

Usage of Online Assessment in the Faculty of Business: Report and Recommendations

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A report arising out of an LTEC funded project for the Faculty of Business [Project Code 1003450] on the nature and extent of usage of online assessment within the Faculty. This report details the findings of a survey of Faculty course examiners, three focus groups of academic staff from across USQ, and a review of assessment literature. It includes recommendations for heuristics for online assessment practice.

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EXECUTIVE SUMMARY

This paper examines important themes linked to online assessment and appropriate use of this assessment medium in the Faculty of Business. As things stand, there are some limitations to their use and some of these limitations are not always known or understood, such is the recency of this type of assessment. There is good theoretical and practical reason to propose that the application or adoption of the preceding recommendations to the Faculty's assessment practices would help substantially in addressing the issue of academic integrity in online assessment which currently challenges the Faculty.

The use of online assessment in higher education, in particular *computer mediated assessment* (CMA) and *online quizzes*, has been growing in response to pedagogical and organisational efficiency drivers and with the increasing availability of technology and online assessment software options. However, the use of online assessment is not without its challenges, and some of these challenges warrant investigation and resolution. The issues outlined in this report are experienced broadly across the education sector, though this study is limited in its inquiry to the Faculty of Business (survey) and to the USQ (focus groups).

This report is a requirement of a Faculty of Business LTEC funded project titled '*Bridging the gap between collaboration and cheating in online assessments: An exploratory study*'. The stated outcomes of the project were to conduct an online survey of Faculty of Business academic staff and focus groups to inform and report on:

1. the extent of usage of CMA's and electronic quizzes
2. what measures are used to minimise opportunities for cheating and collusion, and
3. propose guidelines which contain examples of resource and pedagogical best practices for the conduct of online assessments¹.

The issue was analysed within a framework of what Faculty of Business participants told us, what the broader USQ academic community told us, and what relevant literature told us. The structure of the report addresses these three foci.

Faculty of Business survey respondents reported mixed results in the use of online assessment although several issues emerged from the data, including concerns about its suitability for assessment purposes, concerns about the extent that academic misconduct can be controlled when using this assessment medium, and practical difficulties relating to how the assessment should be configured.

Three focus groups reported a range of views about various aspects of online assessment from which certain themes were distilled by the research team. Generally participants reported that the most effective solutions to academic misconduct are pedagogical; that technology is not a

¹ Specific Faculty of Business Guidelines and examples have not been prepared in light of Recommendation 7 that online assessment be referred to the LTSU for inclusion with the broader USQ investigation of assessment practices.

solution *per se* but rather it should be part of a set of techniques; and that the current disciplinary regime for academic misconduct is not a sufficient deterrent. Overall, focus group participants felt that academic misconduct is often activated by students' perceptions that they are unable to cope with workload and/or academic content, and therefore remedies must target this fundamental cause.

Another important theme coming out of focus group discussions was the difficulty in arriving at shared meaning across the University. Differences in interpretation extended even down to the defining characteristics of online assessment quizzes and CMA tests. However, and notwithstanding the above concerns, focus group participants favoured online assessment options for formative assessment rather than summative assessment.

Theory suggests that attempting to transfer traditional assessment techniques to the online mode also transfers the risk management issues to a mode in which it is arguably easier for collusion and academic dishonesty to occur. Another contentious issue from the literature is whether or not online assessment of the type examined in this report is sufficiently robust in terms of enabling examiners to assess learning competencies in an objective way.

Recommendations

From the nexus of theory and practice the following broad recommendations are proposed:

- 1 Online assessment can be used for either formative or summative assessment, but it is arguably more suited to formative assessment.
- 2 Online assessment should be viewed as one element in a repertoire of assessment techniques.
- 3 The objective of online assessment should be fundamentally pedagogical, not technological, nor staff workload management; i.e., the technology should be a tool in the service of the pedagogy.
- 4 Weighting of online assessment should form a minority proportion of total marks.
- 5 Academic misconduct in online assessment (as in other forms of assessment) should be viewed and managed as a student coping problem; technology can, to a limited extent only assist in reducing but not eliminating academic misconduct.
- 6 Online assessment should be designed specifically for that mode, not simply transferred from offline mode.
- 7 Online assessment should be referred to the LTSU for inclusion with the broader USQ investigation of assessment practices.

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1 INTRODUCTION

Use of online assessment in higher education, in particular *computer mediated assessment* (CMA) and *online quizzes*, has been growing in response to both pedagogical and organisational efficiency needs and with more electronic options becoming available. This project set about exploring and describing the extent to which this form of assessment is used in the Faculty of Business at USQ, what measures to address cheating and collusion in online assessment were employed by examiners; and to propose practical and pedagogically beneficial recommendations for future online assessments.

