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In This Issue

Invited Article:
Detecting Academic Dishonesty in Un-Proctored Examinations

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This article presents a conceptual framework that can act as a guideline when conducting studies to detect cheating. The standard definition of "cheating" involves an examination or assignment considered to be an act of academic dishonesty that includes: (1) the communicating with fellow examinees or external sources, (2) looking into another examinee's answer paper or computer screen, and/or (3) use of unauthorized electronic devices, materials, notes, study aids, or other devices not authorized by the instructor in an academic exercise. Although there appears to be a difference between the definition of cheating and actual academic dishonesty, both terms appear regularly in the literature, and are therefore used interchangeably in this paper.

Cheating that occurs on proctored in-class examinations as well as on un-proctored online examinations has been studied widely in the last decade, and is well documented in the literature. The general perception is that un-proctored online examinations will demonstrate higher incidences of cheating. For example, it is reported that 75% of accounting students at a state university in Florida perceive that it is easier to cheat on an online examination than on a proctored in-class examination.

The large number of researchers drawn to this field has generated an abundance of scholarly efforts on the academic dishonesty occurring on online exams. Many of these papers are written for someone with a higher level of knowledge of statistical methods. At the same time, there are instructors with qualitative backgrounds and a working knowledge of statistics. These instructors who plan to conduct a cheating study should spend considerable time and effort searching for the most relevant methodology. Hence, there is an urgent need for a pre-planned and well organized procedure (framework) for instructors and researchers to use in detecting cheating on online or on other un-proctored exams (e.g., take-home exams).

THE PROPOSED CHEATING DETECTION FRAMEWORK (CDF)

The proposed Cheating Detection Framework (CDF) on online examinations is based on a comparison of results from proctored and un-proctored examination results. A scheme has been created based on a sample of 100 students' scores in similar courses taught with an online as well as face-to-face format. It has the following steps:

Step 1. Compare un-proctored examination results with proctored examination results. If un-proctored examination scores are 15% higher, then cheating has occurred (use cheating mitigation guidelines), if not, go to step 2.

Step 2. Perform a simple t-test to compare means. If the hypothesis of equality of means of proctored and un-proctored examinations is rejected, then cheating has occurred, if not (use cheating mitigation guidelines), go to step 3.

Step 3. Perform a multiple regression analysis with GPA, number of absences, percentage of homework completed and gender as independent variables and exam scores as the dependent variable. If the R-squared of regression is insignificant for the regression model for the un-proctored examination, then cheating has occurred (use cheating mitigation guidelines), if not, stop as a statistical difference is not significant enough to detect cheating (further testing is optional.)

GUIDELINES FOR MITIGATE CHEATING

After detecting cheating in an un-proctored exam, it is the instructor's responsibility to take appropriate steps to avert or mitigate cheating. Researchers are engaged primarily in technical approaches to control cheating. One major technical issue with an un-proctored online examination is authentication; that is, who is actually taking the online exam? There are software tools available to provide such authentication. However, these advanced systems can be expensive to implement and operate. There are pragmatic approaches that are easier to implement at a low or no cost, especially if an institution uses Blackboard, CANVAS or other web-based course management systems. The following is a list of recommendations gathered by the authors, some of which are also used by other researchers.

(i) Students must be appraised of the University's Code of Conduct regarding academic dishonesty and the detecting software (if available) that will be used.
(ii) The online examinations must have a stringent warning about cheating printed on Page 1 of the examination.
(iii) The penalty for cheating must be set high. Just issuing a warning or failing the exam does not hinder future cheating, while a "simply look the other way" response encourages more students to cheat, and more often. The student caught cheating not only needs to fail the exam but must also be required to drop the course and retake it the following semester.
(iv) Avoid giving the same multiple choice or other style test questions in the following examination every semester. Students do have access to past examinations. In the authors' opinion, an instructor must change at least 75 % of his/her previous examination questions.
(v) As far as possible, avoid using a test bank from the publisher. These, or equivalent test banks, are available for purchase from the Internet. Preparing one's own question bank or modifying the publisher's test bank may be time-consuming, but it lessens the chance of cheating.
(vi) Make-up examinations for students who miss the regular examinations must have different and more challenging questions than the regular examinations so as to discourage future requests for make-up examinations.
(vii) Use the following anti-cheating options in different web-based educational sites that make it more difficult to cheat:

- Present questions one at a time and/ in a random fashion with no backtracking.
- Multiple choice answers can be scrambled so every student gets a different answer

sequence presented.

