UNIVERSITY OF CALGARY

Taylor Institute
for Teaching and Learning
Guide Series

Online Assessment in Higher Education

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October, 2019
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Recommended Citation

Weleschuk, A., Dyjur, P., & Kelly, P. (2019). Online Assessment in Higher Education. *Taylor Institute for Teaching and Learning Guide Series.* Calgary, AB: Taylor Institute for Teaching and Learning at the University of Calgary. Retrieved from https://taylorinstitute.ucalgary.ca/resources/guides

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Introduction

Online academic programs are becoming more prevalent across Canada. Currently, 82% of Canadian institutions offer online courses (Bates, 2018) and in the 2016-2017 academic year, 18% of postsecondary students in Canada took at least one fully online course (Canadian Digital Learning Research Association, 2019). As more instructors begin to teach online, by necessity, they will also need to assess their students online.

Online Learning is Growing!

Between 2011 and 2016, the number of Canadian postsecondary institutions using online courses increased by 11% (Bates, 2018).

In 2018, 68% of postsecondary institutions in Canada reported that online learning was very or extremely important to their long-term strategic plans (Canadian Digital Learning Research Association, 2019).

Background

There are many reasons to pursue online teaching, learning, and student assessment. Online courses make learning accessible to students who cannot be on campus during regular hours or at all (Lei & Gupta, 2010). Instructors can use online courses to accommodate increasing class sizes and reduce the associated high instructor workload (Amelung, Krieger & Rosner, 2011; Earl, 2013). Abubakar & Adeshola (2019) also note that online courses can have lower material costs than face-to-face courses, aside from the initial costs of implementing learning management systems (LMS) and software.

However, according to King and Boyatt (2014), effective online learning requires strategic leadership, pedagogical and technical support, and opportunities for instructor development. There are certain considerations that need to be made before teaching and learning can take place in an online space, especially for instructors who are used to face-to-face environments. The purpose of this guide is to provide some of this necessary pedagogical support by providing relevant research and literature, suggestions from practice, and pragmatic strategies for assessing students in online environments.

> *"Through the discussion board students acquired constructive and professional communication skills."*
> *– Hieu Ngo, Faculty of Social Work*

The Role of Online Assessment

Assessments play a major role in students' experiences within a course. The primary goal of assessments is for students to demonstrate their achievement of the course learning outcomes (Boud, 2010), for formative feedback, a grade, or for a pass. However, they are much more than that. Often, assessments are the biggest source of motivation for students and drive their decisions of when and how to study (Boud, 2010; Olofsson et al., 2011). In online environments, students may incorrectly assume that they will not have to dedicate as much effort to learning course material or completing assessments, because they are no longer in a traditional course (Kebritchi et al., 2017). While certainly, some traditional assessment methods do not fit within an online environment, effective, rigorous assessments can be facilitated online. When designing a course online, particular care should be given to the assessments to ensure the activities that students do are effective at meeting their learning outcomes but fit within the online space (Gikandi, Morrow, & Davis, 2011).

Effective and rigorous assessments can be facilitated online

Definition of Online Assessment

For the purpose of this guide, we consider online assessments to be any means of evaluating student achievement, providing feedback, or moving the students forward in their learning process in fully online credit courses. These assessments can be completely online (such as online exams) or just require online submission (such as essays). Assessments can be either formative, designed to monitor students' progress in a low or no stakes environment, or summative, designed to evaluate students against a standard or criteria (Dixon & Worrell, 2016).

Benefits, Challenges, and Strategies of Online Assessment

The design and implementation of assessments have more impact on student performance than the method of assessment delivery (online vs face-to-face). Various studies have found no difference in student achievement and grades on well-designed online and face-to-face course assessments (Hewson, 2012, Page & Cherry, 2018, Spivey & McMillan, 2014, Tsai, 2016). Additionally, students' performance on online assessment is not affected by their preferences or how they rate their comfort with technology (Hewson 2012).

Validity and Rigour

Online assessment can and should have the same academic rigour as face-to-face assessment; it still needs to align with course and program learning outcomes, provide valuable learning opportunities for students, and have a level of excellence for students to work toward (Vlachopoulos, 2016).

Top Benefits of Online Assessment

- *Detailed feedback in a variety of formats*
- *Instant feedback*
- *Accessibility*
- *Flexibility*

Transitioning to Online

Converting a course from a face-to-face to online format, or creating a new online course, can inspire instructors to reflect on and improve their course design and teaching practices. Investigating how to develop courses online can expose instructors to teaching and assessment methods that are novel and interesting to them (Bennett et al., 2017). Certainly, there is a risk of instructors using online assessment without adequate pedagogical justification, for the sake of using technology and appearing innovative (Abubakar & Adeshola, 2019; Sweeny et al. 2017). However, when institutions provide resources and pedagogical development opportunities for instructors who want to teach online, instructors can avoid ineffective teaching choices and using technology just to appear modern (King & Boyatt, 2014).

