

**A review of proctoring in online examinations for students with disabilities**

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 **on behalf of DAWN**

**Introduction**

The intention of proctoring online examinations is to replicate invigilation of face to face examinations in the physical university environment. Invigilation and proctoring are underpinned by the same philosophy of academic integrity, and with respect to remote examination, are concerned with the potential for academic dishonesty such as retrieving information form the Internet, using prohibited digital or technological assistance, or accessing academic material unobserved by the examiner. Proctoring is utilised to uphold the standards and reputation of the institution, and to ensure fairness in assessment of students. Academic dishonesty, or cheating, is believed to potentially increase with the use of online assessment (Mellar, Peytcheva-Forsyth, Kocdar et al., 2018).

The vignette below is adapted from an article by Monica Chin on exam anxiety published in *The Verge*, an online magazine which focuses on the effects of technology on mainstream audiences.

The student learned about proctoring shortly before the semester began in an item called “Examity Directions.” The syllabus instructed students to sign up for Examity, an online test-proctoring service.

To create his account, the student was required to upload a picture of his photo ID to Examity’s website and provide his full name, email, and phone number. At the end, he was required to type his name again so that Examity could store a biometric template of his keystrokes.

A month later, the student was preparing to take his first practice exam, with an Examity proctor monitoring him over Zoom. The proctor told the student to share his screen, and then to display both sides of his driver’s license in the webcam’s view, and to see his desk and workspace by rotating the webcam 360 degrees.

He was then required to answer some security questions, but Chrome thought one of the fields was for a credit card and auto filled this information. The student quickly unselected the box, but his card’s last four digits and expiration date had already been displayed. Finally, he was instructed to grant the proctor remote access to his computer. The proctor entered a password and the test — taken online through Examity’s portal — began. The proctor watched the student work, through his webcam, the entire time.

Proctored examination is principally managed by commercial proctoring companies and requires several steps:

1. Auto authentication: photo identification, security questions, biometric keystroke signature (typically the student’s first and last name).
2. Live authentication: a live proctor then completes a facial comparison.
3. Automatic proctoring: the student’s environment and behaviour is monitored via webcam and microphone.
4. Live proctoring: after completing authentication, the student and environment are monitored by a live proctor to identify potential infractions during the exam. OR,
5. Record-and-review proctoring: after completing authentication, the student is video recorded from the start to finish of the exam and the footage reviewed.

**Issues with online proctoring and student performance**

Alessio, Malay, Maurer, Bailer, & Rubin (2018) investigated the effects of proctoring on test performance for 97 Health Sciences students within one college, finding that use of proctoring software resulted in lower quiz scores, shorter quiz taking times, and less variation in quiz performance across exams, implying greater compliance with academic integrity compared with quizzes taken without proctoring. However, there are also negative effects on student wellbeing as exemplified in the vignette. Milone, Cortese, Balestrieri, & Pittenger (2017) find that students who were dissatisfied with the proctoring of examinations expressed this as taking too long to setup, technical difficulties, and interpersonal issues such as “proctors being unable to find passwords or being rude” (p. 110). Important issues are proctor reliability and professionalism, and practical difficulties such as finding an appropriate environment to take the examination and appropriate computer equipment.

Another important point is the sense of intrusion (being supervised in a personal space by an unknown individual), also noted by Beust, Duchatelle, & Cauchard (2018) who emphasise the requirement for “significant human support for the students, even if the monitoring itself is entrusted to a quality provider” (p. 5). Allowing an unknown person to virtually ‘look around’ a personal environment, and to have this recorded, is an invasion of privacy but one that students are required to sanction as part of the examination process.

Cramp, Medlin, Lake, & Sharp (2019) outline key challenges of remotely invigilated online exams having examined nine fully online business courses in the University of South Australia. They point out that students should be provided with the opportunity to practice exam procedures and have access to technical support for any issues arising during the exam, to ensure that they are not disadvantaged by any lack of technical proficiency (citing Boitshwarelo, Reedy & Billany, 2017).

All of these factors place additional stress on students in an already stressful scenario, particularly for students who experience exam anxiety. As a consequence, Flaherty (2020) reports that some US colleges have noted complaints of academic unfairness from undergraduate students who are obliged to sit proctored online examinations, whilst their peers are allowed to take open-book tests.

**Challenges for students with disabilities**

Specific features of commercial proctoring technology may also impact on exam performance. Features that measure facial movement and which sound an alert when students look away, are a potential distraction where students are working on more than one document or making adjustments to equipment. Software measurement or human observation of suspicious behaviour is imperfect. For students with mental health conditions, motor agitation is an indicator of test anxiety, for example, head scratching, shifting or squirming in chair, and rapid changes in directional gaze (Kolski & Weible, 2018). This also has the potential to negatively impact students with physical disabilities such as tremors, and autistic students who need to engage in self-stimulatory behaviour or “stimming” and may require them to disclose sensitive information to an unknown or unfamiliar person.

The multiple steps involved in security and authentication can pose difficulties for students with physical and sensory disabilities, anxiety, and processing disorders. There is a significant burden of preparation required of students in terms of downloading and activating specialist software and learning to manage the operating system, in addition to engaging with an unknown invigilator via webcam.

Taking rest breaks or toilet breaks during a recorded examination usually necessitates pre-authorization. Some HEIs define exam ‘fraud’ where “the student is no longer in view of the webcam while taking the exam, insofar as this takes place outside the (possible) authorized breaks” (University of Amsterdam, 2020, p. 23). Pre-identification of an exact time when a rest or toilet break is required, and specificity as to how long that break will need to be, is rarely possible for students with significant medical conditions.

