



Rethinking teaching and assessment strategies for flexible learning environments

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This study explored how eight university lecturers adapted and developed their classroom based teaching and assessment strategies for the online environment. Ramsden's (2003) framework for evaluating and recognising effective teaching, which assists lecturers to reflect on their practice, was used to guide the literature review and to gather examples of online teaching and assessment strategies. The examples were evaluated according to good practice principles drawn from the literature. This is a limited study, and the results were used to inform a professional development programme in flexible learning.

Keywords: online teaching practice, online teaching strategies, online assessment

Introduction

In my role as academic advisor, I held an *online learning clinic* for lecturers who wished to discuss their teaching practices using the Blackboard Learning Management System (LMS). A few lecturers expressed their concern about students not fully participating in the online environment and were not sure how to overcome this difficulty. They wanted to ensure that the quality of learning students received in the classroom, was the same in the online environment. In contrast, other lecturers expressed their delight at the level of student participation in the online environment. I began to wonder if and how changes in lecturers' teaching practice had affected their confidence. Brennan (2003) suggests that when lecturers transfer teacher-centred practices to the online environment, negative effects on student learning are a common occurrence, bringing about a crisis in teacher confidence. The literature suggests lecturers moving to online environments would like access to others experiences in developing online teaching and learning resources, including examples of how it works and what is possible (Milne & White, 2005; Torrisi-Steele & Davis, 2000). I decided to gather examples of teaching strategies from lecturers within the university, who had experienced adapting and developing their courses over time, to determine elements of good online teaching practice. My desire to support lecturers to adapt and develop their teaching practice for the online environment without anxiety, was the impetus for this study.

Literature review

Two pedagogies commonly found in tertiary education today, are the teacher-centred and student-centred approaches. At any point in time, teachers may adopt one approach entirely, or use a combination of approaches. However, Ramsden (2003) suggests lecturers' teaching approaches should be conceptualised in relation to students' learning approaches. An alternative to the traditional, teacher-centred approach, is the contemporary or student-centred approach to learning. Ramsden (2003) describes this as an approach based on conceptual change and development, associated with students taking a deep approach to learning. Laurillard (2002, p. 190) describes student-centred teaching as finding ways of "enabling students to emulate the scholar". The lecturer's role changes from communicator of knowledge to facilitator, supporting students in developing metacognitive (thinking and learning) processes (Isackson, 1999; McFadzean & McKenzie, 2001; Torrisi & Davis, 2000).

The social constructivist paradigm is associated with student-centred learning. Constructivist learning strategies encourage students to participate in collaborative experiences, actively seeking new information and relating it to prior knowledge, in order to personally construct new knowledge. Assessment activities may be based on individual or group processes, requiring students to provide evidence of performance, for example, portfolios, which may be measured by checklists or performance criteria (Isackson, 1999; Roblyer, Edwards, & Havriluk, 2003). Student-centred approaches which incorporate 'motivational context, learner activity, interaction with others and a well structured knowledge base' are associated with a deep approach to learning (Gibbs, 1992, pp. 10-11). However, Gibbs (1992) suggests that it is the

degree to which course design, teaching strategies and assessment methods encompass the factors listed above that is likely to influence deep approaches to learning by students.

Learning with technology to construct knowledge

When technology resources are incorporated into teaching practice, lecturers may not be aware of the impact on students' learning experiences. Consequently, lecturers should be able to distinguish between different types of technologies and how they contribute to the effective enhancement of learning (Adams, 2004; Laurillard, 2002; OECD, 2001). Technology is often used as a teacher substitute to deliver information to students, rather than supporting active learning processes (Kiili, 2005). Even multimedia environments, which help to hold learners' attention, and may provide for differences in students' learning styles, can be passive, providing limited opportunity for problem solving (Jonassen, 2000; Kiili, 2005). Jonassen (2000) argues that students who learn *from* technology, become *knowledge users*, rather than constructors of knowledge. Ally (2004) cites studies which suggest that learning is influenced by the content and instruction built into learning resources, rather than the technology which is used to deliver the instruction. Therefore, it is the design of the technology resources, for example, simulations and models, and how the student interacts with them, which makes learning possible. Increasingly, researchers argue that technology can support the construction of knowledge and influence deep approaches to learning, if students learn *with* technology rather than *from* it. (Jonassen, Howland, Morre, & Marra, 2003; Kiili, 2005; Stratford & Brown, 2002). Learning *with* technology implies that students acquire knowledge when they are actively engaged in designing and creating technology-based products. Students become product developers when they produce real world applications, engaging in authentic learning processes, such as research, design, analysis, composition and communication (Goddard, 2002). When students learn *with* technology, they change from being learners to designers, and from knowledge users to knowledge constructors (Jonassen, 2000). The emphasis is on knowledge construction, which is in alignment with constructivist approaches to learning.