All Faculty of Business academic course examiners in Semester 2, 2009 were invited to participate in an online survey; three focus groups of participants from across the USQ academic community were conducted; and relevant assessment literature was reviewed.

2 THE EXTENT OF USAGE OF CMAs & ELECTRONIC QUIZZES

An online survey of Faculty of Business academic staff was conducted, to which almost one-third of course examiners (24 of 75) in Semester 2, 2009 responded. Six respondents were not using online assessment.

Survey Monkey was used to develop and deliver the survey, collect responses, and provide summary and aggregate data. The team found it to be cost effective and user friendly, and the accumulating data could be progressively monitored in real time during the period of the survey's online availability to respondents. Academic staff were invited, by email, to participate by accessing the provided link to the online survey. This was followed up with a reminder email half-way through the survey period.

The survey questions were grouped into three logically sequential sections: (a) the extent of use of online assessment; (b) the objectives in using online assessment; and (c) risk management. The rationale for this categorization was that by asking examiners what they are doing, why they are doing it, and how they address academic risk, it was anticipated that a comprehensive picture of online assessment practice in the Faculty of Business would emerge. In the end, the data did provide a picture which then led to a nexus with theory.

Three quarters of the respondents who were using online assessment described their rationale for doing so and their responses related to three broad purposes: primarily, motivating student engagement with course content; secondarily, scaffolding of learning; and least of all, summative assessment.

2.1 What the Faculty of Business academics told us: The survey analysis

Although the data was extensive and detailed there were significant numbers of non-responses throughout the individual surveys. Therefore, that qualification has to be borne in mind when interpreting the data and drawing conclusions from it. We were unable to determine whether the respondents formed a representative sample of all Faculty of Business course examiners. It may be that it was mostly examiners using online assessment who were motivated or felt able to respond to the survey or there may have been other unidentified factors involved.

Therefore, although we cannot generalize from this data, qualified but useful conclusions can be logically inferred.

Examiners in the Faculty of Business use a broad range of assessment techniques. Most use traditional techniques such as written assignments and invigilated exams, and almost one-third use online assessment. Of those using online assessment, approximately one-third are using each of online quizzes only, CMAs only, and both. The majority of online quizzes are weighted in the range of 5 – 10% and the majority of CMAs are weighted in the range of 5 – 30%. The main motives for respondents' decision to use either online quizzes or CMAs were similar: (a) promoting student engagement with course content, and (b) scaffolding of learning. Poor student study habits emerged as a concern (and a motive for using online assessment) through the various individual responses.

Most respondents shared the view that online assessment is a technique suited to both undergraduate and postgraduate learning. With some qualifications, such as weighting and higher/lower order thinking, two general themes ran through the responses: (a) scaffolding of learning, and (b) feedback.

Tables containing data from the survey responses are included in the Appendices part of this report.

2.1.1 Extent of usage of online assessment

Of the 24 respondents, 18 (75%) were using online assessment. Written assignments (92%) and Final Examinations (91%) were the other two most used types of assessment (refer to Table 1) Online quizzes (using Moodle) were the most commonly used type of online assessment (39%), however, CMA's were used by 33% and both online quizzes and CMA's by 28% of the respondents who used online assessments (refer to Table 2).

There was considerable variation in the weighting given to online assessments as a proportion of total assessment (refer to Table 3). For online quizzes it ranged from <5% (1 of 18) to 50-60% (1 of 18), with most falling within the 5-10% range. The range for CMAs was significantly narrower and more evenly distributed – from 5-10% (3 of 18) to 30-40% (1 of 18), with most falling within the 5-30% range.

Of the off-line forms of assessment used by respondents, most were using written assignments (20 of 24) and final exams (17 of 24); none were using mid-term exams. Most examiners of written assignments (18 of 20) were weighting them in the 20-50% range with two >60%. Most examiners of final exams (14 of 17) were weighting them in the 40-60% range, with one in the 30-40% range and 2 in the >60% range.

2.1.2 Objectives in using online assessment

Respondents who were using online assessment gave specific objectives for their use of this form of assessment. The main motives for respondents' *decision to use* either online quizzes or CMAs were similar to their *purpose in using* them. Fifteen of the 18 respondents (83%) described specific motives which can be grouped generally as relating to: (a) promoting student engagement with course content; and (b) scaffolding of learning. In relation to both groups of motives, poor student study habits were a theme running through the individual responses.

2.1.3 Risk management

Table 5 indicates the significant variance in a number of aspects of online assessments. The numbers of assessments per course varied significantly – from one to six. The periods between assessments were more consistent – from two to four weeks overall. The period for which assessments were available to students to access varied substantially – from as little as 24 hours to as long as the period from the beginning of the semester until the due date of the assessment. Respondents’ comments suggested that, as a whole, the wide variation in the structure and types of questions used in their assessment practice (and detailed in Table 6) reflects the varied nature of course content and respondents’ individual pedagogy.

