USEFULNESS AND RELIABILITY OF ONLINE ASSESSMENTS: A BUSINESS FACULTY'S EXPERIENCE

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ABSTRACT

The usefulness and reliability of online assessment results relate to the clarity, specificity and articulation of assessment purposes, goals and criteria. Cheating and plagiarism are two frequent and controversial issues that arise and there is a view that the online assessments mode inherently lends itself to both these practices. However, reconceptualising practice and redeveloping techniques can pave the way for an authentic assessment approach which minimizes student academic dishonesty. This article describes research which investigated online assessments practice in a business faculty at an Australian university and proposes what might constitute good, sustainable practice and design in university online assessment practices.

Keywords: online assessment; cheating; collusion; online pedagogy; academic dishonesty

INTRODUCTION

This paper examines important themes linked to online assessments and the appropriate use of this assessment medium in the business faculty of an Australian university. The use of online assessments 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 assessments is not without its challenges, and some of these challenges warranted investigation and resolution. The issue was analysed within a framework of what faculty participants told us; and then what the broader university academic community and relevant literature told us.

Faculty survey respondents reported mixed results in the use of online assessments 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 concerns about practical difficulties relating to how the assessment should be configured.

Three focus groups from across the university were then used to elicit broader comments and views about aspects of online assessments and themes which were distilled from the literature and the faculty survey. Generally, participants reported that the most effective solutions to academic misconduct are pedagogical; that technology is not a 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.

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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. An example of such a difficulty was differences in interpreting and defining the characteristics of online assessment quizzes and CMA tests and interchangeable use of the names of both.

CURRENT THEORY OF ONLINE ASSESSMENTS

Current theory relating to online assessments reflects that there may be pedagogical and organizational efficiency benefits available through online assessment techniques. This section describes what theory has to contribute to practice, and how the nexus of theory and practice might be effectively applied.

Online assessments form 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). Because this study examined online assessments in a faculty, we 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 addresses.

Defining and describing online assessments

Three types of online courses are consistently described in the literature (Bober 1998; Conrad & Donaldson 2004; Palloff & Pratt 2001; Rogers 2000): firstly, courses 'with material placed on a web site, but with little or no interaction between students'; secondly, 'Web-enhanced courses, with both face-to-face meetings and Web-delivery'; and thirdly, '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 examined 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 the 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 in use for online learning: 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).

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 assessments, there are certain 'must haves', including but not limited to the following: that assessment instruments should fit the delivery mode

which are increasingly learner-centred; and simply transferring assessment instruments from traditional modes to online is no guarantee that learners either will or will not be able to demonstrate learning; nor will examiners necessarily be able to verify that students have met course objectives (Drummond 2003).

There are different types of online assessments 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) 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 assessments is efficiency savings for the institution and flexibility for learners. However, there is 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 making risk management potentially 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 assessments encompass 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 that are being increasingly focused upon by scholars and practitioners of online assessments (Hricko & Howell 2006, p.17). Validation in online assessments 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). Although 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, the 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 modes and online modes.

Usefulness, reliability and validity of online assessments
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, according to anecdotal evidence, seem to be worth the effort. 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, that is, 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?).

Academic malpractice—collusion, cheating and plagiarism

Academic malpractice can be considered from a three pronged approach. The first approach is *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. The second approach is *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. The third approach is *enforcement* which tends to be a policing approach such as using statistical analysis after a test to detect when the answer patterns are unlikely to be similar by chance (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.

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 that is placed on summative assessment leads some students to cheat or collude, especially as the weighting of the assessment increases.

OVERALL METHODOLOGICAL APPROACH

The research project set about exploring and describing the extent to which online assessments are used in a business faculty; what measures to address cheating and collusion in online assessments were employed by faculty examiners; and to propose practical and pedagogically beneficial recommendations for future online assessments.

An online survey of faculty academic staff was conducted of almost one-third of course examiners (24 of 75) for the selected semester. Six respondents were not using online assessments. 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 and this could be done by them accessing a 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: the extent of use of online assessments; the objectives in using online assessments; and 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 assessments practice in the faculty would emerge. Overall, the data gave an overview which was a nexus to the theory and which also provided a basis for conducting focus groups to elicit broader comments and perspectives.