- Provide just enough time that it would take a normal student to complete the full examination.
- Answers to questions must be posted after the examination due date.
- Check exams with the same score to see if there is any distinctive similarity between the answers to questions.
- Compare each student's examination times with the average for the class, especially for students getting a high score in spite of having a poor attendance record.
- A student finishing an examination in an abnormally short time may be a cheating suspect.
- Check the clock time at which cheating students started and finished the examination and compare this with the time span of other students, to determine if they worked in groups.

LIMITATIONS OF CDF

The Cheating Detection Framework (CDF) can experience problems if there is a very narrow difference in the proctored examination scores and un-proctored scores. In such cases, statistical testing will be inclusive. If the CDF does not provide decisive results, the decision should be shifted back to the instructor.

The CDF is designed for use on a wide range of standard undergraduate courses where grades are computed objectively (e.g., multiple choice). There are some restrictions in applying it for graduate courses that are more specialized and where grading is often subjective.

Multiple-Choice Tests: Revisiting the Pros and Cons

By Maryellen Weimer, PhD
From: FacultyFocus.Com

Given class sizes, teaching loads, and a host of other academic responsibilities, many teachers feel as though multiple-choice tests are the only viable option. Their widespread use justifies a regular review of those features that make these tests an effective way to assess learning and ongoing consideration of those features that compromise how much learning they promote.

What multiple-choice testing has going for it.

- Scoring is quick and easy, especially if a machine is involved.
- Easy creation of multiple versions, again with machine assistance. Plus, there's the potential to grow the collection of questions every time the course is taught.
- Simple statistics (now regularly calculated by computer or via LMS) allow item analysis to reveal how well a question discriminates between those who know the material and those who don't.
- Can be graded objectively without rater bias.
- Allow for inclusion of a broad range of topics on a single exam thereby effectively testing the breadth of a student's knowledge.

Potential benefits of multiple-choice test questions when done right.

- On too many multiple-choice tests, the questions do nothing more than assess whether students have memorized certain facts and details. But well-written questions can move students to higher-order thinking, such as application, integration, and evaluation. SAT questions illustrate how thought-provoking a multiple-choice question can be.
  Ways to address: Recognize the amount of time it takes to write a good question. Preserve and reuse good questions. Consider using only three-answer options. Research says you can; check the reference below.
- Questions can be clearly written and if they are, it's a straight shot to what the student knows. But the clarity of multiple-choice questions is easily and regularly compromised—with negatives or too much material in the stem, for example.
  Ways to address: Do an item analysis and find out if a question is being missed by those with high exam scores. If so, there's probably something wrong with the question and it should be tossed.

What's problematic about multiple-choice testing?

- A careful reading of some questions can reveal the right answer, and test savvy students will use this to their advantage. It might be the grammatical structure that only fits one answer option or the longer length of the correct response. What happens here is that the questions end up testing literary skill rather than content knowledge.
  Ways to address: Give the test to someone not taking the course and see how many questions they get correct. Ask if something tipped them off to the right answer.