3 WHAT MEASURES ARE USED TO MINIMISE OPPORTUNITIES FOR CHEATING & COLLUSION?

Online assessment is increasingly being adopted in the Faculty, mostly for formative assessment. Despite a few bright notes, academic risk in online assessment is viewed as problematic and longstanding, the pedagogical benefit of collaborative learning being lost to collusion for unfair advantage. A range of risk management methods are used with varying degrees of effectiveness.

3.1 What respondents said about cheating and collusion

Survey written responses show there is a clear understanding by respondents of the distinction between collaboration and collusion. Awareness of collusion or inappropriate collaboration in respondents’ courses was evenly divided, and collusion was viewed as extensive, longstanding, and encountered in the whole range of assessment techniques. Various actions were taken to locate and/or limit collusion. The measures which respondents believed would improve the *integrity* of online quizzes and CMAs were very similar to those they proposed for improving function. Proposed measures related broadly to assessment design and security, and linking students’ understanding of the purpose of assessment and course objectives.

3.2 What respondents said about academic integrity in online assessment

Table 7 indicates the questions the survey asked in relation to administering online assessment and the types of questions used by respondents. More than one half of the respondents (14 of 24) commented on their understanding of collusion. Whilst there was some qualification regarding the pedagogical efficacy of collaborative learning, the consensus was that collusion (about which the survey specifically enquired) essentially involves students working together, submitting essentially the same work and/or assisting each other to complete online assessments, for the purpose of gaining an unfair advantage. There was a clear distinction between (appropriate) collaboration and collusion.

Almost one half of respondents (10 of 24) were aware of collusion or inappropriate collaboration in their own courses and less than one half (7 of 24) were not aware. The former group’s comments indicated that collusion was extensive, longstanding, and was found across all types of assessment. A number of descriptions were given of the methods of collusion encountered, some of which were complex. The actions taken by respondents to locate and/or limit collusion covered a broad range, including:

- Warnings and policy reminders to students;
- Question and order randomization and large databases of questions;
- Time limits for tests, duration changes, and altered test times;
- Locating questions in multiple, consecutive screens;
- Restricting feedback access to limited post-test periods;
- Switching from quizzes to more controllable CMAs and to in-class tests; and
- Formal reporting procedures, such as TurnItIn.

Two responses were particularly interesting for different reasons. One respondent described the requirement for students to use their student ID number as a value in a particular assessment transaction. Their experience was that colluding students typically forget to change this one number and thereby expose their misconduct. Another respondent reported that study desk support and dealing with problems at that point reduces the need for students to collude. However, one half of all respondents believed that some collusive behaviour is unavoidable: a little more than one quarter of the respondents disagreed with this.

Respondents described a number of measures which they believed would improve the functioning of online quizzes and/or CMAs. They fell into these general groups:

- Assessment design (e.g. refreshing the assessments (questions, content), enlarging question banks, mixing question types);
- Assessment security (e.g. randomization, limiting access time, limiting the number of attempts, increasing supervision, technology use, and biometrics); and
- Linking students' understanding of the purpose of assessment and course objectives.

The measures which respondents believed would improve the integrity of online quizzes and/CMAs were very similar to those they proposed for improving function. As was a recurring sub-theme throughout the data, the fundamental question was raised about whether this form of assessment is suitable to either testing (summative) or better suited to engaging students (formative).

4 EXAMPLES OF RESOURCE & PEDAGOGICAL BEST PRACTICES FOR THE CONDUCT OF ONLINE ASSESSMENTS

Any attempt to either synthesise or summarise the views of practitioners across the University invariably experiences difficulties in finding shared terminology and meaning, and the investigation of online assessment has encountered this same challenge. Nevertheless, using a common format to conduct three focus groups, which included practitioners from all Faculties and learning and teaching-related sections of the University, the researchers were able to identify some key themes from focus group participants' comments, and arrive at some common understandings.

4.1 What the USQ academic community told us: focus group feedback

Feedback reflects a considerable diversity of practice in the use of online assessment techniques across campus. In some areas practitioners are moving away from paper based assessment, aiming ultimately for entirely online assessment; however, this trend is not shared by all, even within the same disciplines. In other areas of the University, considerable diversity of assessment techniques is the norm. These include traditional forms and online

forms, and the techniques are mixed according to the needs and purposes of individual academics and their courses. There is also diversity in the application of those techniques to either formative or summative assessment.

Online assessment is generally viewed as more useful for formative assessment, where two quite different rationales emerge (engagement and scaffolding), rather than for summative assessment. Among those courses where collaboration is part of students' normal coursework, participants reported that collusion is less of a problem. There was support within the respective focus groups that collusion can be turned into collaboration, but it was also reported that the larger the classes the less practical collaborative learning becomes. In addition, participants felt that policing plagiarism and cheating is not taken seriously enough to be effective.