Online teaching strategies

The literature suggests that effective online learning may be fostered through the use of student-centred approaches, by means of technology-based learning activities; cooperative learning styles using small group discussions and online debates; simulations and interactive instructional strategies; individual learning projects; and the pursuit of theoretical knowledge through problem solving, investigation and research (Brennan, 2003; Goddard, 2002; Young, 2004).

Learning outcomes may be enhanced when the lecturer intentionally designs student interactions into the online environment (Young, 2004). One issue for lecturers is determining how online learning interactions are constructed. Clarke (2001) suggests that effective online interaction depends on presenting content in a way that motivates and engages students. Lynch (2002) argues that student interaction is not about repetition and regurgitation, rather it is about communication and demonstrating thinking processes. Forms of interactive communication are described as writing reflectively, being actively involved in discussion with peers and facilitator, taking on leadership roles in presenting what has been learned, as well as active participation: mentoring, coaching, problem-solving teams and constructing knowledge: analysis, synthesis and evaluation (Lynch, 2002).

Assessment strategies

Assessment is integral to course design, therefore learning outcomes should be clearly linked to assessment activities (Bostock, 2002; Devlin, 2001; Phillips, 2005; Ramsden, 2003). When setting formative or summative assessment activities, lecturers should consider two questions: whether the assessment methods they choose to use are the best for achieving the learning outcomes, and how the online assessment will add to the learning experiences of their students (Devlin, 2001; Ramsden, 2003). New technology changes the curriculum and the way in which content is learned, therefore assessment processes should be adapted to correspond with new learning processes (Laurillard, 2002). Salmon (2000) argues there is a gap between how students learn online and how they are assessed, suggesting that traditional assessment is often based on an information transfer model, whereas in reality, students learn collaboratively through online communication facilities. Consequently, Salmon (2000) suggests that as lecturers become more comfortable in the online environment, they will look for alternatives to traditional assessment.

An online learning management system (LMS) provides a *test function* which allows for the creation of fixed-choice questions (for example, multiple choice, true/false, matching and ordering), suggested answers, and feedback. The tests and marking are automated by the online LMS, enabling students to

receive immediate results and feedback, once submitted. Some researchers warn that unless computerised fixed-choice tests are carefully planned, they may overemphasise factual knowledge and lower level cognitive skills, instead of higher-order problem solving and conceptual skills. (Bostock, 2002; Brown, Rust, & Gibbs, 2000; Devlin, 2001; Lin & Gronlund, 2000). Bostock (2002) suggests an alternative to an online LMS test function, arguing that deep learning is more likely to occur when students use learning outcomes to set their own questions and marking criteria. Assessments do not have to be limited to an online LMS test function when teaching in an online environment. Phillips & Lowe (2003) examined a wide range of assessment strategies and concluded that only oral and practical work are not feasible in the online environment. Although recent developments in the use of online voice tools, such as *Wimba*, may provide alternatives. Phillips & Lowe (2003) recommend that online courses should include a range of formative and summative assessment tasks which assess deep learning, utilise open book rather than closed book examinations, and be relevant to the workplace.

Suggestions for designing effective online practice

When designing effective online teaching practice, this review of literature suggests that the following principles be taken into account.

1. An emphasis on student-centred teaching, to encourage deep approaches to learning.
2. Students should learn *with* technology to become knowledge constructors, rather than learning *from* technology as knowledge users.
3. Encourage online student collaboration by constructing learning strategies which encompass at least one characteristic from each of the following two interaction elements:
 - The demonstration of *higher order thinking skills*, e.g., analysis, synthesis, evaluation, and
 - *Communication skills*, e.g., writing, reading, speaking, listening.
4. Current assessment strategies should be adapted to take into account online teaching strategies. Learning outcomes, online learning processes and assessment strategies should be in alignment.