- With lucky guesses students get credit for correct answers. It looks like they know something they don't know.
  Ways to address: 1) Avoid throw-away answer options—those that are obviously incorrect. If the student doesn't know the answer but can rule out one or two of the options, they've significantly upped the chances of getting it right. 2) Some teachers use a formula that gives points for the correct answer and takes a lesser amount of points off for answers missed. This approach, not terribly popular with students, decreases guessing by forcing student to leave questions blank when they don't know. 3) Others have students rate the level of confidence they have in their answer, which becomes part of the score. Correct answers with high confidence ratings score the highest. Correct answers with low confidence ratings get a lower score.
- Wrong answer options expose students to misinformation, which can influence subsequent thinking about the content. This is especially true if students carefully consider the options and select an incorrect one after having persuaded themselves that it's right.
  Ways to address: Spend time during the debrief on incorrect answer options regularly selected. This is a time when students need to be doing the leg work, not the teacher. Have them talk with each other, check notes, look things up in the text, and then explain why the option is incorrect. Make five bonus points available during the debrief. Those points are earned for everyone in the class by students who explain why certain answer options are wrong. More points are awarded when the explanation is offered by someone who selected that incorrect option.
- Asked for their test preference, most students pick multiple-choice tests. They like them because they think they're easier. And they are. With a multiple-choice question, the answer is selected, not generated. Students

also think they're easier because they're are used to multiple-choice questions that test recall, ask for definitions, or have answers that can be memorized without being all that well understood.
Ways to address: Write questions that make students think.

If you regularly use multiple-choice tests, you ought to have a good working knowledge of the research associated with them. That can be acquired with one well-organized and easily understood "Teacher-Ready Research Review."
Xu, X., Kauer, S., and Tupy, S. (2016). Multiple-choice questions: Tips for optimizing assessment in-seat and online. *Scholarship of Teaching and Learning in Psychology, 2* (2), 147-158.
An article highlighting the research covered in the Xu, et al. appeared in the November 2016 issue of *The Teaching Professor*.

For more on multiple-choice tests, read:

- Seven Mistakes to Avoid When Writing Multiple-Choice Questions
- 30 Tips for Writing Good Multiple-Choice Questions
- Advantages and Disadvantages of Different Types of Test Questions
- Tips for Writing Good Multiple-Choice Questions

Announcements

Teaching Professor Conference

June 1-3, 2018 at the Westin Peachtree Plaza in Atlanta

Each year the Teaching Professor Conference brings together more than 1,000 of your colleagues for what past attendees have called "refreshing and invigorating," "the best teaching conference I have ever attended," and "a great chance to really get at the nitty gritty of how to get students engaged and invested."
Seven Reasons to Attend
Register now and join your colleagues in Atlanta to:

1. Uncover ways to refresh, re-energize, and reinvigorate your teaching
2. Discover new pedagogical practices that work
3. Share ideas with others who are equally committed to excellence in teaching and learning
4. Learn from nationally recognized teaching and learning experts
5. Participate in interdisciplinary learning and networking
6. Discover new tools and resources
7. Find inspiration from faculty from throughout the U.S., Canada, and abroad

The Teaching Professor Conference is an impressive gathering of faculty who are dedicated to improving instruction and enhancing student outcomes. The conference has built such a strong reputation over the years that it received a record number of proposals for the 2018 Teaching Professor Conference—468 to be exact! Proposals underwent a rigorous, blind review from our advisory board, with three members thoroughly reviewing each proposal and scoring it against the evaluation rubric. From this crop of proposals, we only accepted roughly 17%, so you can be sure that you'll be learning from a high-caliber roster of exceptional college faculty.
We just announced the full list of selected speakers and encourage you to check

out the impressive line-up of speakers and topics we have in store for you. View concurrent sessions.
We hope to see you at the Teaching Professor Conference in Atlanta—either as a first-time attendee or as a participant who's coming back for more.
Secure your place at the **15th Annual Teaching Professor Conference**, June 1-3. Pay online now or select "bill me" and we'll send you an invoice.

REGISTER

If you're a Faculty Focus Premium member, there's still time to register for just $599. (Simply log into your account, follow the top-secret instructions provided under Current Member Discounts, and register by March 2.) **Not yet a member?** Sign and you, too, can take advantage of our special membership pricing. Offer expires March 2, 2018. Good on new registrations only.