Formative Feedback Opportunities

One of the most highly reported benefits of online assessment is the ease associated with providing detailed feedback to students (Daradoumis et al. 2019, McLaughlin & Yan, 2017, Rolim & Isaisas, 2018). Feedback can be given in different formats in an online environment, such as written, audio-recorded, or video-recorded (Johnson & Cooke, 2016); this diversity can improve the accessibility of feedback for some students. Instructors and students both highlight their appreciation for timely and frequent feedback (Dermo, 2009, Khan & Khan, 2019, Redecker, Punie & Ferrari, 2012). In general, students are more motivated and tend to achieve higher grades when formative feedback is available (Redecker, Punie & Ferarri, 2012). Instructors can utilize automated feedback on certain types of assessments, which reduces their workload, particularly in large classes (Abubakar & Adeshola, 2019). For example, online assignments can have built-in hints or feedback that can become available when students submit a wrong answer.

> *"Provide students with timely and clear feedback by using audio or video feedback."*
> *– Barbara Brown, Werklund School of Education*

Accessibility & Flexibility

Students and instructors also appreciate the accessibility of online assessments (Lei & Gupta, 2010; Rolim & Isaisas, 2018). Students have more flexibility in how they can approach their coursework, as they can choose when and where they do it, rather than having to fit within the constraints of a classroom (Lei & Gupta, 2010). For example, instead of having to be present in class for a group discussion or quiz, students can add to an asynchronous discussion board or complete an online quiz at the times and locations that are most convenient to them. This can take immense pressure off students who have jobs, family commitments, or other factors that may restrict their ability to be present on-campus (Lei & Gupta, 2010). Concerns about classroom distractions and interruptions during work time are also alleviated when using online assessments (Lei & Gupta, 2010). There are fewer concerns about distractions and interruptions during assessments.

However, this flexibility requires students to be self-directed and self-motivated (Beebe et al., 2010; Kebritchi et al., 2017). Some students thrive when given more control over their learning but some others, particularly first year students, are not prepared for such responsibility (Hung et al., 2010). Additional supports, such as time management plans or activities to familiarize students with online communication, may need to be put in place to ensure students' are prepared to self-regulate and complete their assessments in time (Hung et al., 2010; Kebritchi et al., 2017). Hung et al. (2010) also notes the importance of a clear course outline that explains the expectations and role of students in the course, and encourages them to be self-regulated learners from the first day of class.

> *"Support student engagement and learning by providing assessment options for students to select an assessment that is more relevant to their learning."*
> *- Jessica Ayala, Faculty of Social Work*

Academic Integrity

Despite the benefits of online learning, instructors often have concerns that have limited the widespread adoption of online assessment. Instructors worry about academic misconduct, students cheating, plagiarising, or otherwise getting unfair advantages over their peers (Abubakar & Adeshola, 2019, Dermo, 2009, Mellar et al. 2018). Without in-person proctoring, instructors feel that they do not have the same ability to monitor students to ensure academic integrity (Fask et al., 2014). Research regarding effective ways to authenticate students and reduce cheating is beginning to emerge.

Simple measures for protecting academic integrity on online assignments and quizzes, such as randomization of questions, varying numbers, or blocking access to other course content during the assessment period, are built into LMS and can be easily employed (Boitshwarelo et al., 2017, Tsai, 2016). Anti-plagiarism software, used in conjunction with education about academic integrity has been shown to reduce instances of plagiarism (Levine & Pazdernik, 2018). Using a diverse set of assessment methods can also reduce academic misconduct (McLaughlin & Yan, 2017). Technologically advanced methods, such as checking biometric data or keystroke dynamics are promising measures to authenticate students

on written assignments or exams (Mellar et al., 2018; Okada et al., 2019). However, these are still require more research and technical improvements before they can be widely adopted. Most of these methods have not yet shown that they can scale up for large groups of students.

Collaborative Learning

Another concern when using online assessment is that students will be isolated and less collaborative if they are not together in a physical classroom (Abubakar & Adeshola, 2019; Bolliger & Shepherd, 2010; Dumford & Miller, 2018; Kebritchi et al., 2017). Learning is inherently social and building relationships helps enhance it (Bolliger & Shepherd, 2010; Gikandi, Morrow & Davis, 2011; Kehrwad, 2010).

> *"Using ePortfolios helped students learn more about their peers, boosting morale when the class became challenging."*
> *- Duy Dau, Haskayne School of Business*

There are opportunities to increase communication and connectedness between students in online courses through strategies such as peer feedback activities (Mostert & Snowball, 2013), discussion boards (Champion & Gunnlaugson, 2017; Skinner, 2007), and implementing study or working groups community of practice framework into discussions or assignments (Wang, 2010). As such, connecting students needs to be an intentional part of the assessment and course design to mitigate this concern.

Getting Started with Online Assessment

What interests you about online assessment?

What benefits do you see for your students?

What aspects of your course might be transferable to online? What would have to be changed?

Instructor Workload

Online courses tend to be "front heavy", meaning they require instructors to invest a lot of time and effort at the start of the course (Amelung, Krieger & Rosner, 2011). All of the course materials need to be prepared ahead of time, the LMS needs to be well organized, and measures for communicating with students need to be in place before students have access. This work is necessary, as it is crucial to make sure all information is easily accessible to students throughout the course (Beebe et al., 2010). This practice helps students stay on top of course material and feel prepared to complete assessments.

Instructor Concerns

- *Academic Integrity*
- *High Workload*
- *Student Isolation*
- *Technical Issues*

Students' Concerns

Students have reported several of their own concerns about online assessments as well. In one study, students' main concern was equality and fairness (Dermo, 2009). When they do not see other students, they question whether their peers are cheating and whether their instructors are detecting it. Transparency in the reasoning behind online assessments, as well as the methods used to determine grades, provide students with more comfort and understanding (Khan & Khan, 2019).

