An Appraisal of Proctorless Assessments: A Higher Education Perspective

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Table of Contents

Abstract

Proctorless assessments run the gamut from techniques for increasing test security within an online testing environment, to other means of assessments including projects, essays, group work, take-home exams, and ePortfolios. Generally speaking, college students are accustomed to these alternate assessment methods, as they were more likely exposed to them in elementary/secondary schooling. Although these assessments do preclude the need for a proctor, it must be conceded that they are more cumbersome to develop, and take longer to grade than simple multiple-choice questions. However, a satisfying benefit is that these alternate assessments often land higher on Bloom's Taxonomy, as they tend to assess higher-order cognitive skills. They may also help to mitigate student misuse of test banks, i.e. for cheating, rather than for legitimate study purposes.

Definition of Terms

A strict agreement on the meanings of terms used in this essay will facilitate the discussion. This section will pull out the most salient terms; please refer to the Glossary for a full list of terms used in this document.

- **Assessments** – the systematic basis for making inferences about the learning and development of students.
- **Exams** – an assessment intended to measure a test-taker's knowledge, skill, aptitude, physical fitness, or classification in a subject by comparing it against some standard or benchmark.
- **Online Exams** - a test taken on a computer or some type of device.
- **Proctors** - a person who monitors students during an examination.
- **Proctoring Technology** - hardware/software solutions which can replace the presence of proctors.

Introduction

The current pandemic is causing droves of faculty—albeit reluctantly—to have to deliver their courses online. However, many have discovered one aspect of online course delivery that they do appreciate----and that was online testing. A massive step forward, online testing was found to:

1. save time grading exams, as the learning management system (LMS) will grade automatically
2. save time recording grades, as the LMS records the grades to the gradebook automatically (please see auto-grading in the glossary);
3. offer the opportunity for distinct question sets to be delivered to students by random selection from a question pool;
4. replace the use of optical mark recognition (OMR) solutions, such as Scantron (see optical mark recognition in the glossary).

Point number three is worthy of closer evaluation; prior to online testing, faculty would commonly have students take their exams in-classroom, or at a testing center. The student would be issued the exam, and the OMR bubble form to enter their responses. Some testing centers might scan that form for the instructor, and report the grades and statistics; but not all of them. In many cases, the instructor might have to do it themselves, which is why it is not uncommon to see Scantron devices scattered about in faculty work areas.

With online testing, the student will log into a computer at the testing center. Once provided a password to the exam, the student could take it, and ofttimes, know the results immediately. Those results are also immediately available to the instructor. This eliminates the testing center middleman for assessing and compiling results[1].

This time of pandemic has prompted the shutdown of all campus services, including the testing centers. With the exclusion of on-site human proctors, the need to find ways to conduct high-stakes proctorless assessments remotely has become more urgent than ever before.

The answer to this challenge lies somewhere between technology and creative pedagogy.

Two Principal Approaches: Proctorless Online Exams and Subjective Assessments

This paper will examine the two broad categories of approaches to proctorless assessments: proctorless online exams and subjective assessments. As we consider these approaches, they should not be thought of as being oppositional to each other, or even as substitutes. Rather, they should be thought of as co-existing on a spectrum, with each approach located at the poles, and features of each approach being used freely throughout.

Also, as we consider these approaches, we must also consider how well the students will take to using them. As it happens, this may be the least of our concerns. As mentioned prior, college students are accustomed to the alternate assessment methods. Indeed, they might be surprised to find that we do *not* utilize these alternative assessments to the extent that they are used in grade school and high school.

One drawback that must be acknowledged before going forward, is that each of these approaches are more work for the faculty. Although these assessments do preclude the need for a proctor, it must be conceded that they are more cumbersome to develop, and take longer to grade than simple quantitative questions.

Proctorless Online Exams

Before delving into this discussion of proctorless online exams, we must first look at the alternatives: human-proctored online exams, and technology-mediated proctoring.

Human-proctoring has already been dismissed, as not being a valid approach given that campuses are shut down. This being the case, the first thought has been to employ technology to replace human proctoring. Although a number of solutions exist, Lone Star College has concentrated on these three: Respondus Lockdown Browser with Monitoring (RLDBM), Proctor U, and SmarterProctoring.

