

Teaching Tip: Computer-Based Exams and Preventing Cheating

It is becoming more common for students to write tests and exams on computers in either proctored (on-site and supervised) or un-proctored (off-site and unsupervised) situations. This teaching tip is about proctored situations.

Key Question:

How can we set up a cheat-free, academic environment for tests done on computers?

Key Words

Computer-Based Testing, Academic Dishonesty, Cheating, Assessment Strategies

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Computer-based exams have some obvious advantages compared to traditional paper-based exams. These include 1) the possibility of more innovative and authentic assessment including having students respond to video clips or simulations or use software to resolve case studies, and 2) efficiency due to immediate scoring and feedback (e.g., for multiple-choice questions).

There is almost no research on cheating attempts on computer-based exams. Hypotheses abound that cheating is easier. Some people suggest that this is due to the possibility of accessing materials. Others the proximity of monitors in labs. Still others that it is something about the set-up of computer-based exams that make students nervous and likely to plan to cheat. It is possible that student concerns or fears may lead to some cheating attempts. Students, however, have some hesitations about computer-based exams. Boevé, Meijer, Albers, Beetsma, & Bosker (2015) found that the students in their study, who were all direct entry from high school, performed the same in both modes (paper-based and computer-based) in terms of scores but preferred paper-based exams due to “their ability to work in a structured manner, have a good overview of their progress through the exam, and their ability to concentrate”(p. 9).

Regardless of the unknown volume of cheating occurring and the reasons for it, working with our students we can make computer-based exams occur in a comfortable and relatively cheat-proof environment. Be sure to look at the previous teaching tip “Preventing Cheating on Tests and Exams” as many of those general protocols need to be in place in computer labs as well.

Proctored Computer-Based Exams: Suggestions and Innovations:

1. **Test Design:** Avoid tests that can only be passed with large amounts of memorization of facts as this encourages cheating. Design test with a variety of questions including ones requiring application and higher order thinking skills. You can also include questions that are unique to the student such as “Using the same topic you chose for your presentation/report, answer the following three questions.”
2. **Practice Test:** It is a good idea to provide test familiarization to students. Use the same devices (college computers or their lap tops or phones in the case of clicker/polling

tests) for a no-stakes or low-stakes assessment before using it for high-stakes tests and exams. Never assume that all of your students are familiar with all technology. Also take into consideration that students may need to adapt their test-taking strategies. For example, if you have set the test up so they can't go back to a previous question then this is very different from a paper-based test where students can do the easy questions first and go back to ones they are not sure about. A practice test will help alleviate anxiety.

3. **Test Protocols:** Provide written protocols for the exam. Post them on eConestoga and, perhaps, email them to the class the day before.
4. **New Test Each Delivery:** Because screen-shot and copy-paste copy are so accessible on computer devices, there is a strong possibility that students will retain and sell or share test questions. Even when randomizing of test question order and answer order occurs, it is a good idea to add new questions to the pool and remove test questions which were not successful. Do not enable the function "display all" as this makes it easier to quickly snap a photo of a set of questions.
5. **Seating:** Much of the advice in the teaching tip on paper-based exams applies here. Do a sweep of the room prior to student entry and assign seats to reduce the possibilities that students have stashed information or planned to collaborate with another student.
6. **Software:** In Conestoga's computer labs you can use technology to prevent students from accessing the internet, etc.
7. **Other Electronic Devices:** Be sure that students turn off their phones and other electronic devices (e.g., tablets, smart watches) and place them out of reach or in a sealed zip-lock bag.
8. **Saving the Test:** At the start, circulate and check off that each student has successfully logged on and started. Be sure they have saved their work to the expected location. Remind students to save their work periodically. Ask students to raise their hands when complete and let them show you that they have submitted and/or logged out of the test. Check their name off on an attendance sheet. Otherwise, students may later claim technical problems that did not exist.
9. **Proctoring:** Have students sign in and place their OneCard on their table. Proctoring in computer labs is tricky as you can only see the hands and screens of students in one row at a time. Be sure to circulate continuously wearing quiet shoes. Avoid standing over students as this can make even the guiltless nervous.
10. **Privacy Screens and Wandering Eyes:** Students do not like it when cheating is possible. With most computers placed close together it is easy for students to look at each other's screens. A study by Escudier, Tricio, & Odell (2014) found that 86% of students reported that computer screen privacy filters contributed to the exams' fairness. Large pieces of Bristol board or manufactured privacy screens can be used so that students can't glance over at each other's screens. Given the close proximity in some labs, this can make students feel more comfortable. Invite students to stretch and look at the floor or ceiling if they are getting a stiff neck.

11. **Finger Tapping and Talking:** In your exam protocol, tell students in advance that you will give one warning and make note on the attendance if anyone speaks aloud (except to you after raising a hand) or taps their fingers or toes. Tell them that a second instance will be considered cheating.
12. **Paper Copies of the Test:** Bring paper copies of the test, where possible, in case a student has a technology failure. Glitches such as non-access to the test or internet problems will occasionally occur.
13. **Technical Issues:** Let students know that everything they do while logged into their Conestoga account is identifiable. IT should be able to confirm any claims student's make about crashes or lost time. They can also see if a student has accessed other sites.

If you want to add to this conversation or have questions to share, please visit the <https://share01.conestogac.on.ca/sites/organizational-development/teaching-learning/evaluationFAQs/layouts/15/start.aspx#/SitePages/Community%20Home.aspx> Note: You may need to cut and paste this link into a browser such as Chrome. On hand-held devices you may need to log in with your entire email. The Discussion Board is on Conestoga's new SharePoint site.

References

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