Student Concerns

- *Equity and fairness*
- *Technical issues*
- *Differing technical abilities*
- *Less opportunity to clarify assignment guidelines*

As well, students question their instructors' competency with technology (Khan & Khan, 2019). Because their grades are being determined online, they need to be confident that technical issues or an instructor's inabilities will not diminish their achievements (Bennett et al., 2016). Instructors should familiarize themselves with the learning technologies they will be using, and should note how students' work is tracked. They can then explain to students the processes in place for if technical issues occur. Including a short, ungraded practice assessment can also help students become comfortable with the technologies and explore them without the high stakes of a graded assessment (Khan & Khan, 2019).

Planning Your Online Assessments

What concerns do you have about online assessment?	***How will you address them?***

Principles of Effective Assessment

All assessments, whether they are online, blended, or exclusively face-to-face, can be guided by the same principles of effectiveness (Earl, 2013). Evidence-informed assessments are key to improving the overall quality of students' learning experiences (Heinrichs et al., 2015). See the Taylor Institute Guide *Guiding Principles for Assessment of Students' Learning* for an in-depth discussion on the principles of effective student assessment. These principles encourage authenticity, transparency, and intentionality within assessment practice.

Common Online Assessment Methods: Strategies & Recommendations

There are many different ways of effectively assessing students' learning online. The methods listed on the following pages are some of the more commonly used and researched, and they translate across many disciplines, levels, and class sizes. There is also growing research on strategies to mitigate the associated difficulties of assessing students. Other recommendations have been collected from experienced instructors and instructional designers. As with any set of recommendations, not all of them will be helpful in a given situation, so the reader will have to decide which of them are most applicable to their course. When designing assessments, consider the context of the course, the workload for students, the availability of teaching assistants (TAs) and instructors, the technological requirements, and the alignment with learning outcomes.

General Recommendations for Online Assessments

- **Start planning and designing assessments early**. Ensure that all materials are available by the first day of class and that important resources are easy to find in the LMS (Beebe et al., 2010; Page & Cherry, 2018).
- Instructions, rubrics, and expectations need to be clear and complete (Ardid et al. 2015). **Provide a space for students to ask questions**, such as a discussion board, so that all students have equal access to information.
- Use **a variety of assessment types** to allow students the opportunity to demonstrate their understanding in different ways (Sato & Haegele, 2018).
- Interactive and higher order learning opportunities can increase engagement with assessments. Provide **videos, simulations, case studies or other resources to get deeper engagement** from students (van de Heyde & Siebrits, 2019).
- When providing formative feedback, use action-focused statements that give students suggestions for future work (Drury & Mort, 2015). **Non-specific feedback is less helpful to students than specific, detailed comments.**
- Have a plan for **promoting academic integrity in the online environment**. Discuss this plan and its importance with the students (Levine & Pazdernik, 2018).
- **Have a contingency plan** for submitting or completing assignments in case of technology issues. Make note of how students' work is recorded and documented in your LMS, so you and your students can be confident in the technology (Bennett et al., 2016).

Discussion Boards

Discussion boards are forums within a LMS where students can make posts and reply to one another. They can be used for full-class discussions or small-group pieces. Many online courses use a discussion board as part of the academic writing of a course. On the discussion board students debate issues, add their personal experience and perspective, build on one another's ideas, analyze case studies, and so on.

From the literature

- Maintain **continuous discussions** throughout the course to help students build relationships with one another and stay focused on the course content (Blackmon, 2012).
- **Provide specific topics** and facilitate the conversations to keep them on track (Champion & Gunnlaugson, 2017).
- Provide **personalized feedback** early in the course to give students guidance on how to make their discussion points effectively (Hortsmanshof & Brownie, 2011).
- **Limit the number of words** students can use in each post (eg- 500 words) to encourage them to be succinct when making their points. It also makes regular discussion posts more manageable around other course assessments (Hortsmanshof & Brownie, 2011).
- Rotate **students as facilitators** or other roles to encourage participation and engagement (Xie, Yu & Bradshaw, 2014).
- Find the **correct weighting for discussion board activities** so students prioritize them without making the grade so high that it reduces the authenticity of discussions (Cheng et al., 2013).

Challenges

- Students' will make **separate, unrelated posts**, rather than have an actual conversation (Champion & Gunnlaugson, 2017).
- Many students are **nervous about their peers** reading and commenting on their writing (Hortsmanshof & Brownie, 2011).
- Students can struggle with **accepting critical comments** on their posts, or feeling that their posts got fewer comments than their peers did. This attitude can make discussion boards **feel competitive rather than collaborative** (Sato & Haegele, 2018).
- Students do not provide strong feedback or comments, and discussions remain surface level.

Strategies/Recommendations

- **Explain the purpose** of the discussion board and make expectations for conduct clear.
- Structure different types of discussions, such as debates, case studies, etc.
- In large classes**, divide students into small discussion groups.** Doing this can help students build stronger relationships with one another.
- Discussion boards can be used for small group **problem solving activities**. Provide a problem and allow students to brainstorm together. **Only the final solution to the problem is graded,** so there is no pressure when sharing thoughts or ideas with the group. Additional information can

be provided to groups mid-way through the exercise to prompt students to reconsider their original position.