Method

The research was undertaken in a medium-sized university, using a qualitative approach, bound by a case study method in order to explore participants' reflections on their classroom and online teaching practice. The research question was, *what teaching practices have lecturers adapted and developed for the online environment?* Asking lecturers to critically examine their choices may provide us with insights into understanding how they modify their beliefs or change their teaching practice (Errington, 2001; Kirkpatrick, 2001; Walker, 2002). Ramsden's (2003, pp. 215-216) framework for *evaluating and recognising effective teaching* was adapted for use in individual, semi-structured interviews, providing a series of questions for participants to reflect upon: planning and purpose, teaching strategies, assessment of students, outcomes, reflective self-evaluation, and communication and scholarship. This study reports on two of the framework -questions: *teaching strategies* and *assessment of students*. Observation of the participants' Blackboard LMS courses was used to confirm and compare data from the interviews and complete any gaps in the interview descriptions.

An invitation was sent to all lecturers (n=225) who were enrolled in the Blackboard LMS as an instructor. Of the eight (n=8) lecturers who replied, all met the criteria of redeveloping their online course over a period of three or more semesters and agreed to the interview and online course observation. A study by Torrisi & Davis (2000) revealed that lecturers who had redeveloped their online courses over a period of two or more semesters, found that teaching within the environment had caused them to change their thoughts about teacher-centred and student-centred approaches. Although working with eight lecturers contained the study to a reasonable size, this research is limited. An accidental sampling procedure was used, which involved using the lecturers who were immediately available for this study. A disadvantage of an accidental sample is that it is not deemed to be representative of the population, as the results only apply to the sample studied (Bouma, 1993). However, the purpose of the study was to contribute to the professional development programme at the university. Data analysis was based on a method of reduction and interpretation, reducing concepts and processes to patterns and themes, categorised under Ramsden's (2003) framework for *evaluating and recognising effective teaching*.

Findings

This section presents the combined results of the eight individual, semi-structured interviews and Blackboard LMS course observations. Of the faculties represented, three participants were in Business, four in Health and one in the Careers centre. Of the three, fully-online courses, two were at post-graduate

level and heavily discussion based. Case studies were posted online and website links were created for access to learning materials. The third fully-online course was a self-paced under-graduate course, using website links to access resources and the Blackboard LMS test function for assessment. Five under-graduate courses were taught in a blended learning mode of one classroom session and one online session weekly. A wide variety of teaching strategies, technology resources, and Blackboard LMS functions were used. Findings are categorised according to the two interview questions reported on in this paper.

Teaching strategies: What teaching strategies do you use in your online course, and how closely are they focused on student learning?

A majority of the participants developed teaching strategies which required students to read widely and to learn from case studies, role plays, websites, e-journals and CD-ROMs. Once these individual or group strategies had been attempted, participants expected students to collaborate in discussion forums to discuss their findings, and question each other in order to develop critical thinking skills.

From tactile games to online games

Two participants used interactive games in the classroom, for example, one game involved identifying actual health products and what they should be used for. As tactile games cannot be demonstrated online, an adaptation occurred, linking students to websites to view photographs of the products. Matching card games were adapted by creating interactive online drag and drop diagrams.

From role play to online video trigger

A classroom role play was used to allow students to practise interpersonal skills required for the workplace. It consisted of health students assessing a patient (actor) by observing their behaviour and asking questions. However, this did not work well. The participant suggested few students responded to the actors for a number of reasons, for example, male students were abrupt and stifled discussion, many students were too shy to interact, and some were reluctant to hold up the class with questions when the session was nearly at an end. Instead, the role play was adapted for the online environment. Actors were filmed and footage was stored in a CD-ROM format. The CD-ROM was sent to all students enrolled in the course. A link was made to the CD-ROM from within the Blackboard LMS. Students clicked on the link to see a video trigger, a scene which they had to evaluate. Then students discussed their findings in the discussion forum with peers. The participant observed that the change in learning environment has resulted in older women and EAL students entering the discussion, as well as students asking each other what they thought of the situation, which did not necessarily happen in the classroom.

From paper based case studies to online stories

Two participants liked to use stories of peoples' experiences and developed digital autobiographies for online, using text, images and audio. Students viewed the stories and discussed their reactions to them. The online course observation of the self-paced careers course, provided an example of a story in which the learning experiences of previous students were used to inspire new students.