Although facilitated by technology, none of the named solutions are entirely human-free. However, ProctorU and SmarterProctoring provide the human monitoring—accomplished remotely, in real time--while RLDBM merely makes a video record of the testing session, which the instructor can review afterwards. The difference in service

[1] Another, currently almost unused feature of online testing is the metadata that is compiled about students and questions. It is not unlike the metadata Scantron provides through its software. This metadata provides insights on average student grade, question reliability, discrimination index, and the point biserial. In D2L, it's called the Insights Portal.

level is reflected in the difference in cost, with ProctorU and SmarterProctoring being more expensive[2]. This greater cost is incentive enough for institutions and instructors to opt for lower cost solutions, wherever possible. That specified, it should be noted that faculty requiring proctoring for exams given in publishers' content may by necessity have to use ProctorU or SmarterProctoring, as RLDBM—at least as deployed at Lone Star College--only works for exams embedded within D2L.

Proctorless online exams leverage the existing online testing environment to create exams suitable for low-stakes, self-assessment and diagnostic quizzes all the way up to high-stakes midterms and final exams. They accomplish this through a combination of webcams, tweaking the exam settings and creative question design. Please refer to the VTAC article Proctorless Exams Within D2L for a printable handout containing specific directions on how to accomplish these within D2L.

- **Respondus Lockdown Browser with Monitor** – This is perhaps the most self-evident solution; RLDBM locks the student into the test environment on the testing device. This solution requires a webcam.

- **Exam Monitoring via WebEx.:** This is a two-step technique; first, within D2L use Special Access to schedule each student their own assigned test window. Next, use the Appointment Booking tool in Webex to set up private meetings with the students. The student will share their exam screen, and take the exam while the instructor observes. This solution requires a webcam.

- **Simultaneous exams:** limit the exam to the posted testing time, rather than allowing students to take the exam at any time. There will be no time to share answers

- **Limit the time allotted per question.** For example, the instructor might decide that two minutes per question is sufficient, so for a 60-question exam, they might allot 120 minutes.

- **Randomize the questions from a Question Pool** – delivers a unique exam to each student by randomly pulling questions from a question pool.

- **Shuffle the question order** – randomizes the question order in a static exam.

- **Random responses order in a Multiple Choice question** – randomizes for each student the order of responses in True/False and Multiple Choice questions.

- **Essay question** – a time-tested question type; it can be used the traditional way, in which a question is posed, and an essay response required, or in these alternative ways:

    - *Expanded Multiple Choice* – a type of multiple choice having one correct answer, but students must also explain their response;

[2] Prior to Spring 2020, students were required to pay these proctoring fees; as of mid-Spring and Summer, Lone Star College is—at least temporarily—absorbing these costs, so that students may use these services for free.

- *Expanded Multiple Select* – a type of multiple choice having more than one correct answer; the student must explain their choice;

- *Expanded ordering* – given a set of factors, students must rate their importance to a particular outcome, and explain their ordering. For example, students must identify the four factors leading up to the Great Depression, and argue which had the greatest impact, and then rate the others accordingly;

- *Mix-match* – in a usual matching question, students must match items in Column B to its pair in Column B. In a Mix-Match, all the terms are thrown together, and the students must determine which terms are Column A and which are Column B and match them.

- *Describe what you see* – the question would have an embedded image, and the student would be required to describe what they see. For example, a Spanish instructor might have a picture of a marketplace, and the student must describe—in Spanish—the things they see. Or, a geology instructor might have a picture of some rock formation or strata, and the student must describe what it is.

- *Problem-solving* – student would be presented with a case study having a problem which must be addressed, and they would describe the steps they would take to address the issue.

- *Video/Audio* – this question would embed an audio or video clip; the student must—for example--identify who is speaking and/or what the event is, and the importance of this event. A student might also listen to a music clip and be required to identify it or listen to animal calls and correctly identify the animal. Or a student might watch a clip from a play and identify the play, or the performer or playwright. Or watch a clip of a nursing technique, and identify what the performer was doing right, or wrong.