- **Monitor posts** (or have students take turns monitoring posts) for inappropriate use (Hortsmanshof & Brownie, 2011; Xie, Yu, & Bradshaw, 2014).
- Provide **samples of appropriate feedback**. Discuss how to respond to feedback early in the semester (Sato & Haegele, 2018).
- Encourage students to **ask thoughtful questions** in their responses to one another to spark a conversation (Cheng et al., 2013).
- To reduce the workload of grading, ask students to **select their best few discussion posts for grading** at the end of the semester. A self-assessment component, where students explain why they chose these posts, can be included.
- Have students **self-assess themselves mid-way through the course**.
- Occasionally do "Twitter-style" discussion posts (limit posts to 140 characters) or multi-media discussions (photo, audio, etc.). These methods encourage students to be succinct and can be a fun break from writing and reading long discussion posts.

Online Exams

We define online exams as unproctored tests or quizzes that students can complete from any computer, rather than exams done on a computer in a controlled, supervised environment. Usually, online quizzes are done within the LMS.

From the Literature

- **Frequent, low-stakes quizzes** can help students engage with material throughout the course and prepare them for larger assessments, particularly when they are given **regular, detailed feedback** on their performance (Sweeny et al., 2017).
- **Start with practice tests** using the test-taking platform before completing a quiz on the same platform so **students can become comfortable** and familiar with its use (Khan & Khan, 2019).
- **Two-stage exams**, where students must complete a short, ungraded practice exam, receive feedback, and correct wrong answers before starting the graded exam, can give them confidence and improve achievement (Voelkel, 2013).
- **Ensure that questions are not confusing** for students, who will not be able to ask for clarification as easily as they could in a face-to-face exam (Ardid et al. 2015). For example, ask a colleague or TA to review questions before using them on an online exam.
- Use **features within the LMS that help deter cheating** on multiple-choice tests, such as question pools, changing numbers in mathematical questions, and randomizing the order of questions (Boitshwarelo et al. 2017).

Challenges

- **Students will use notes, the Internet and help from peers** to complete the exams (Fask, Englander & Wang, 2014; Hylton, Levy & Dringus, 2016).
- It can be **difficult to ensure** that questions assess deeper levels of thinking or **mastery of the concepts** (Boitshwarelo et al., 2017; van de Heyde & Siebrits, 2019).
- Innovative online assignments or quizzes, such as virtual laboratories, can be **time consuming to develop, test, and implement** (Russell & Shepherd, 2010). It is also time-consuming to develop feedback for multiple-choice or numerical questions.

Strategies/Recommendations

- Design exams and quizzes to be **open-web, open-book exams**. This method works effectively when assessing deeper learning, such as case-based or application questions (Myyry & Joutsenvirta, 2015).
- **Frame online quizzes as review activities** for students, so they can ensure they are staying on top of course materials.
- Include some element of **formative feedback**, such as multiple attempts for questions, hints, full solutions, and recommendations for the future, to help students **learn through doing the quiz** (McLaughlin & Yan, 2017).
- Add self-assessment or **reflective questions at the end of assignments or quizzes** (Cukusic et al. 2014).
- Matching or short answer questions can increase the difficulty of online exams and can still be easily implemented into an LMS.
- **Incorporate existing videos, case studies, simulations, and other interactive components** into assignments to promote engagement and higher-order thinking without having to create all new resources (van de Heyde & Siebrits, 2019). For example, have students complete an online simulation in order to answer quiz questions.
- Have **students generate exam-style questions**. Use the best few student questions on the tests you give.
- If you are **using questions made by another instructor** or by an online textbook, **verify that they are appropriate for your course** and students before using them.
- If you have multiple quizzes in a course, **drop students' lowest quiz score** from their final grade.
- **Allow multiple attempts at online quizzes**, to prevent technical issues on one attempt affecting students' grades.
- Determine an **appropriate schedule for quizzes** that balances the quizzes with the other course assessments.

Essays/Written Assessments/Projects

From the Literature

- Shorter written assignments can be used instead of large essays to **encourage quality and creativity**, rather than students focusing on meeting length requirements (Earl, 2013).
- Posting essays or written assignments as **blogs or discussion posts can promote social, collaborative, and meaningful learning** and interactions between peers. (Olofsson et al., 2011).
- Guide the writing process by including at least one opportunity for students to receive **action-focused formative feedback** (Drury & Mort, 2015).
- Focus assessment descriptions and instructions on both **the process and product** of writing (Drury & Mort, 2015). For example, provide feedback about how to approach editing the piece, as well feedback relating to the quality of the students' work.

Challenges

- **Students**, especially those who struggle most with writing**, tend not to use additional resources** provided to them (Dargusch et al., 2017; Drury & Mort, 2015; Skinner et al., 2012).
- Providing detailed, specific **feedback** to each student **can be time consuming** in large classes (Daly et al., 2010), especially when using journaling or ongoing writing assessments (Barkley & Major, 2016).
- It is easy to fall behind the grading process when assessments are long and you want to be detailed in your response.