From essay writing to visual diagrams

Two participants suggested that although their students practised essay writing for assessment, they found it difficult. As an alternative, they provided their students with the opportunity to demonstrate their knowledge of concepts by presenting them visually, using flow chart or diagram software, along with the preparation of a shorter essay. The participants could tell from the diagrams that the students really did understand the concepts that they had illustrated.

From paper based quizzes to online quizzes

Two participants adapted paper-based tests by creating short answer quizzes in the Blackboard LMS test function. They believed the test function process motivated students, providing feedback which prompted them to study further when they got an incorrect answer, and that it prepared students for summative assessment.

Theory and practice to online discussion

Relating theoretical concepts to practical application and the development of critical thinking skills was acknowledged by a majority of the participants as being difficult for students. Online discussion forums were used by seven participants to develop critical thinking skills, encouraging students to acquire information from a variety of learning materials and technology resources, question each other, form opinions, engage in debate and share knowledge within the online environment.

Peer feedback

Two participants felt that due to a lack of time, they could not facilitate peer learning in the classroom. Instead, they developed peer review processes for online which were described as particularly effective

for post-graduate students. Students commented on each other's draft assessment work in private group forums, gaining exposure to each other's writing, different perspectives on topics and experience of marking grids. An issue for one participant was how to assign students to groups. Students suggested some were comfortable critiquing a friend, while others were not, enabling the participant to accommodate both requests. However it was pointed out that lecturers have less control over peer learning, so it was very important to make clear to students the process of critique. One participant said that some groups had difficulty carrying out the peer review process, and intends to review ways of making instructions and processes clearer for future courses.

Assessment: Are the assessment methods you use the best for achieving learning outcomes? How do you use assessment information to improve teaching in your online course?

Participants used a combination of traditional and technology based summative assessment methods. Half of the participants achieved the learning outcomes using traditional examinations and essays. Upon reviewing these assessments for online, six participants specifically created online assessments to match learning outcomes. Five participants said they changed from essays to try to develop authentic assessments which would encourage students to think like workers, carrying out practice as they would in the workplace. Only one participant thought the assessment did not meet learning outcomes, stating it was close to real life, but too theoretical.

LMS Test function

The participant who taught on the fully online, self-paced undergraduate course, reviewed the current assessments when moving online and found them inadequate, realising that not all of the learning outcomes were being assessed. The assessments were adapted by creating five tests in the Blackboard LMS test function which the participant believed worked much better for self-directed learning.

Discussion forum participation

Six participants allocated marks for the number of discussion forums students participated in, or led, with a few participants allocating marks for the quality of their thinking. Three participants chose to allocate assessment marks to enforce online participation. Although forum marking was found to be subjective, it provided a record for judging student learning, as participants could see the extent to which students were applying concepts or if they were just evaluating ideas. One participant suggested that they would have liked to have valued the online discussion higher, because although it was a dominant part of the course, a disproportionate number of marks were allocated to it.

Discussion leader

A discussion forum strategy developed by three participants required students to act in the role of teacher, preparing and leading discussions around topics. Student leaders were required to summarise articles, devise relevant questions and lead the discussion about the article. Participants found it useful to have students designing the questions as they tended to ask them at the right level.

Team problem solving project

One participant adapted a group project to represent an authentic assessment activity for online. The process required the participant to act as the client, visiting teams in online group forums at specified times so students could ask questions and determine the specifications for the project brief. The participant felt it was important not offer too much information to students, as part of the learning process was developing the art of questioning the client, to design an accurate brief. Groups were required continue to develop the project, keeping in touch with the client throughout the semester. In terms of group processes, students met online or face to face. The participant did not specify how groups should carry out the work as long as it was done. However, when groups completed their work online, a record was available to see who was keeping to their roles and who was doing the work.

Creation of a product

Two participants in the health promotion subject area used technology external to the Blackboard LMS, to engage students in creating authentic products for assessment. For example, radio advertisements, promotional posters and work portfolio. Participants experienced difficulties in accessing required hardware and software, having to learn how to use the technology, and teaching it to students. Even so, the participants thought their efforts in facilitating this assessment process were worthwhile, as they perceived that students were proud of their products and that they could demonstrate them to prospective employers.

Discussion

This section analyses key findings to determine good practice examples of teaching and assessment strategies, according to the suggested principles of designing for effective online practice, listed at the end of the literature review.