Using a common format to conduct three audio-recorded focus groups, which included practitioners from all other faculties in the university as well as learning and teaching-related sections of the university, the researchers were able to identify some key themes from transcripts of the focus group participants' comments, and arrive at some common understandings.

DATA ANALYSIS AND RESULTS

What the survey respondents revealed

Although the data was extensive and detailed there were significant numbers of non-responses throughout the individual surveys. Therefore, this 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 course examiners. It may be that it was mostly examiners using online assessments 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 use a broad range of assessment techniques. Most use traditional techniques such as written assignments and invigilated exams, and almost one-third use online assessments. Of those using online assessments, 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 assessments) 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.

Three-quarters of the respondents who were using online assessments 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.

Extent of usage of online assessments. Of the 24 respondents, 18 (75%) were using online assessments. Written assignments (92%) and final examinations (91%) were the other two

most used types of assessment. Online quizzes (using Moodle) were the most commonly used type of online assessments (39%), however, CMAs were used by 33% and both online quizzes and CMAs by 28% of the respondents who used online assessments.

There was considerable variation in the weighting given to online assessments as a proportion of total assessment. 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.

Table 1: Objectives for Use of Online Assessments

Objective	Number of users of online assessments	Proportion of users of online assessments %
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

Objectives for using online assessments. Respondents who were using online assessments gave specific objectives for their use of this form of assessment (refer to Table 1). 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.

Risk management. Despite a few bright notes, academic risk in online assessments 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.

Whilst the number 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 reflects the varied nature of course content and respondents' individual pedagogy.

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.

What respondents said about academic integrity in online assessments. Table 2 indicates the questions the survey asked in relation to administering online assessments 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.

Table 2: Administering Online assessments

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:	12	50	3	13
To the network or other technical issues?	10	42	3	13
By other than network or other technical issues?				
Do you give extensions for: Online quizzes?	4	17	7	29
CMAs?	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

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 unaware. 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 three broad 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 testing (summative) or better suited to engaging students (formative).

Three-quarters of the respondents who were using online assessments 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.

What focus group participants revealed
Any attempt to either synthesise or summarise the views of practitioners across a university invariably experiences difficulties in finding shared terminology and meaning, and the investigation of online assessments encountered this same challenge. Nevertheless, feedback reflected a considerable diversity of practice in the use of online assessment techniques. In

some areas, practitioners are moving away from paper based assessment, aiming ultimately for entirely online assessments; 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.

A number of themes and common understandings emerged from the focus groups:

- 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 (especially international) students and substantial variation in levels of English literacy will require other interventions.

- Obstacles to greater effectiveness of online assessments 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 in the accommodation of different learning styles.

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.'

Findings show that both faculty survey participants and university focus group participants find online assessments very challenging pedagogically and practically. Online assessment are 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.

What theory can offer practice. Assessing in two domains—cognitive (content) and affective (application in context)—is an effective approach 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 (Schuttler & Burdick 2006). 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.

Reconceptualising assessment practice and redeveloping assessment techniques can pave the way for an 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 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. Current 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'. Howlett and Hewett (2006) also posit that instructional design 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.

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

CONCLUSIONS

Online assessments should be designed specifically for that mode, not simply transferred from offline mode. However, there are 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 assessments 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 and university practitioners are finding that, as the literature describes, initial development of online assessments is labour intensive but there are

worthwhile consequential benefits. Online assessments should be designed specifically for that mode, not simply transferred from offline mode.

Online assessments 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 or 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.

Online assessments should be viewed as one element in a repertoire of assessment techniques. The point is linked to the above. When online assessments are used for summative assessment purposes, they should be used in combination with other assessment regimes 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.

The objective of online assessments 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 assessments had acquired increased popularity as an assessment option because it dispensed with or reduced substantially the need for markers and thereby reduces course costs. The evidence is that online assessments 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.

Weighting of online assessments 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 assessments 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 was that online assessments should not exceed 15% of the overall weighting for a course, although examiners who establish a sound case for exceeding the 15% maximum could be accommodated within their respective discipline areas.

Academic misconduct in online assessments (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. Student coping remedies can be addressed by 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.

Finally, 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 assessments to enable group problem-solving where this aligns with assessment objectives (this 'fits' more readily when the assessment is used primarily for engagement purposes).

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