Strategies/Recommendations

- Writing resources should be **discipline specific** and should be incorporated into notes or assignment descriptions (Drury & Mort, 2015)
- If many students are struggling with the same areas on a written assignment, **send out feedback to the entire class** (Daly et al., 2010)
- **Schedule time for grading** written assignments to ensure it is done promptly.
- Larger projects can be structured as cumulative assignments, **split into stages for more frequent feedback** and learning throughout the process. For example, a larger essay could have three graded components: a proposal, an outline and annotated bibliography, and a final submission.
- **Train Teaching Assistants (TAs) to grade effectively using the rubric**, to help remove some of the grading workload. Take time to discuss grading throughout the course.
- Feedback can be given in writing, as annotations within a students' work, or in audio/video forms.
- **Use examples of expert writing** in the same format as students will be writing in. For example, if students are writing blog posts, have them read some high quality blog posts and discuss what qualities make them strong pieces.

- Have students submit a **self-assessment** when they are looking for feedback, so you can see whether your impression of their work matches with theirs, and to **ensure they are thinking about the grading criteria.**

ePortfolios

ePortfolios are electronic compilations of academic, personal, and professional development. They can be used to demonstrate skill development, reflection, and course achievements (Bolliger & Shepherd, 2010) by showcasing students' best work (Bryant & Chittum, 2013).

From the Literature

- Introduce the ePortfolio project **early in the semester** and encourage students to work continuously on it (Tse, Scholz, & Lithgow, 2018).
- Ensure that you **have access to technical support**, especially when students are using an unfamiliar platform (San Jose, 2017).
- Incorporate a peer review or collaboration element. Students **gain new insights by seeing what others are doing**, and can build relationships by watching one another develop skills (Bolliger & Shepherd, 2010).

Challenges

- Students **do not always understand** the purpose of creating an ePortfolio (San Jose, 2017)
- Students experience stress when **ePortfolio platforms are not intuitive for users** (Tse, Scholz & Lithgow, 2018).
- ePortfolios can feel daunting to students. They may feel **stressed about the workload of a large project** (Mueller & Bair, 2018).

Strategies/Recommendations

- **Explain the reasoning** behind the project throughout the course to remind students why it is valuable (Tse, Scholz & Lithgow, 2018)
- Take time ahead of the course to **familiarize yourself with the platform** you plan to use. Create **detailed instructions and expectations** for students to use (Tse, Scholz & Lithgow, 2018).
- Develop a grading scheme that can reduce the weight of the final product, such as Pass/Fail or **scaffolding the project into several smaller components** with feedback opportunities (Mueller & Bair, 2018)
- **Provide students' with a clear rubric at the beginning of the project** that is straightforward and easy to use when grading.
- Have students **submit a draft portfolio** mid-way through the course to encourage them to start working earlier and to get feedback.

- Ensure there are opportunities for reflection within the course, so students can add these elements to their portfolio. **Provide some guiding questions for reflection**.
- Be flexible (within limits) of **how students present their ePortfolio**. For example, students may create a physical portfolio and upload it as a PDF, create a personal website, or use PowerPoint slides, but may not use a platform protected by a paywall.

Online Peer Feedback

Peer feedback is a process in which students provide comments and suggestions about an assignment or project to one another (Usher & Barak, 2018). There are many benefits to including peer feedback in an online course, including increasing student accountability and motivation (Kearney, Perkins, & Kennedy-Clark, 2016) and building community (Mostert & Snowball, 2013). You may choose to grade students on the feedback they *give*, but the feedback they *receive* should not affect their marks.

From the Literature

- Provide **exemplars of good and poor feedback**, so students get an idea of the quality and types of comments to include and to avoid (Mostert & Snowball, 2013).
- Use forums, discussion boards, or announcements to the class to provide support, clarify instructions, or **provide additional information to students** as they provide feedback to one another (Mostert & Snowball, 2013).
- Students are more likely to **provide effective comments to peers** when they **are graded on the depth and clarity** of feedback they give (Sekendiz, 2018).
- Recognize your students as partners in creating knowledge in the course. Guidelines are important to **give students direction**, but **do not overload** them with restrictions that can **take away the authenticity** of the feedback they share (Gikandi & Morrow, 2016).

Challenges

- Students **do not** always **take peer feedback seriously** (Usher & Barak, 2018)
- Students **may not provide fair or effective peer feedback**, out of competitiveness, solidarity, or implicit biases about the person they are assessing (Usher & Barak, 2018). They also may only provide surface-level comments, that do not provide any practical ideas.
- Peer feedback can be **time-consuming and intimidating** for instructors of large online courses (Mostert & Snowball, 2013).

Strategies/Recommendations

- Ask students to **base their feedback on the same rubric** or criteria that will be used when they are graded.
- Guide students with a feedback model or **encourage them to use specific, action-oriented language**, making it easier for their peers to implement feedback (van der Pol et al., 2008).

- **Use a peer feedback template** to ensure students know the expectations for their feedback and the instructor can easily tell whether students have left out components of the feedback.
- **Use strict and clear deadlines** for students to submit their assignments and their feedback, because their work depends on the work of others.
- Guide students on **how to receive feedback**, such as assuming that the reviewer had positive intent when making comments. Remind students to maintain a professional attitude when reviewing what their peers said about their work.