**Evaluating proctoring practices**

ProctorExam is a European online proctoring company, offering a web-based infrastructure for remote exams. They are working with the European Online Exam Consortium on an Erasmus+ KA2 project on academic integrity and the pedagogical effects of digital exams. Research partners include Dublin City University, Institute of Technology Sligo, University of Roehampton, and the Association for Learning Technology (UK). The research hopes to review security and fraud prevention, off campus examination best practices, student experiences with a focus on test anxiety, and privacy issues. This project was launched in 2016 but no output has been published as yet.

However, a comprehensive pan-EU assessment of online proctoring has been conducted by the Erasmus+ KA2 Strategic Partnership project Online Proctoring for Remote Examination (OP4RE). This report from 2017 investigates online proctoring across Europe <https://research.vu.nl/ws/portalfiles/portal/39908260/StartReportOP4RE_extended.pdf>. They identify differences in current online proctoring practices between those HEIs who have a well-established and dedicated online / distance learning presence, and those who provide face to face teaching, in terms of best practice approaches and efficiencies. There are also inter-country differences depending on national developments in digital learning, but most importantly, they highlight aspects of privacy and security which have received insufficient attention to date. Finally, they note that problems with online proctoring hinder students in completing exams, potentially introducing inherent test unfairness.

**Recommendations**

Online proctoring influences the educational experience of students and thus must be taken into consideration when designing examinations. The Appendix to this document contains some international examples of online or remote human proctoring solutions for students with disabilities, and these might be usefully reviewed by DAWN for possible adaptation and inclusion in exam guidelines. The literature reviewed thus far suggests several recommendations:

* Disability Services should prepare evidence-based guidelines for contexts where individual students may not be able to engage with online proctoring services.
* Disability Services should develop an approved human proctor policy where an online proctoring service is not appropriate.
* Issues with privacy, security and disclosure need to be identified and resolved.
* Students require practice in proctoring procedures well in advance of examination dates.
* Some students may need to be avail of additional human support in the exam context to manage technical aspects.
* Issues with the requirement to pre-authorize rest or toilet breaks where these are not easily pre-determined due to medical conditions, need to be resolved.

## References

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**APPENDIX**

**International test proctoring examples for students with disabilities**

**University of Minnesota, USA**

* Review this resource with [considerations for whether online monitoring or proctoring is needed](https://docs.google.com/document/d/1NXlbEyove7imAYs836-MOKKuCtA5QBNDF1jogvWeZ3A/edit#heading=h.3o8vtua1rfhr).
* Create a practice exam for all students to try out the process.
* Consider whether other forms of proctoring could be implemented. For example:
	+ A TA or departmental staff member could proctor through Zoom or Google Hangouts / Meet.
	+ The exam could be proctored using the screen share function in Zoom or Hangouts / Meet.
	+ The exam could be proctored with the camera off but the audio on in either Zoom or Hangouts / Meet.
	+ The student could complete the exam without any proctoring and perhaps digitally sign an academic integrity form.
	+ Consider using [breakout rooms](https://it.umn.edu/zoom-manage-breakout-rooms) in Zoom to proctor a small number of students or individual students.

**University of Florida, USA**

Reasonable accommodations must be entered into proctor guidelines within the proctoring software provider to avoid interrupting the student(s) during their exam if they are observed participating in one of the pre‐established accommodations which would not normally be allowed e.g.



**Edinboro University, PA, USA**

For off-campus testing, the student will be responsible for identifying a proctor that can accommodate their special testing needs. The student may consult the Office for Students with Disabilities or the Office of the Dean for assistance in this regard.

Acceptable proctor options are specified below; a student’s friend or relative may not serve as a proctor.

* A member of the faculty at any regionally accredited college or university
* An educational administrator at any regionally accredited college, university, or high school
* A full-time teacher at a regionally accredited high school
* A librarian at a public or high school library
* An employee at a learning center or private testing center; in this case, the proctor should be the
* center’s director
* An administrator at a Pennsylvania Community Education Council facility
* For a student in the military, an officer of higher rank than the student
* For an incarcerated student, the institution’s education officer, librarian, or chaplain

**Charles Sturt University, Australia**

* Charles Sturt to no longer use Examity for proctoring.
* We have had some system problems emerge with online proctored exams using Examity. We recognise the stress this caused students. We want to ensure all exams go smoothly so students can focus on working through the exam content.
* Due to this, we’re changing the format of our online proctored exams. Exams will now be invigilated by Charles Sturt staff using Zoom. We still need to invigilate exams to meet the course accreditation requirements and ensure that all students are showing academic integrity during exams.
* Only Charles Sturt students and staff will be able to join the online exam in Zoom, and only Charles Sturt staff that will conduct the invigilation will be present in the room.
* You will still sit your exam at the same time scheduled for your original online proctored exam. Though due to the online invigilation component of your exam in Zoom, we will start the invigilation component of your exam 10 minutes before your scheduled exam time.
* Students will be broken up into groups of 20 for the Zoom invigilated exam. Each student will have an individual link to Zoom.
* Due to this being the first time Charles Sturt students have had online exams, there will be technology time allowances given to most time-limited exams. If you receive technology time allowances, this will be added to your exam timetable in the coming weeks. The initial timetable release on Wednesday 29 April will not display these technology allowances.
* You will be allowed to have a single blank A4 page in a proctored exam to plan answers and work through questions. You'll use the page as a note or scribble pad. At the start of the exam, you will need to show both sides of the paper on the webcam to prove that the page is blank.
* There will be real-time technical support for online exams. The online exams technical support page will be updated prior to your exams with how you can access a dedicated helpline.