Participants reported considerable frustration in dealing with academic integrity in online assessment. Keeping the workload manageable for students was thought to be a useful contributor towards a remedy and one specific technique which has been found to be particularly effective in this respect is the use of the progress bar on course Study Desks.

Academic dishonesty in online assessment is generally regarded as manageable, though participants felt a certain amount is inevitable: reduction to acceptable levels rather than elimination was the preferred strategy.

There were also reservations expressed about assessing for recall rather than testing students' ability to understand and link concepts. Comments offered on this matter reflected that motives for using online assessment are sometimes more aligned with minimizing marking loads (a workload/efficiency measure). That is, there were (perceived or actual) pressures to adopt online assessment for financial/efficiency reasons and hope that pedagogical gains followed.

Other issues were identified, including difficulties with ensuring all students understand what the actual assessment deadline time is, the need to define words in the assessment that students particularly need to understand, such as 'assess', 'describe', 'discuss'; and unequal online access in some parts of the world (see USQ Assessment Policy, 2009, sect.5.6.5, subsect.2).

A statement from one focus group participant summed up the most common views and practices of participants generally - **'Use online assessments minimally, use it formatively, and expect some academic dishonesty.'**

4.2 Themes & common understandings from focus groups

A number of themes and common understandings emerged from the focus groups which aligned (to varying degrees) with practice within the Faculty of Business:

- There is considerable diversity in the type and application of online assessment techniques, ostensibly in both formative and/or summative assessment.
- Technological means of dealing with cheating and plagiarism are not sufficiently effective.

- Further reduction in academic misconduct must include a broader suite of remedies, involving a wider discussion across the university community.
- The diversity in learning backgrounds of many of our (especially international) students and substantial variation in levels of English literacy will require other interventions.
- Obstacles to greater effectiveness of online assessment include varying degrees of literacy with students, whereby long-standing assumptions by examiners about student English proficiency are being challenged.
- The repertoire approach to assessment could assist to the accommodation of different learning styles.
- The Faculty of Business has a number of different applications and associated issues because of its higher number of external and partnership international students.
- Strong support for continuing the dialogue (at the University level) which has been commenced about assessment

Findings show quite clearly that both Faculty of Business survey participants and University focus group participants find online assessment very challenging pedagogically and practically. Online assessment is used for both formative and summative assessment, but the academic dishonesty issues tend to be more prevalent when summative assessment is used and weightings for this type of assessment are towards the higher end (i.e. above 20% of the total assessment weightings for the course). In other words, if the online assessment weighting is higher, then the perceived risk factor by students will be higher and there will be a greater likelihood of dishonesty.

The overall findings provide some confidence that incidents of academic dishonesty which lies at the heart of this paper can be moderated essentially through an ongoing discussion and synthesis across the USQ community.

5 THEORY & LITERATURE

Current theory relating to online assessment reflects that there may be pedagogical and organizational efficiency benefits available through online assessment techniques. The nexus of theory and practice in the context of the business discipline specifically and across disciplines more generally at USQ suggests there is a need for some guiding principles in the design and application of online assessment. This section of the report describes what theory has to contribute to practice, and how the nexus of theory and practice might be most effectively applied.

5.1 What the literature told us: Current theory of online assessment

Online assessment forms part of a potentially more student-centred and technology-mediated mode of learning and teaching. The purpose and nature of assessment therefore depends upon the purpose and nature of the web site and the course/s which they host. The ‘signature characteristic’ of online delivery is ‘the ability to provide asynchronous, interactive learning’ (Hricko & Howell, 2006, p. 2) and there have been a number of reported benefits for both students and academics together with drawbacks (O’Rourke, 2010; Dermo, 2009). As this study examined online assessment in the Faculty of Business, we have reviewed a range of

literature relating to technology-mediated assessment generally. For the purpose of this study it is necessary to make the distinction between online assessment of learning and assessment of online learning because it is solely the former that this study addressed.