Online teaching strategies

Lecturers recognised that they had to create learning experiences in the online environment which motivated students, rather than relying on the online LMS itself, endorsing the view that technology-based teaching activities should revolve around the learners' use of them (Torrissi-Steele & Davis, 2000). As the lecturers thought that online learning experiences should be based on student discovery, collaboration, and the use of multimedia technologies, this requires them to gain an understanding of how to design technology resources based on sound pedagogy applied to multimedia, software and hardware technologies (Laurillard, 2002).

The *visual diagram*, *video trigger*, *online stories*, and *peer feedback strategies* described learning processes characteristic of student-centred approaches to learning. Additionally, these strategies are examples of effective online interaction, presenting content in a way that motivates and engages students (Clarke, 2001) and are about students communicating and demonstrating higher order thinking processes (Lynch, 2002). Designing effective student interactions into online courses encourages conceptual change and development, which are associated with deep approaches to student-centred learning (Ramsden, 2003).

The *visual diagram* is an example of a students learning *with* technology to construct knowledge. Students become designers, actively engaged in creating an online visual diagram in order to communicate understandings of specific concepts (Jonassen, 2000; Kiili, 2005). While the *online video trigger* and *online stories* appear to be examples of students learning from technology, the learning is influenced by the content and instruction built into the resources, rather than the technology itself (Ally, 2004). The lecturers' instruction directed students to evaluate the video scenes, and to discuss their reactions and findings to the information in the resources, in order to demonstrate both higher order thinking and communicative processes (Lynch, 2002). A teaching strategy was not as effective if only one of the interaction elements i.e., either thinking or communication, was present in the instruction.

Peer feedback

Peer feedback was particularly effective for post-graduate students, exposing them to different perspectives, the writing of others and experience of marking grids. This teaching strategy is based on a student-centred approach which places the student in the role of teacher (Laurillard, 2002) and encourages the development of metacognitive processes (Isackson, 1999). However, one lecturer mentioned difficulties in assigning groups and making the process of critique clear to students. While peer feedback is useful for providing information regarding peers' strengths and weaknesses, students should be taught how to provide peer feedback and the judgement criteria should be clear and based on learning outcomes (Bostock, 2002; Salmon, 2000).

Online games and *online quizzes* were identified by two lecturers as being interactive strategies, however they do not meet Lynch's (2002) concept of effective online interaction – instruction which includes both higher order thinking processes and communication. The lecturers thought the strategies provided the opportunity for students' learning styles to be taken into account, e.g., kinaesthetic drag/drop diagrams (online games), from which students could learn factual information. While multimedia can help to provide for differences in students' learning styles, programs designed for information transfer provide limited opportunity for problem solving (Jonassen, 2000; Kiili, 2005). The learning processes are based on low level repetition and there appears to be limited opportunity for communication between peers (Lynch, 2002). While the fixed-choice quizzes require students to think about answers to questions, the types of questions asked are more likely to focus students on lower level thinking processes (Bostock, 2002; Lin & Gronlund, 2000). Consequently, it is useful to keep in mind Laurillard's (2002) view that the design of technology resources cannot be inferred from the capabilities of the technology.

Online assessment strategies

The process of moving assessment to the online environment forced a review of existing assessments and a majority of lecturers found that not all of the learning outcomes were assessed as well as they could have been. Learning outcomes should be clearly linked to assessment activities (Bostock, 2002; Ramsden,

2003) therefore the review process was timely and worthwhile. As a result of the review, a majority of lecturers specifically tried to develop online assessments which matched student learning processes in the online environment, reinforcing the view that lecturers should consider how their chosen assessment methods will add to their students' learning experiences (Devlin 2001).

Some lecturers developed online assessment strategies requiring students to engage in learning activities which were summatively assessed throughout the semester. For example, discussion forum participation, discussion leader and team problem solving project, suggesting that as the lecturers became more comfortable teaching in the online environment, they created alternatives to traditional assessment methods (Salmon, 2000).