Other Online Assessment Strategies

- **Concept Mapping/Mind Mapping**: Creation of digital maps that connect various course concepts to one another and to further knowledge.
- **Digital Media Projects**: Students present course work in digital media form rather than submitting written work.
- **Digital Posters**: Academic poster created and presented on a computer. They may include interactive elements or links to online sources.
- **Reflective Writing/Journaling/ Blogging**: Short written assignments reflecting on experiences and learning, often guided by a central question or topic.
- **Research Projects**: Large assignments in which students aim to answer a research question by disproving or failing to disprove a hypothesis.
- **Simulation Activities/Virtual Laboratories**: Online activities that model real-world scenarios, where students must complete tasks or solve problems related to course content.

Transitioning Assessments from Face-to-Face to Online

Online assessments do not have to be radically different to those used in face-to-face courses. Many assessments can be transferred to the online space. A few considerations should be made during this transition process.

- **Time Management**: Online courses tend to be front-heavy, requiring a lot of preparation before the start of the course. Assessment descriptions, rubrics, and supporting resources all need to be ready for students from the first day of the semester. However, the amount of work does not diminish afterwards. Although there is no physical classroom, it is the instructors' role to be present and accessible for students and to monitor their progress (Beebe et al., 2010).
- **Course and Material Organization**: Without face-to-face opportunities to communicate with students, it becomes essential that course materials are clear, accessible and easy to find. Instructions also may need to be re-worded to ensure they are not misinterpreted (Page & Cherry, 2018)
- **Informal Assessment Opportunities:** In online courses, instructors cannot monitor students' progress by assessing their body language or by checking in with them during class. This makes structured formative assessment even more important. Plan more formal opportunities to check in with students, such as question and answer discussion boards, feedback requests, or news bulletins (Beebe et al., 2010).
- **Communication with Students**: Instructors who are used to making comments, suggestions, or clarifications about assessments in class will need to find new ways to share these thoughts with students, whether through news bulletins, emails, or discussion board comments (Beebe et al., 2010).
- **Adjustment Time**: Students who are unfamiliar with the LMS and other technologies used may benefit from an opportunity to practice navigating it, such as through a practice assignment. Ensure students know where to find help with navigating the LMS if needed (Duesbery et al., 2015).

Online Assessment in Action

Example 1: Discussion Boards in Introductory Social Work

Dr. Hieu Ngo, Faculty of Social Work

Course Information: SOWK 201: Introduction to Social Work is an online course that discusses the foundations of the theory, practice, and ethics of social work. Eighty to 100 students take the course each semester.

Assessment Method: At the start of the semester, students pick a case study from a variety of options. These cases are real examples of scenarios in which their social work skills would need to be applied. For each module in the course, students create a discussion board post relating the module topics to their case study. Dr. Ngo divides students into smaller discussion groups of no more than 25 students, so they can build a community over the semester.

Students also must read and comment on two other posts. Dr. Ngo teaches students to provide feedback in an empowering and encouraging way. They are asked to frame constructive feedback as an invitation to try something new or do more, such as "I invite you to consider how social workers can include the perspectives of their communities" or "What other models for practice could be used in this scenario?" This helps students see the positive intentions in the comments, and gives them specific actions for future work.

Dr. Ngo uses a simple grading criteria for these posts. Students have a list of requirements for their posts, and their grade is determined by how well they meet them. For the discussion posts, students must connect course materials to the case study, demonstrate understanding of their case and the context, use critical thinking skills, and organize their thoughts clearly. The four discussion posts are worth 40% of the course grade (10% per post) as they are the primary academic writing for the course

Learning Technologies: All course activities are done in D2L™. Dr. Ngo ensures that the content is logically organized and easy for students to find. All assessments and feedback are posted in discussion boards, so students can learn from one another and can see all of the feedback. Grades are posted privately.

Academic Integrity: To prevent quick copying and not engaging with the case study, students are not able to read posts from their peers until they submit their own main discussion posts.

Key Advice:

- Root all assessments in your **teaching philosophy and pedagogy**. Dr. Ngo believes in education as a means of empowering students to think critically and independently and considers whether the work they are doing aligns with this intention.
- **Invest time in training and checking in with Teaching Assistants (TAs)**, to ensure grading and feedback is fair and consistent. Disputes over grades disappear when TAs and instructors approach assessment the same way.

Example 2: Online Research Papers in Graduate Education Studies

Dr. Barbara Brown, Werklund School of Education

Course Information: Dr. Brown teaches research and specialization courses for students in the Interdisciplinary Master of Education (MEd) program. Most MEd students are educational professionals, either in the K-12 system or in postsecondary institutions. They usually take Dr. Brown's courses alongside their professional commitments.

Assessment Method: Throughout a series of courses, students must write a publication-quality research paper on a topic related to their teaching or educational practice. As this type of work is quite intense, students are not given many other assessments in the courses. To support students in their writing process, Dr. Brown facilitates a variety of feedback methods.

- **Instructor Feedback:** Dr. Brown sends individual feedback to students early in the course to help them determine if their project is on track. She also posts commentary and general advice to the whole class. In order to improve the clarity of feedback, Dr. Brown has started using brief (1-3 minute) one-take videos to provide her comments and suggestions. Students appreciated seeing and hearing the emotions associated with the feedback in the videos, which made it feel more personalized and easier to understand.

- **Peer Feedback:** Students form "studio groups" that meet synchronously to give one another feedback. They remain in these groups for the entire semester so that students can see how their peers are improving and do not have to keep familiarizing themselves with new topics. Dr. Brown joins each synchronous session a few times, as an additional opportunity to communicate with and support the students.