5.2 Defining online assessment

Online delivery in the Faculty of Business covers the three types of online courses consistently described in the literature (for example, Bober, 1998; Conrad & Donaldson, 2004; Palloff & Pratt, 2001; Rogers, 2000). They are:

- Courses ‘with material placed on a web site, but with little or no interaction between students’;
- ‘Web-enhanced courses, with both face-to-face meetings and Web-delivery’; and
- ‘Web-centric courses, which are interactive and delivered exclusively on the Web.’ (Hricko & Howell, 2006, p.3)

Educators and researchers, for example Bauer and Anderson (2000), Boettcher and Conrad (1999), Hartley and Collins-Brown (1999), and Morley (2000), have increasingly been examining the nature and practice of assessment in online pedagogy. The measurability of outcomes is a major factor in the credibility and accreditation of online courses. The movement to online delivery involves shifting to unfamiliar materials and creation of new types and ways of, or redefinition of, assessment. The ways in which the online mode delivers formative and summative assessment differ from traditional off-line modes, and have proven problematic in the scholarship and practice of online delivery. The development of this scholarship and practice has been complicated by the various interchangeable terms for online learning in use: Online learning; e-learning; virtual learning; networked learning; Web-based and computer-mediated learning; and technology-assisted distance learning (Barker, 1999; Goodyear, 2002; Graham, Scarborough, & Goodwin, 1999; MacDonald, 2002; Twigg, 2001).

5.3 Describing online assessment

The paradigm shift in education over the past decade has involved both pedagogy (from instructivist to constructivist) and technology (classroom to online) (Sim, Holifield & Brown et al, 2001). To achieve effective online assessment, there are certain must haves, including but not limited to the following: that assessment instruments fit the delivery mode, and the mode is substantially and increasingly learner-centred; simply transferring assessment instruments from traditional modes to online is no guarantee that learners will/will not be able to demonstrate learning nor that examiners will necessarily be able to verify that students have met course objectives (Drummond, 2003).

There are different types of online assessment, and it is important to be clear about particular distinctions when planning them. In particular, the overarching question in the design phase should be ‘what is the assessment objective?’ Cook and Jenkins (2010) have commented on the main types of assessment as being **diagnostic assessment** for determining such things as placement or remedial work that is required; **formative assessment** to gauge how much has been learned; and **summative assessment** which measures student learning (usually at the end of a program of study). It is also important to distinguish between **low stakes**, **medium stakes** and **high stakes** in terms of the assessment weighting and whether the assessment is to be **synchronous** (done by all the students at the same time) or **asynchronous** (which can be

done at any time in a specified period). A further consideration may be whether the undertaking of the assessment will be invigilated or un-invigilated.

One of the presumed benefits of online assessment is efficiency savings for the institution and flexibility for learners. However, there is a potential for efficiency savings to be off-set initially by the costs of assessment redevelopment and risk management. Such off-sets can become recurrent if not resolved. Most online assessment occurs asynchronously, that is, without the teacher's presence, thereby potentially making risk management more time consuming. Synchronous assessment can reduce risk, and delivery at student-service centres/sites can assist in preserving efficiency gains, though this revelation is more informed by anecdotal accounts than robust research.

As with traditional assessment, online assessment encompasses a range of assessment types and there is no single best assessment type or technique. The 'validation of learning and the verification of student assessment' are significant challenges increasingly focused upon by scholars and practitioners of online assessment (Hricko & Howell, 2006, p.17). Validation in online assessment includes an awareness of the distinction between 'the evaluation of the effectiveness of the learning and the functionality of the medium' when quantifying online learning (Graham, Scarborough, & Goodwin, 1999, § F). There is debate about the usefulness of direct comparison of online and off-line student results in the light of the two different pedagogical regimes; nevertheless the exercise in comparison is arguably academically healthy. In making the comparison it is incumbent upon scholars and practitioners to take into account what and how abilities are in fact assessed, given the differences between the traditional and online modes.

Whilst popular among practitioners and well suited to online delivery, multiple-choice and short answer questions in online assessment are increasingly questioned by some scholars. The prevailing view in the literature is that written assessments better demonstrate competency. 'Examples of authentic and alternative assessment strategies for online engaged learners include discussion analysis, activity rubrics, team assessment, and reflective self-assessment' (Conrad & Donaldson, 2004, in Hricko & Howell, 2006, p.20). 'Appropriate assessment strategies for continuous writing and reflection may include electronic portfolios, journals, and peer reviews' (Hricko & Howell, 2006, p.20).

5.4 Usefulness & reliability of online assessment

The usefulness and reliability of online assessment results relates to the clarity, specificity, and articulation of assessment purposes, goals, and criteria. These are initially labour-intensive for examiners to develop but ultimately the benefits seem to be worth the effort, again according to anecdotal evidence. Conrad and Donaldson (cited in Hricko & Howell, 2006, p. 21) suggest '...that the greatest challenge in assessing an online engaged activity is determining the quality of thought expressed'. Little is known about how to measure this outcome. The Assessment of group learning online may be easier but still technologically problematic. In assessing learner-learner, learner-teacher, and learner-content interaction rubrics are useful for assessing content, expression, and participation (Bauer & Anderson, 2000); Conrad & Donaldson, 2004). This, in turn, requires learners to develop their autonomy.