Subjective Assessments

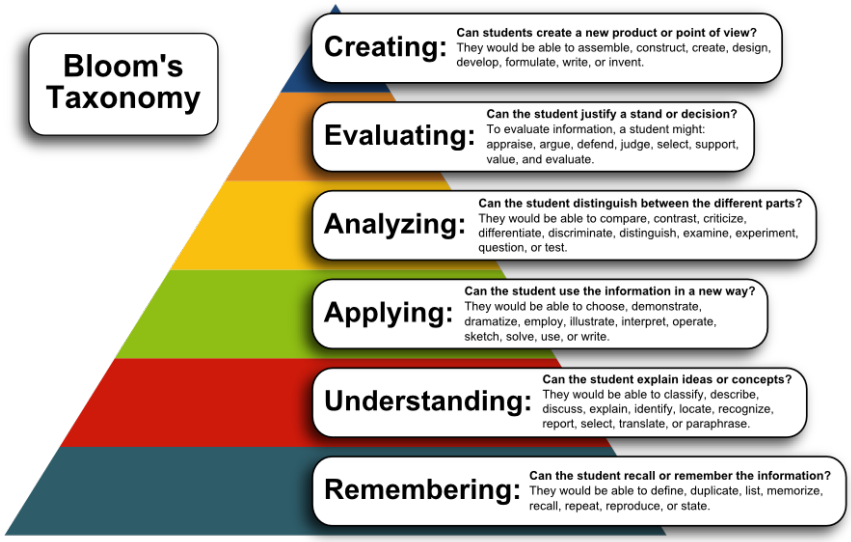
To better understand subjective assessments, a look at *objective assessments* should be the start. Objective assessments would be the broad rubric under which all proctorless online exams would fall. This assessment type is very specific, having a predetermined correct answer. Answers are scored in exactly the same manner for all test-takers. It is this quality of precise answers that makes objective assessments well-suited to online testing.

By contrast, subjective assessments are a form of querying which may have more than one correct answer, or perhaps more than one way of expressing a correct answer. Because no single wording or set of responses is the correct answer, these must be assessed by a content expert, or some designated proxy. These do not lend themselves well to machine grading.

One outcome of the move to online testing has been an increased reliance on publishers' test banks. These can offer tremendous work relief for faculty, but there is a danger that students might buy the test bank themselves and use them to gain an unfair advantage, as happened at University of Central Florida in 2010. Increased reliance on subjective assessment methods may help reduce the risk of cheating, as well as provide

ways of evaluating student achievement without the method of question-and-answers. Please refer to the VTAC article Assessing Your Students for a printable list of these recommendations.

A satisfying and bonus benefit to employing subjective assessments is that they often land higher on Bloom's Taxonomy (BT), as they are capable of assessing higher-order cognitive skills.



Multiple-choice, true-false, and even matching questions—quantitative question types that online exams and Scantron can work with—are ill-suited for assessing higher-order cognitive skills; they tend to assess at the very bottom of BT, i.e. the Remembering scale. Limited to such tasks as defining, memorizing, selecting, and matching, these questions best serve survey and introductory courses, but may fail to assess the type of critical thinking needed and desired for advanced courses.

There are two main categories for subjective assessments – Authentic and Performance-based. An authentic assessment can be a demonstration of activities that are applicable to real-world situations. The Performance-based assessment can be demonstrated when students are asked to apply concepts or knowledge that measure what the student can do.

1. **Essay/writing assignment** – A time-tested method of student assessment, the essay paper remains a premiere tool in its traditional form; here are a few alternative ideas:

    a. *executive summary* – students must create an abstract of a paper.

    b. *thesis statement and introduction with citations* – students must read a select number of sources, and then compose a thesis statement and introduction for a paper they would write and create a bibliography.

    c. *expanded bibliography* – students must provide a bibliography; for each entry, they must critique the source, and detail their reasoning for use.

2. **"Take-home" exam** – students are presented an exam with multiple essay questions.

3. **Presentations** - students are given a section or topic to present to the class via video conferencing; alternatively, students might be required to present and defend a paper they've written.

4. **PowerPoint slides** - a digital "poster session" the student creates on a topic

5. **Cognitive maps** - visual-mapping strategies for organizing, communicating, and retaining knowledge. Cognitive maps take unclear or ambiguous, abstract concepts and make them tangible. Students might be asked to map the relationships between a grocery store, the suppliers, and the customers.

6. **Video record performance** – students use their camera phone and video editing software to present a particular topic, or to demonstrate proper performance of a task, or make a video diary.[3]

7. **Podcast** - similar to podcasts on the radio, students would tell an audio narrative with voice-over, interviews, sound effects, and music.

8. **Debate** - this is a classic courtroom debate, done in a video conferencing space; a team of students are assigned to either side of a question, and must present arguments for their case to the class. The class members decide who has presented the most compelling argument.

9. **Discussion board** - by convention, instructors will post a topic and students will respond to it; alternatively, students could pick from a list of topics and each compose a response to it.

10. **Group project** – any of the above can be done as a group project; a best practice is for students to get both a project grade and a peer-assessment grade.

