productive learning in Australian higher education.* DEST, available online: http://www.dest.gov.au/sectors/higher_education/publications_resources/profiles/access_student_voice.htm

Scott, G. & Alexander, S (2000): Online learning: rhetoric or reality? *Online Opinion*, available at: http://www.onlineopinion.com.au/view.asp?article=1004&page=1

Scott, G., Coates, H., & Anderson, M. (2008): *Learning leaders in times of change*. ALTC, Sydney, available at: http://www.altc.edu.au/carrick/webdav/users/siteadmin/public/grants_leadership_uws_acer_summary_june08.pdf

Scott, G. & Saunders, S. (1995): *The continuous learning improvement program for Australia's skill Olympians*. Workskill Australia, Sydney, available online: http://www.dsf.org.au/tools/66.htm

Scott G., Shah, M., Grebennikov L., & Singh, H., (2008): Improving student retention: A University of Western Sydney case study. *Journal of Institutional Research 14*(1), 1-23.

Scott, G. & Yates, W. (2002): Using successful graduates to improve the quality of undergraduate engineering programs. *European Journal of Engineering Education, 27*(4), 363-378.

Sharpe, R. & Benfield, G. (2005): The student experience of E-learning in higher education – a review of the literature. *Brookes e-Journal of Learning and Teaching, 1*(3), available online: http://www.brookes.ac.uk/publications/bejlt/volume1issue3/academic/sharpe_benfield.html!

Strother, J. (2002): An assessment of the effectiveness of E-learning in corporate training programs. *International Review of Research in Open and Distance Learning*, *3*(1), available online: http://www.irrodl.org/index.php/irrodl/article/viewArticle/83/160

Soutar, G. & Turner, J. (2002): Students' preferences for university: A conjoint analysis. *The International Journal of Educational Management, 16*(1), 40-45.

Sullivan, W. & Rosin, M. (2008): *A new agenda for higher education: Shaping a life of the mind for practice*. Carnegie Foundation for the Advancement of Teaching, San Francisco: Jossey Bass.

Sweeney, J., O'Donoghue, T., & Whitehead, C. (2004): Traditional face-to-face and web-based tutorials: A study of university students' perspectives on the roles of tutorial participants. *Teaching in Higher Education, 9*(3), 311-323.

Taylor, P. (2000): Changing expectations: Preparing students for flexible learning. *International Journal for Academic Development*, *5*, 107-115.

Tham, C. & Werner, J. (2005): Designing and evaluating E-learning in higher education: A review and recommendations. *Journal of Leadership & Organizational Studies*, available online: http://goliath.ecnext.com/coms2/gi_0199-3658992/Designing-and-evaluating-E-learning.html

Thomas, L. (2002): Student retention in higher education: The role of institutional habitus. *Journal of Education Policy, 17*(4), 423-442.

Tinto, V. (1999): Taking retention seriously: Rethinking the first year of college. *National Academic Advising Association Journal, 19*(2), 5-9.

Tinto, V. & Pusser, B. (2006): *Moving from theory to action: Building a model of institutional action for student success*. National Postsecondary Education Cooperative, Washington, DC, available online: http://nces.ed.gov/npec/pdf/Tinto_Pusser_Report.pdf

Tricker, T (2003): *Student expectations – how do we measure up?* Computing & Management Sciences, Sheffield Hallam University, available online: inter-disciplinary.net/tricker%20paper.pdf

Trigwell, K. & Prosser, M. (1991): Relating approaches to study and quality of learning outcomes at the course level. *British Journal of Educational Psychology, 61*, 265–275.

Twigg, C. A. (2003): New models for online learning: improving learning and reducing costs. *EDUCAUSE Review*, *38* (5), 28-38.

University of Adelaide (2006): *First year students' expectations of university study*. The School of Psychology & Centre for Learning and Professional Development, available online: http://www.adelaide.edu.au/clpd/resources/reports/FYexpectationsSurvey2006.pdf

University of Queensland (2003): *Teaching large classes project*, AUTC funded project, TEDI, UQ, Brisbane at: http://www.tedi.uq.edu.au/LargeClasses/pdfs/AUTC_final_report.pdf

University of Queensland (2008): *Next generation learning spaces*, at: http://www.uq.edu.au/nextgenerationlearningspace/

Upcraft, M., Gardner, J., & Barefoot, B. (Eds.) (2004): Chapter 1, Introduction. The first year of college revisited. In *Challenging & supporting the first-year student: A Handbook for improving the first year of college.* San Francisco: Jossey-Bass.

Vescio, J (2005): *An investigation of successful graduates in the early stages of their career across a wide range of professions*, University of Technology, Sydney, Final Report.

Watkins, C., Carnell, E., Lodge, C., Wagner, P., & Whalley, C. (2002): Effective learning in NSIN. In F. McNeil (Ed.) *Research Matters Series*. The University of London, Institute of Education, available online: http://k1.ioe.ac.uk/iseic/research.pdf

Watson Swail, S. (2006): *Barriers to student retention and success on college campuses*; and *A framework for student retention*. Educational Policy Institute, Virginia Beach, VA, available online: www.educationalpolicy.org

Wegner, S. B., Holloway, K. C., & Garton, E. M. (1999): The effects of internet based instruction on student learning. *Journal of Asynchronous Learning Networks*. 3(2), available online: http://www.aln.org/alnweb/journal/Vol3_issue2/Wegner.htm

Williford, A. M. & Schaller, J. Y. (2005): All retention all the time: How institutional research can synthesize information and influence retention practices. *Proceedings of the 45th Annual Forum of the Association for Institutional Research*. San Diego, 29 May – 1 June, available online: http://www.ohiou.edu/instres/retention/AIR2005RetentionPaper.pdf

Winchester, H. (2005). *Staffing issues for universities*. Paper presented at the 3rd Annual Higher Education Summit, Melbourne, 17–18 March 2005.

Yorke, M. (2000): Smoothing the transition into higher education: What can be learned from student non-completion. *Journal of Institutional Research, 9*(1), 35-47.

Yorke, M. & Longden, B. (2007): *The first-year experience in higher education in the UK. Report on Phase 1 of a project funded by the Higher Education Academy*, available online http://www.heacademy.ac.uk/FYEsurvey.htm

Zimitat, C. (2004): Changing student use and perceptions of technology, 2002-2004. *ASCILITE Conference Proceedings*. Perth, 2004, available online: www.ascilite.org.au/conferences/perth04/procs/zimitat.html

Zhao, C. & Kuh, G. (2004): Adding value: Learning communities and student engagement. *Research in Higher Education, 45,* 115-138.