The importance of validity i.e. does the online assessment measure what it is designed to measure, has been raised by Dennick, Wilkinson and Purcell (2009). They suggest that the most important elements for online testing are content validity (does it test, measure and sample relevant learning objectives or outcomes?); construct validity (does it test measure an underlying cognitive trait such as intelligence?); and face validity (does it seem like a fair test to the candidates?).

5.5 Cheating and plagiarism

Academic malpractice can be considered from a three pronged approach:

- **Ethics** – which is a virtues approach based on the establishment of an agreed code of proactive behavior which can be circulated in a transparent process to both students and staff
- **Engineering** – which is a prevention approach involving things such as reducing access to previous tests, limited access to materials that can be used during the test, collusion etc.
- **Enforcement** – a policing approach such as using statistical analysis after a test to detect when the answer patterns are unlikely to be similar by chance etc. (Dennick, Wilkinson, & Purcell, 2009, pp.200-1).

Cheating and plagiarism are two of the most frequent and controversial issues which arise in the literature. Cheating describes ‘all deceptive and unauthorized actions’ by students, whilst plagiarism describes ‘the reproduction and presentation of others’ work, without acknowledgement, or the attempt to receive credit for the ideas or words of others’ (Hricko & Howell, 2006, p.25; p.27). There is a view in the literature that online delivery inherently lends itself to cheating and plagiarism.

Ten key characteristics of effective online assessment feature in the literature, viz.

- i. A clear rationale and consistent pedagogical approach
 - ii. Explicit values, aims, criteria, and standards
 - iii. Relevant authentic and holistic tasks
 - iv. Awareness of students’ learning contexts and perceptions
 - v. Sufficient and timely formative feedback
 - vi. A facilitative degree of structure
 - vii. Appropriate volume of assessment
 - viii. Valid and reliable
 - ix. Certifiable as students’ own work
 - x. Subject to continuous improvement via evaluation and quality enhancement.
- (Morgan & O’Reilly, 2006, pp.86-87)

Whilst Morgan and O’Reilly (2006) recognize that these ten characteristics are not unique to assessment in the online mode, the transfer of ‘old thinking and old practices, which no longer readily apply to this newer medium’ raises particular issues and implications for assessment design and management in the online mode (Morgan & O’Reilly, 2006, p.99). An awareness and acceptance that assessment is not a terminal event following teaching and greater diligence in measuring learning can facilitate the transfer from the traditional to the contemporary mode.

Assessment is not just a measure of the student's 'tank of acquired knowledge' – it is simultaneously formative and summative and assessment practices need to be designed accordingly. Formative assessment involves assessing students directly in the context of their learning in order to give them feedback on their progress and the online environment is ideally suited to this form of assessment as it is relatively straightforward to provide students with access to a variety of self-assessments and students can take formative assessments in their own time without elaborate security and without the need for invigilation (Dennick, Wilkinson, & Purcell, 2009, p.194).

Avenues for potential security breaches can be broken into two broad categories: external security and internal security. This inevitably involves issues of 'who should have access?' and 'preventing cheating'. The importance of summative assessment leads some students to cheat or collude, especially as the weighting of the assessment increases.

6 CONCLUSIONS

6.1 The nexus of practice and theory

Online assessment as it is apparently practiced in the Faculty of Business and across the University is experiencing mixed results with the experience tending to be more negative (problematic) than positive (achieving intended outcomes). Validity of student outcomes is a significant source of concern among examiners and is significantly reducing efficiency gains.

There is a range of views about how the online mode can best be utilized for assessment, and traditional assessment techniques remain the most commonly used. Theory suggests that a paradigm shift is necessary for the transfer from traditional to online assessment to be effective. It also suggests that attempting to transfer traditional techniques to the online mode also transfers the risk management issues to a mode in which it is, arguably, easier for academic dishonesty to occur; reconceptualisation and redesign of assessment forms is necessary. Faculty of Business and University practitioners are finding that, as the literature describes, initial development of online assessment is labour intensive but there are worthwhile consequential benefits.

Current assessment practice in the Faculty of Business tends to be transferred from the traditional to the online mode and practitioners are, to varying degrees, experiencing the consequent challenges the literature predicts, and current online assessment theory has some recommendations to make about online assessment.

6.2 What theory can offer practice

Schuttler and Burdick (2006, p.167) proposed an approach which addresses the potential for plagiarism and cheating in online assessment. They advocate assessing in two domains – cognitive (content) and affective (application in context). This approach is effective in any content area (including quantitative) as it goes beyond 'rote assessment methodologies' by asking students to demonstrate what they know by demonstrating their ability to apply it. This approach also moves away from assessment techniques such as multiple-choice tests and summary essays. The integration of affective and cognitive learning in active learning can be

engendered where teachers are reconceptualised as facilitators and students as learners. Taking that approach, rubrics are an effective technique for applying criteria-based assessment of the intersection of cognitive and affective learning – authentic assessment.