- **Expert Feedback:** Dr. Brown helps connect students to professors, researchers, and other experts in their fields to provide another lens of feedback and additional context for their work. One of the benefits of an online course is being able to reach a wide variety of experts, not just those on campus.

Dr. Brown uses the grading rubric when providing feedback and encourages students to use it for providing peer feedback. They are rarely surprised when they see their final grade because they have received so much feedback and know the grading rubric well.

Learning Technologies: D2L™ is the primary platform for the course. It is organized and available to students before the start of the semester. Synchronous peer feedback sessions are done using Adobe Connect™.

Key Advice:

- Most effective assessment methods work well in any environment. **Utilize your face-to-face assessment strategies** and make modifications to fit them into an online space.

- **Keep video feedback simple**. Jot down key points ahead of time, but still be **brief and authentic**. Do not worry about the background or small noises, as long as it they are not distracting.

Example 3: ePortfolios in Business Technology Management

Dr. Duy Dao, Haskayne School of Business

Course Information: BTMA 431: Gathering, Wrangling, and Analyzing Data in R is a course for upper level business students. The focus is on finding and analyzing online data to answer questions. This course is also offered as DATA 613 (for the post-baccalaureate diploma in Data Science and Analytics) and BTMA 736 (for the MBA program). Up to 35 students take the course in each iteration. This course is delivered face-to-face but Dr. Dao uses online assessment methods.

Assessment Method: At the beginning of the semester, students must create a website and write a short biography of themselves. Throughout the course, they do a series of individual and group projects, where they use course skills such as searching for data, statistical analysis, and visualizing results. For each, they must submit a short video, explaining their interest in the topic, their question and their results for a non-expert audience, presentation slides that explain their process in detail, and the code they used to analyze the data. Each component is posted on the ePortfolio. Students have a lot of freedom over the topics for these projects. They tend to select topics that interest them, so they want to do the research and produce high quality work.

Learning Technologies: Students can use any website platform to create their ePortfolio. Dr. Dao recommends Google Sites, as it is easy to implement Google Analytics, which is necessary for the course work. He has experience using Google Sites to develop his own portfolio, and notes that it is user-friendly, and there are many online resources available to help create and polish websites. His students have never found the process of making the website difficult.

Academic Integrity: Lots of R code is available online, which makes plagiarism easy for students. Dr. Dao regularly searches to see what kind of R code is easily accessible online, but notes that the kinds of questions students answer in their projects are specific and complex, so it would be nearly impossible to find all of the code required online.

Key Advice:

- **Provide a few key exemplars** to show students what a high-quality ePortfolio looks like, as the concept may be unfamiliar to students.
- ePortfolios do not have to include just completed course work. Students can **add draft work, reflections on assignments, peer or instructor feedback, or work from previous courses** in their final ePortfolio. All of these components can be valuable for students' learning. Dr. Dao leaves them as optional, because he believes that since ePortfolios are a tool students can use beyond the course, they should include only what is important to them.

Developing Your Online Assessments

Questions for Reflective Writing

Students may not be used to reflective writing and may not know where to start when one of their assessments require it of them. Reflection is an important part of developing metacognition, an awareness of how one thinks and learns (Tanner. 2012). The following questions can be given to students to spark reflective writing for ePortfolios, Discussion Boards, Journals, Blogs, or other assessments in online courses.

Adapted from Moon (2005):

- What kind of emotional response did you have to your recent learning experiences? Did your feelings impact any actions you took?
- Why is your learning significant to you? What do you want to do with the information from this lesson/topic/course?
- What expert views or perspectives exist on the topic of the reflection? How are they similar or different to your perspectives? How can you use these perspectives to guide further work?
- If you "step back" from this learning experience, does it look different? How?

Adapted from Moussa-Intaty (2015):

- How did this lesson/topic/course change your way of thinking?
- How will you use what you have learned in this lesson/topic/course?
- What was the most surprising thing you learned in this lesson/topic/course?
- How would you change how you approached the lesson/topic/course if you were to do it again?
- What were your biggest obstacles to learning? How will you work around them in the future?
- What else do you want to investigate relating to this lesson/topic/course?If you "step back" from this learning experience, does it look different? How?

Adapted from Watanabe-Crockett (2017):

- Describe a challenging moment in your learning process. How did you overcome this challenge?
- What was the most powerful learning you experienced? Why?
- When solving a problem, how do you know when you have found the best solution?
- How did my learning goals change throughout the course activities?
- What are some of my strengths as a learner? How can I use them to help me?

Translating Assessments from Face-to-Face to Online

Consider an assessment that you use in a face-to-face course. What elements could translate to an online environment? Transitioning to an online space may be an opportunity to rework some aspects of course assessments, but often, many elements do not require significant changes.

