

Cheating Mitigation in Online Assessment

Since early spring 2020, the pandemic (COVID-19) outbreak has hindered on-campus attendance, and most institutes were forced to migrate to an online/remote teaching approach. The efficiency of online assessment is crucial and will depend mainly on students' honesty as the absence of face-to-face proctoring raises concerns about cheating. The focus of the tips presented is on the mitigation of cheating attempts during online assessment.

Tip 1: Create or paraphrase the question

Questions can be created either by developing the question from scratch or by rephrasing some of the previously discussed questions. Paraphrasing is a potent tool to aggravate the benefits of cheating during online exams. Golden and Kohlbeck found that by paraphrasing questions, students' average scores dropped from 80.4% to 69.1%, even though the online exam was controlled through an honor code statement and proctoring technology.^[1] The chance for cheating is further reduced when questions are specifically created for the online exam.

The use of online proctoring tools, such as Respondus Lockdown or Dyknow classroom management, helps the proctor limit students' access to an online resource or to search online for answers to questions on the machine they are using for the assessment. However, students can use other devices, such as tablets or smartphones, to do such a search. The latter can be avoided by asking students to have their examination machine camera turned on and be monitored for any wired movements during the exam.

Tip 2: Create a test of randomly selected questions from a wide question pool

The online testing tool within most learning platforms enables the user to create numerous pools of questions; each pool may represent a chapter, a lesson, or even a type of problem. Then, an online test can be created by assigning questions from separate question pools. This approach ensures that each student is given a random selection of questions, minimizing the chance of students having the same question, thus minimizing the chance of students sharing answers to questions. It is crucial to consider the question pool size relative to the number of students, hence reducing the probability of having the same questions repeated among some students. The larger the pool size, the higher the probability of "No Repeats," known statistically as "The General Birthday Problem."^[2]

An illustration of this problem shows that, for a random set of 5 questions to be selected from a total pool of 10 questions, there is a "No Repeat" probability of only 30%, which increases to 90% and 95% upon increasing the pool size to 100 and 200 questions, respectively.^[3] Breaking the large question pool into smaller pools equal to the number of questions to be withdrawn is another strategy to minimize the probability of repeating questions. This requires additional effort from the instructor, which may be worthwhile.

Another useful advice in this tip is to "randomize questions" such that questions on specific topics are not given to all students at the same time and students are provided only one question at a time. Students will not be able to cross-check their questions. "Prohibit Backtracking" is also a good option to prevent students from going back to check their answers with a colleague. However, this option puts more stress on the student during the exam and can be used only when the question pool is limited. Another critical point is not allowing the student to receive feedback on their mistakes immediately upon submitting their test. Instead, it is recommended to provide feedback later after all students have submitted the test. This also reduces the chance of students who submit the test earlier communicating the answers to those who have not yet submitted the test.

Tip 3: Trick the online tutors and hamper their endeavors

Students can get help from external tutors during the exam, with numerous freelancers offering this service at a reasonable cost. This dishonest academic behavior is the trickiest one and hardest to avoid. One useful technique is using a less common academic term in the problem statement, which may be unfamiliar to regular tutors. One example in the fluid mechanics course is the use of Fanning or Darcy friction factors to calculate the pressure drop, which is relevant but different. However, instructors need to make sure that these terms have already been used during classes. Another technique is to request that students solve problems by a certain methodology or approach that has been explained in class; then, check if any other methodology has been used, which can be considered as a possible indication, rather than a proof, of cheating or using a tutoring service.

REFERENCES

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3. Cookel (2015) Pool Size and Sampling in the Blackboard Testing system – Testing Best Practices Part II. Perspectives in Teaching & Learning. <https://sites.wit.edu/lit/pool-size-and-sampling-in-the-blackboard-testing-system-testing-best-practices-part-ii/> accessed October 27, 2020. □

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