Most of the lecturers summatively assessed *discussion forums* by allocating marks for participation and/or thinking processes in order to encourage online collaboration. Although some lecturers thought discussion forum marking was subjective, few said the forums provided a record for judging student learning, enabling them to identify students who were applying concepts and evaluating ideas. Laurillard (2002) suggests that although discussion can be an effective way of judging what students know, it may not necessarily lead students to what they should know. One lecturer, who was very successful in stimulating online discussion (the post-graduate students continued their online discussion for six weeks after the course ended), would have liked to have valued students' contributions more by allocating higher marks to the discussion component, as it dominated the fully-online course. This experience suggests that changing assessment processes to correspond more closely with new online learning processes (Laurillard, 2002) would improve the alignment of learning outcomes, assessment and learning processes.

Collaborative processes are important when taking into account that in the workplace, people work in teams, sharing and transferring knowledge through processes of discussion, application and analysis (McLoughlin, 2002). The *team problem solving project* and *creation of a product* assessment strategies were designed to encourage students to work as individuals or in teams to carry out authentic work place practices. The *team problem solving project*, was carried out in the online LMS group forums and required teams of students to ask questions of the client (the lecturer) to determine specifications for a computing systems project. The client deliberately did not offer information to the teams and instead waited to be asked for information. Teams which are productive spend more time planning and communicating with each other (McLoughlin, 2002) therefore groups who were better prepared for the interview process in this assessment strategy were more likely to have obtained more information from the client. Additionally, collaborative activities which cannot be done individually and are based on problem solving and teamwork, improve content learning by encouraging students to learn from one another (Damoense, 2003; McLoughlin, 2002).

Some lecturers developed assessment methods which required students to use technology to *create authentic products*, for example, health promotion professionals creating posters and radio advertisements. The usefulness of such an activity/assessment is that students are learning *with* technology rather than from it, undertaking authentic learning experiences to produce products applicable to the real world. When students become product developers, they engage in research and design processes, actively constructing their own knowledge (Goddard, 2002; Jonassen, 2000; Kiili, 2005).

Only one lecturer developed summative *online fixed-choice tests* for a fully-online self-paced course, allowing students to complete them multiple times in order to pass. Unless fixed-choice tests are carefully planned, they may overemphasise factual knowledge at the expense of problem solving and conceptual skills (Devlin, 2001; Lin & Gronlund, 2000). An alternative assessment strategy is open book assessment, which Phillips & Lowe (2003) suggest is more relevant to the workplace. Lecturers who used the *discussion leader* strategy found that students were able to design questions at the right learning level, endorsing Bostock's (2002) view that deep learning is more likely to occur when students use learning outcomes to set their own questions and marking criteria.

Conclusions and recommendations

Adapting Ramsden's (2003, pp. 215-216) framework for *evaluating and recognising effective teaching* for the individual, semi-structured interviews proved effective for gathering in-depth examples of online teaching practice for the two questions reported on in this paper: *teaching strategies* and *assessment of students*. Observing the information in the online Blackboard LMS courses, made it easier to understand the descriptions lecturers provided in their interviews. The findings of this limited research has contributed to the university's professional development programme in flexible learning.

Lecturers who redeveloped their online courses over three semesters or more, provided many innovative examples of online teaching and assessment practices based on student-centred teaching approaches, encouraging deep approaches to student learning (e.g., discussion leader, peer feedback). Teaching strategies which encourage deep approaches to student learning require thoughtful construction. If lecturers are not aware of how to construct good teaching strategies, they may negatively impact on students' learning experiences and consequently lecturer confidence.

A majority of technology-based learning strategies (e.g., visual diagram, creation of a product) were designed to get students learning actively with the technology to design and create their own products, rather than learn passively from the technology. Online teaching and assessment strategies should include instruction around actively constructing knowledge with technology, to increase the likelihood of students developing higher order thinking, creative and collaborative skills.

A useful finding of this study, is that a majority of the online teaching and assessment strategies motivated students to participate interactively with the technology and to collaborate with peers (e.g., video trigger, online stories). Designing interactive instruction into learning strategies which encompass both higher order thinking and communication processes, can enhance motivation and increase student participation in online environments.

In this study, lecturers found it useful to review their existing assessment practices when adapting their courses for the online environment, as they found they did not always match the learning outcomes. A majority of lecturers tried to adapt and develop authentic assessment strategies to align with new online learning processes (e.g., team problem solving project). By reviewing current traditional assessment strategies and actively seeking authentic processes and technology-based alternatives, lecturers are more likely to ensure that learning outcomes, online student learning processes and online assessment processes are in alignment.

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