	Face-to-Face	***Online***	***Rationale for Changing/Not Changing***
Assessment Method (eg- research project, online quiz, etc.)			
Associated Learning Outcomes (eg- Communicate research findings and their relevance in writing that is appropriate for a non-expert audience)			
Grading/Weighting (eg- 30% of total course grade, 10% for proposal, 20% for final project)			
Timeline/Due Dates (eg- Assignment introduced in week 2, proposal due week 4, final project due week 6)			
Required resources/technology (eg- D2L™ assignment description, library database, etc)			
Feedback Method (eg- video feedback on draft proposal and draft final project)			
Submission Method (eg- D2L™ dropbox)			

Your Online Course Assessment Plan

Assessment item	***Associated Learning Outcomes***	***Weight (formative, summative)***	***Learning Technologies***	***Assessment Instrument (eg- rubric, answer key)***

- ☐ **Does this assessment plan address all course outcomes?**
- ☐ **Does the weighting add up to 100%?**
- ☐ **Is there a balance of formative and summative assessment?**
- ☐ **Is there a variety of assessment methods?**
- ☐ **Is this plan feasible/practical?**

Online Assessment Platform Checklist

There are many important factors to consider when implementing an online assessment. Before doing so, review the following questions and ensure that you can answer them all fully.

Does the LMS available to me meet all of the needs of my assessments? If not, how will I address this issue? Can my assessments be modified to fit the LMS?	
How comfortable do I feel using the platform(s)? Can I easily navigate and find all necessary information? Are there any areas that might be confusing/difficult for students to use?	
What technological support is offered for the platform(s)? Will I be responsible for providing technological support to students as well? Do I feel prepared to do so?	
Are there any concerns about the platform(s) I am using being changed, disrupted, or deleted during the assessment? How would I manage such a situation?	
Do students have to pay to use the platform? If so, does my department allow it? Does my platform follow all other departmental regulations?	
What security or privacy issues exist with the platform(s) I am using? How can I minimize these risks?	
What features does the platform have to protect academic integrity in my assessments? What other measures will I need to use?	

Giving Clear and Effective Feedback

The RISE model is one of many ways to format both instructor and peer feedback. This model structures feedback around four main components (Wray, 2011). The following table outlines the feedback levels and the types of prompts associated using the RISE model.

Feedback Level	***Suggested Prompts***
Reflect: your overall evaluation of the work	"I liked that you included… because…" "I disagree with… because…"
Inquire: additional information you are missing	"Is … what you mean when you say…? "Have you considered…?" "What other perspectives exist on this topic?"
Suggest: ideas for improving the current iteration of the work	"It might help to refine…" "I suggest adding more information to support…"
Elevate: ideas for future work or for raising the current work	"It would be interesting to explore … in a deeper way" "In the future, you could use… to do …"

The next table follows the RISE model to practice writing feedback to students. You can adapt this model to fit with the type of feedback that is appropriate for your students.

Assessment Learning Outcomes:	
Feedback Level	***Comments to Student***
Reflect What do you like/dislike about this students' work? Why?	
Inquire What do you still want to know? What is missing?	
Suggest What can be changed to help this work better meet the assessment criteria?	
Elevate How can this work be brought to a higher level?	

Summary

Regardless of the context, effective and rigorous assessment is essential in higher education. It is a means of fostering students' learning, motivating their engagement, and evaluating their achievement. Designing and implementing good assessments requires thoughtful consideration of the students, the discipline, the course content, and the learning outcomes. In online courses, instructors also must consider how technology will interact with each of these factors.

Research has highlighted some of the benefits, challenges, strategies and good practices of online assessments. These should be utilized within a specific context when developing new assessments or when transitioning assessments from face-to-face to online. This guide has outlined these practices, and provided pragmatic suggestions for the design process in the hopes of encouraging thought and reflection for instructors. However, it is just the start of the process. Assessment design is an iterative process and should be continually evaluated for effectiveness.

Glossary

Alignment: When course assessments directly evaluate students' achievement of the course's specific learning outcomes

Discussion board: An online forum within a learning management system that is available for students to make comments, post assignments, and communicate with one another depending on the context of the course. Most often, discussions are done asynchronously. Different threads can be created for different purposes (Horstmanshof & Brownie, 2011).

ePortfolio: A multi-media collection of artefacts that demonstrate an individual's learning, usually available online in a personal website. Artefacts can include assessments from a course, blog posts/journal entries, photos, videos, presentations, feedback, and any other evidence of learning (Mueller, 2015)

Formative Assessment: Low-stakes (or no stakes) assessments that provide information to students and teachers about the student's current understanding of course materials and learning progress. Formative assessment often has a feedback component (Dixon & Worrell, 2016).

Formative Feedback: Non-evaluative comments and suggestions for improvement made on students' work before its final submission

Learning Management System (LMS): A central online platform used to provide learning materials to students in an online course. Usually, institutions mandate that only the approved LMS (or multiple LMS platforms) be used within them (Ellis, 2009).

Metacognition: One's understanding of their learning and thinking processes (Tanner, 2012).

Online assessment: Any means of evaluating student achievement or providing feedback in fully online credit courses. These assessments can be completely online (such as online exams) or just require online submission (such as essays).

Peer feedback: The process in which students provide comments and suggestions about an assignment or project to one another (Usher & Barak, 2018).

Proctored exams: Exams done in controlled, supervised environments.

Scaffolding: The process of providing students with prompts and supports to help them achieve higher learning. These supports are gradually lifted as students gain knowledge and skills (Sawyer, 2006).

Summative Assessment: Assessments that capture students' learning up to a given point, and evaluate it against a criteria or standard. These are higher-stakes than formative assessments and provide students with a grade (or a Pass/Fail). (Dixon & Worrell, 2016).

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