Perpetuating current Faculty of Business assessment practices will continue to perpetuate the current challenges. Reconceptualising assessment practice and redeveloping assessment techniques can pave the way for a Faculty-wide authentic assessment approach which can, in turn, minimize the challenge of academic integrity in students' work. The techniques of authentic assessment are not new; what is new is how authentic assessment is designed in the online mode. Simply transposing traditional off-line techniques (such as quizzes and multiple choice tests) to the online mode can be expected to perpetuate the academic integrity challenges experienced to date.

Technology and instructional design are the other two areas which offer solutions to the academic integrity challenge. Technological solutions are complex and have limited effectiveness. Based on current technology, these techniques (such as randomization, access control, identification, and content matching software) cannot go much further; they are reactive solutions. Howlett and Hewett (2006, p.322) suggest that 'In many cases, an effective instructional design strategy is an effective cheating reduction strategy', however, instructional design, they posit, is a vehicle for three approaches which can collectively minimise online academic dishonesty, viz.:

- the virtues approach (such as honour codes, communication),
- the prevention approach (such as technological techniques, developing student self-efficacy, adjusting grading strategies, improving teacher-student communication), and
- the policing approaches (detection and pursuit).

Whilst not a solution in itself, the *virtues approach* has been found to be surprisingly effective. The Centre for Academic Integrity (2002-2003) in the United States found that honour codes are linked with cheating reductions of from ¼ to ½ in different forms of assessment. In relation to communication, Whitley and Keith-Spiegel (2002) recommended specifically tailored explanations to students of what does or does not constitute cheating to the type of assessment.

The *prevention approach* offers the most potential for reducing cheating by addressing the *motives for cheating*. Identification with the educational institution, self-efficacy, highly evaluative classrooms, and a sense of isolation (more problematic online) are the more common influences behind cheating (Finn & Frone, 2004). Moving away from a competitive culture and a sense of evaluative threat reduces the incentive to cheat. This can be achieved by helping students to understand what they will be accountable for and using a variety of forms of assessment and multiple assessments (Howlett & Hewett, 2006).

The *policing approach* can involve some of the most stressful and least effective strategies for teachers and students alike. Policing and communication of policing to students have to be vigorous and be seen to be vigorous to be effective. The perception that detection of and/or discipline for cheating is a low risk makes this approach the least effective. Never-the-less, it

provides a monitoring and discipline component, in conjunction with assessment supervision, for a collective instructional design approach.

7 RECOMMENDATIONS

The following recommendations are offered regarding the more effective use of online assessment in the Faculty of Business of Business:

- 7.1 Online assessment can be used for either formative or summative assessment, but it is arguably more suited to formative assessment.

Examiners need to be made aware of the distinction, and they need to determine at the outset which usage is most applicable to their course(s) and the objectives which they are trying to meet. The decision is important because different heuristics need to be developed to accompany each approach. If the intention is to engage students and provide ongoing feedback, then a formative approach is most suited and a level of collusion and collaboration should be expected tolerated. If the intention is to use the outcomes to grade the students, then a summative approach is most suited and a higher level of security and validity issues will be involved to ensure integrity of the assessment processes.

- 7.2 Online assessment should be viewed as one element in a repertoire of assessment techniques.

The point is linked to the above. When online assessment is used for summative assessment purposes, it should be used in combination with other assessment regimens such as written assignments and examinations. When used for 'engagement' purposes, where the Examiner's primary interest is in getting students to engage with or revisit course materials during the semester, the repertoire-approach is less an issue.

- 7.3 The objective of online assessment should be fundamentally pedagogical, not technological, nor staff workload management; i.e., the technology should be a tool in the service of the pedagogy.

The study revealed a concern that online assessment had acquired increased popularity as an assessment option because it dispensed with or reduced substantially the need for markers and thereby reduced course costs. The evidence is that online assessment should not merely be transferred from a paper based approach (with multiple choice, true/false etc type questions) and is therefore both time consuming and costly to prepare. A fuller investigation of the pros and cons of online assessment (i.e. an education program) regarding its effectiveness is recommended here.

- 7.4 Weighting of online assessment should form a minority proportion of total marks.

Where the perceived gains from collusion and other errant student behaviours are substantial, the probability of engaging in these undesirable behaviours is higher if the risk is perceived as being higher by the student, i.e. the higher the value of the online assessment the higher the risk of errant behaviour. One of several useful strategies which target (mis)perceptions is to limit the weighting of online assessment items. The general feeling of the focus groups is that online assessment should not exceed 15% of the overall weighting for a course. Examiners who establish a sound

case for exceeding the 15% maximum could be accommodated, and this could be managed within the respective Schools.