11. **ePortfolio** – this type of assessment tracks a student's longitudinal progress and provides tangible artifacts of student achievement.

Conclusion

Although nothing can completely replace the testing security afforded by having students in a secure testing location watched over by an attentive proctor, a high degree of confidence in test security can be achieved through judicious use of proctoring technology, and setting security-minded LMS test properties. Measuring student achievement against distinct benchmarks may also be accomplished without formal testing by employing subjective assessments. These assessments have the added benefits of measuring at higher levels of Bloom's Taxonomy, and allow faculty to move away from test banks, which can be misused for cheating.

[3] As of 6/1/20, students at Lone Star College have free use of the video creation tool in D2L, formerly called TechSmith Relay, now named TechSmith Knowmia.

Additional Resources

Alternatives to Traditional Exams and Papers
Center for Innovative Teaching and Learning, Indiana University Bloomington
https://citl.indiana.edu/teaching-resources/assessing-student-learning/alternatives-traditional-exams-papers/index.html

Alternatives to Traditional Testing
Berkeley Center for Teaching and Learning, UC Berkeley
https://teaching.berkeley.edu/resources/improve/alternatives-traditional-testing

Alternative Assessment Strategies
Center for Educational Innovation, University of Minnesota
https://cei.umn.edu/support-services/tutorials/integrated-aligned-course-design-course-design-resources/alternative

Using Alternative Assessments
Center for Teaching and Learning, Brigham Young University
https://ctl.byu.edu/using-alternative-assessments

An Overview of E-Portfolios
Educause
https://library.educause.edu/resources/2005/1/an-overview-of-eportfolios

7 Approaches to Alternative Assessments
(formerly) Association for Supervision and Curriculum Development
http://www.ascd.org/ascd-express/vol15/num05/7-approaches-to-alternative-assessments.aspx

Strategies and Resources for Instructional Resilience
UC Davis
http://keepteaching.ucdavis.edu/test/testing-alternatives

Proctored Exam Alternatives
University of Georgia
https://ovpi.uga.edu/teaching-and-learning-continuity/proctored-exam-alternatives/

Alternatives to Proctored Exams
Kentucky Community & Technical College System
https://kctcs.edu/education-training/kctcs-online/learn-by-term/proctor-exams/alternatives-to-proctored-exams.aspx

Proctored Exam Alternatives (D2L LMS)
Augusta EDU
https://www.augusta.edu/continuity/documents/proctoredexamalternatives.pdf

Alternative End-of-Year Assessment Strategies
Brightspace Community
https://community.brightspace.com/s/article/Alternative-End-of-Year-Assessment-Strategies

Glossary

assessments - the systematic basis for making inferences about the learning and development of students. It is the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development. (Assessing Student Learning and Development: A Guide to the Principles, Goals, and Methods of Determining College Outcomes by Erwin 1991)

- **formative assessments** - monitor student learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning; they are generally low-stakes;
- **summative assessments** - evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark; they are generally high stakes, like a midterm, final project, or a term paper;
- **objective assessments** - a form of questioning which has a single correct answer; they ensure perfect objectivity in scoring, and can be graded easily;
- **subjective assessments** - a form of querying which may have more than one correct answer, or perhaps more than one way of expressing a correct answer; generally, does not lend itself well to machine grading, but does reach higher levels of Bloom's Taxonomy than objective assessments.

auto-grading - a feature of learning management systems in which the software is capable of grading quantitative questions, like True/False, Multiple Choice, Multiple Select, Matching, and Ordering.

exams - an assessment intended to measure a test-taker's knowledge, skill, aptitude, physical fitness, or classification in a subject by comparing it against some standard or benchmark.

learning management system - a software-based platform that facilitates the management, delivery, and measurement of an institution's e-learning programs.

online exams – a specific type of objective assessment; it is a test taken on a computer or some type of device. Within limitations, students can take online exams, anywhere, at any time. Some limitations might be that the exam must be taken at a testing center, or during a limited time window.

optical mark recognition - technology used for collecting data from "fill-in-the-bubble" forms such as educational tests, surveys, assessments, evaluations, and many other multiple-choice forms.

proctor - a person who monitors students during an examination.

proctoring technologies - hardware/software solutions which can replace the presence of proctors.

test banks - a ready-made electronic testing resource that can be customized by instructors for their teaching. Written by textbook publishers, it is tailored to the contents of an individual textbook.