

Rethinking Exams

The traditional exam, during which students answer questions under close supervision and without consulting course materials, is a staple of academic assessment. When well designed, exams can allow students to demonstrate their individual command of essential knowledge and particular habits of mind and intellectual processes under time pressure; exams can also give students the opportunity to reflect on the course as a whole, to learn from their mistakes, and to improve their ability to study. Finally, many exams are efficient to mark and offer the ability to statistically assess and compare student achievement within and across course offerings.

However, some faculty have raised concerns about whether traditional exams actually fulfill the assessment goals for which they are intended and have looked for ways to restructure their assessments. Below we highlight some the challenges around traditional exams and offer suggestions for modifying or replacing traditional exams in order to more authentically assess and promote student learning.

Challenges to Traditional Exams

Protecting Academic Integrity

If one of the goals of traditional exams is to measure students' knowledge and skills, it is important to ensure that they represent students' individual efforts and abilities. Some question the integrity of traditional exams, especially in the face of studies such as The International Center for Academic Integrity's (2015) review of 68,000 student surveys, which revealed that 68% of undergraduate respondents self-reported cheating on an exam.

Accurately and Fairly Assessing Student Knowledge and Ability

Some studies have found that the pressure and stress some students feel when taking high stakes exams decrease their performance, and the resulting grades are not a true reflection of students' understanding of course content (Chapell et al., 2005). Other research indicates that timed final assessments don't always allow students to show their critical thinking and problem-solving skills.

Promoting Deep Learning and Authentic Habits of Mind

In the best cases, exams are the culmination of a learning process. However, rather than learning experiences, exams can become isolated events for which students cram; this can mean that students' retention of information is not sustained long-term. Further, students can become focused on the mark achieved and may not take the opportunity to learn from exam results. Finally, exam conditions can be artificial, representing a need for memorization and pace of performance that does not match the demands of the professional world (Glass et al., 2013).

Ideas for Modifying Traditional Exams

There are many ways to modify a traditional exam in order to enhance their focus on higher-order thinking and ensure that they better assess authentic learning:

- **Allow students to play a role in developing the exam:** When students design questions for a question bank that will be used on an exam, they are less likely to see the exam as an isolated

event and more likely to see it as part of their learning process. Further, in their efforts to write questions, students will necessarily review and engage with the major themes of the course (Rapke, 2016).

- **Provide students with literature or a real-life scenario to review or annotate ahead of the exam:** By giving students time and space to prepare for what will be on an exam, we can reduce students' anxiety about whether they are focusing their studies on the right material. Instead, confident that they know what will be on the exam, students are better able to focus their thinking on essential concepts. Further, allowing students to bring annotated materials to their exams reduces the importance of rote memorization and increases attention to higher-order thinking and analysis (Sulzinski, 2021).
- **Permit technology and access to resources during exams to foster deep learning:** By allowing students to use some resources or materials during an exam, we can help to take their focus off of memorizing information and guide students toward considering larger themes and ideas. We can also test their ability to find high quality sources to answer questions, a key critical skill (Williams & Wong, 2009).
- **Keep multiple-choice questions but require that students explain why each option is correct or incorrect:** Students must demonstrate understanding of the course material by providing an explanation of why a particular answer is correct and the alternative answers are wrong. Students need to provide a strong argument or rationale for their choice, which can help develop higher-order and critical thinking skills. This eliminates the ability to randomly select an answer without considering what the question is asking (Liu et al., 2011).

Ideas for Alternatives to Traditional Exams

Using alternatives to traditional exams can relieve students' anxiety about exam conditions, encourage them to be more invested in the outcome of the assessment, and promote higher-order thinking and reflection. Below are some ideas of alternatives to invigilated, timed exams along with links to further information and exemplars.

Assessments for Remote Teaching: You can find a helpful set of guidelines to a wide range of alternative assessments in remote courses in the CTL's ["Assessments for Remote Teaching: Definitions, Guidelines, Uses, and Limitations"](#):

Case studies: Case studies require students to apply course concepts to authentic situations, which focuses them on higher order thinking. [In her talk at the CTL's assessment workshop](#), Professor Kateryna Keefer explained the benefits she found in assigning a case study assignment in lieu of a traditional final exam. For further reading, Boston University provides a helpful [overview of the benefits of case studies](#) as a teaching method as well as the practical considerations involved with incorporating case studies into higher education courses.

Take-home exams: Take-home exams can reduce students' anxiety by giving them ample time and resources to complete the assigned questions. [In her presentation at the CTL's assessment working group](#), Professor Shannon Accettone explained the benefits she found by replacing traditional exams with take-home assignment. For further reading, The University of Guelph offers [a helpful set of tips for designing take-home assessments](#).

Research Projects or Poster Presentations: Projects or poster presentations can be assigned as either individual or group assignments to allow students to apply course concepts to areas of interest. They also promote the development of critical research and communication skills. Lakehead University offers [a concise guide to assigning and marking poster presentations](#).

Series of lower stake quizzes rather than one high-stake cumulative final assessment: Research suggests that large exams create higher levels of student anxiety and environments in which students are more likely to cheat. By breaking exams up into smaller quizzes, students are encouraged to keep up with course readings and lectures and study throughout the term rather than cramming for a larger assessment at the end of term. In [“Frequent Low Stakes Assessment,”](#) a professor explains his use of the strategy in his English courses.

Collaborative Testing: Rather than insisting that exams be completed individually, faculty who use collaborative testing allow students to work in groups to complete assessments. This can reduce students’ stress, eliminate many problems associated with cheating, and increase student engagement with core concepts. For more on collaborative testing, take a look at [Dr. Robyne Hanley-Dafoe’s summary of her research at Trent using this method](#).

Oral exams: Asking students to answer exam questions orally can have many benefits, including ensuring their answers represent their individual ability and providing students with an opportunity to explain ideas in their own words. [“Revitalizing Classes through Oral Exams”](#) explains one math professor’s experience with using oral exams.

References

- Chapell, M., Blanding, Z., Silverstein, M., Takahashi, M., Newman, B., Gubi, A., & McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate Students. *Journal of Educational Psychology*, 97(2), 268–274. <https://doi.org/10.1037/0022-0663.97.2.268>
- Glass, A., Ingate, M., & Sinha, N. (2013). The Effect of a final exam on long-term retention. *The Journal of General Psychology*, 140(3), 224–241. <https://doi.org/10.1080/00221309.2013.797379>
- International Center for Academic Integrity. (2015). Statistics. <https://www.academicintegrity.org/statistics/>
- Liu, O., Lee, H., & Linn, M. (2011). An Investigation of explanation multiple-choice items in science assessment. *Educational Assessment*, 16(3), 164–184. <https://doi.org/10.1080/10627197.2011.611702>
- Rapke, T. (2016). A process of students and their instructor developing a final closed-book mathematics exam. *Research in Mathematics Education*, 18(1), 27–42. <https://doi.org/10.1080/14794802.2015.1134342>
- Sulzinski, M. (2021). Novel primary literature-based alternative to comprehensive final examination for undergraduate virology course. *Biochemistry and Molecular Biology Education*, 49(1), 46–54. <https://doi.org/10.1002/bmb.21390>

Williams, J., & Wong, A. (2009). The efficacy of final examinations: A comparative study of closed-book, invigilated exams and open-book, open-web exams. *British Journal of Educational Technology*, 40(2), 227–236. <https://doi.org/10.1111/j.1467-8535.2008.00929.x>

Written by Dana Capell and Susan Yates