- 7.5 Academic misconduct in online assessment (as in other forms of assessment) should be viewed and managed as a student coping problem; technology can, to a limited extent only assist in reducing but not eliminating academic misconduct.

7.5.1 Student coping remedies can be addressed within the Faculty of Business (e.g. the creation and maintenance of ongoing dialogues between the Examiner and students via activity on discussion forums, emails etc., though there must be an acceptance that some students choose not to engage regardless of the Examiner's endeavours), and outside the Faculty of Business (e.g. Student Services and other student support offices on campus).

7.5.2 The issue of technology being able to limit academic misconduct is not clear-cut. Online quizzes may limit the opportunity to plagiarise for instance, but they also lend themselves to group involvement/problem-solving, when the intention is typically/historically to assess individual student's familiarity or understanding of course content. Appropriate weighting of assessment should assist in limiting the appeal of group involvement, but an alternative strategy may be to set up online assessment to enable group problem-solving where this aligns with assessment objectives (this 'fits' more readily when the assessment is used primarily for engagement purposes).

- 7.6 Online assessment should be designed specifically for that mode, not simply transferred from offline mode.

This point goes to awareness of strengths and limitations of alternative assessment strategies and techniques. There are pockets of experience and expertise already set up outside the Faculty of Business but within the USQ precinct, whose members have expressed interest in guiding and assisting Faculty of Business members on this matter. These repositories of expertise on campus extend to best practice in both assessment design and assessment security.

- 7.7 Online assessment should be referred to the LTSU for inclusion with the broader USQ investigation of assessment practices.

Trial and experimentation with online assessment occurs within the Faculty of Business and the broader USQ community in an ad hoc way. At this point there is no organizational learning or no conduit for the learning outcomes from these enclaves. Participants in the focus groups wanted to continue the dialogue about online assessment, but ideally as part of a broader USQ assessment focus. Dr Sara Hammer in the LTSU has a mandate for investigating assessment and it recommended that she be asked to include the discussions and findings from this project into her investigation.

8 APPENDICES.

Table 1
All Types and Extent of Assessment Used

Assessment type	Number of users	Proportion of respondents %
Online assessment (quizzes & CMAs)	18	75
Written assignments	22	92
Mid-term examinations	0	0
Presentations / Seminars	1	6
Development of a research poster/protocol	1	6
Final examinations	19	91

Table 2
Types of Online Assessment Used

Assessment type	Number of users	Proportion of users of online assessment %
Online quizzes (using Moodle)	7	39
CMAs only	5	33
Both online quizzes and CMAs	6	28

Table 3 *Weighting of Online Assessment*

Assessment type	Range	Number of respondents per respective range	Range within which the most weightings fell
Quizzes	<5% to 50-60%	1; 1	5-10%
CMAs	5-10% to 30-40%	3; 1	5-30%

Table 4
Objectives for Use of Online Assessments

Objective	Number of users of online assessment	Proportion of users of online assessment %
Get students to keep up with course work and readings	14	82
Get students to revisit course content at regular intervals during the semester	12	71
Vary assessment to accommodate different learning preferences	9	53
Enable the testing of a broad spread of topics and areas	8	47
Get students to collaborate on assessments	2	12
To give feedback to assist students with their learning	1	6

Table 5***Frequencies of Online Assessments***

Assessment type	Online quizzes	CMA's	Total
Number of assessments	1 – 6	1 – 5	
Period between assessments	2 – 4 weeks	2 – 3 weeks	
Period of availability			From 24 hrs. to, in 1 instance, from the beginning of semester until the due date

Table 6***Question Structure in Online Assessment***

Questions	No.	Types of questions used	Proportion of all respondents	
			/24	%
Number of questions in either quizzes or CMA's	10 – 40	Multiple choice	15	63
		True/false	11	46
Number of questions per viewable page/screen	1 - all	Short answer	5	21
		Random short-answer matching	2	8
		Numerical	6	25
		Matching	2	8
		Essay	1	4
		Description	1	4
		Calculated	6	25

Table 7***Administering Online Assessment***

Survey questions	Proportion of all respondents			
	Yes		No	
	/24	%	/24	%
Do all of your students have the same type of assessment?	12	50	3	13
Do you allow resetting of assessments where there has been disruption:				
To the network or other technical issues?	12	50	3	13
By other than network or other technical issues?	10	42	3	13
Do you give extensions for:				
Online quizzes?	4	17	7	29
CMA's?	3	13	5	21
Do you randomize questions within online quizzes?	13	54	2	8
Do you allow each student more than one attempt per online quiz or CMA?	1	4	14	58
When using online quizzes:				
Do you set feedback options at the same settings for each quiz?	11	46	0	0
Have the IT experts been involved in discussions with you to clarify the risks associated with different settings?	5	21	6	25

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