

Online Proctoring at Rotterdam University of Applied Sciences

# Introduction

Now that Rotterdam University of Applied Sciences is also administering remote tests, a lot of questions have been raised about the best way to do this. A number of documents have been published on this topic in recent weeks:

* Tests at Rotterdam University of Applied Sciences Online (27 March 2020)
* Overview of testing possibilities (1 April 2020)
* Note on fraud potential in online testing (3 April 2020)
* Guidelines for Online Testing and fraud prevention (8 April 2020)

These documents, as well as publications by SURF and fellow educational institutions, have been incorporated into the magazine Toetsen op Afstand (Remote Testing), which was published on 7 April. Since then, information has been added on several occasions.

The publications above state that online proctoring1 is currently not an option for Rotterdam University of Applied Sciences. However, due to quick decision-making and subsequent fast developments in recent weeks, the information, and recommendations on the use of online proctoring have not always been communicated unambiguously and clearly. Understandably, study programmes are trying to find a close facsimile to a ‘normal’ test situation, to allow tests to be administered in their original format and with the same degree of invigilation. For this purpose, we are drafting decentralised protocols to reduce the risk of fraud as much as possible, for example by using cameras, among other things.

Exam boards and lecturers, but also students, are now asking ‘what’s allowed?’ or, ‘is my study programme allowed to do this?’ or ‘does it work?’. Now that it seems that the situation will last longer, we must ensure that postponing tests does not become more difficult or even impossible as this could have major consequences for students in terms of study delay. All this results in study programmes asking the question, “Are we really not able to work with online proctoring?” This memorandum describes what is possible now, in the short term and in the longer term.

1 Definition according to Gartner: a service aimed at verifying the identity of a student remotely for a test and methods aimed at preventing fraud during the administration of a remote test (for example: cheating or unauthorised support during the test).

The core of the online proctoring policy revolves around balancing legitimate interests against privacy. For privacy reasons, students may not be asked or obligated to turn on their camera if recordings were not part of the regular (offline) education. There are three possible exceptions from the point of view of legitimate interest:

* When the student identifies himself/herself prior to the test. (Please note that these recordings would not be saved).
* When the test can only be administered with a visual (video), for example a presentation or oral test.
* When, after administering a written test, the analysis reveals conspicuous deviations from the normal situation. In that case, the lecturer may use a video call to verbally validate the written test by asking additional content-based questions.

In these cases, only the use of Teams is permitted.

# Possibilities without online proctoring

Beyond the administration of the test, there are also certain options to develop and evaluate tests that enable a safer (online) test administration. Administering a test safely does not only depend on physical invigilation or, in the current situation, on online invigilation/proctoring during the actual test process. Even without online invigilation, there is a lot that can be done to safely administer a test and reduce the potential of fraud.

## Test construction

When constructing the test, an alternative test form can be chosen (for example, converting a written knowledge test into an assignment or oral test). You can construct a test in such a way that it becomes very difficult for students to commit fraud, so you do not even have to apply any form of online proctoring. For example, an open book exam with a time limit, instead of a knowledge test. This leaves less room for fraud (for example to consult others), making online proctoring unnecessary.

Another possibility is to create multiple versions of the same test (if there are enough questions). In addition, in case of smaller groups, a short oral validation test can be taken; you can ask a small number of questions in a video conversation on Teams to verify if the student has mastered the content.

For more possibilities and key points, see the magazine ‘Toetsen op afstand’ (Remote Testing).

## Test administration

By using the technical functions offered by test packages such as Remindo, we can limit fraud during the test by imposing a time limit for the test, randomising the order of questions, etcetera. We can also use the functions offered by these key packages themselves, such as the so-called ‘lockdown browser’, which makes it impossible (or more difficult to go unnoticed) for students to open another screen in the browser.

The aim is to create an online testing environment where the ‘risk of being caught’ is too high in the eyes of the student to commit fraud. It helps to explicitly communicate to the student in advance what kind of behaviour will be tolerated and what will not be tolerated. Identifying the consequences of unpermitted behaviour is a preventive measure that works. Another preventive measure is to explain the analyses that can be performed afterwards, such as a plagiarism check.

## Test evaluation

A plagiarism check can be used for essays and other longer texts. In tests with open questions, the lecturer will also often recognise if certain answers are the same for several students. This is equivalent to a situation in which the test has been administered in writing. By clearly stating the consequences in advance, the lecturer can act on these.

If available, data from previous test analyses can also be helpful in detecting fraud: for example, an unexpectedly well answered question or test may stand out. However, it can be very difficult or virtually impossible to draw solid conclusions from these data: many other factors may play a role (for example, there may be fewer tests taking place at the same time giving students more time to study, the study materials may be different, a different lecturer, etc.). This does not change the fact that it is a signal that can be further investigated.

## Testing on location

As soon as it will be possible for students to resume (some) classes at the locations of Rotterdam University of Applied Sciences, including taking tests, this will be an option for those tests for which invigilation is essential after all.

We will take the following issues into account:

* Appropriate criteria to determine which tests absolutely must take place on location.
* Expanding the current testing capacity, for example with extra laptops and/or the use of regular classrooms or other spaces as additional test rooms.
* Central scheduling to optimise the use of the current capacity.
* Additional measures to comply with RIVM guidelines (for example, maintaining a 1.5 metre distance).
* Additional hygiene measures.

# Issues with online proctoring

Gartner provides the following description of online proctoring: a service aimed at verifying the identity of a student remotely before a test and methods aimed at preventing fraud during the administration of a remote test (for example: cheating or unauthorised support during the test).

We can identify different levels of online proctoring. The levels correlate with the risk profiles of tests. To put it another way: the higher the risk level of the test, the stricter the levels (measures) of online proctoring required. Broadly speaking, we recognise[2:](#_bookmark0)

* + Level 0: Online conferencing software for up to 10 students.
  + Level 1: Minimal proctoring: Record & review (the images are recorded and reviewed later), screen capture, one camera and logging websites (recording which websites have been visited).

2 This classification is based on SURF’s white paper [https://www.surf.nl/files/2020-04/surf-rapport-online-](https://www.surf.nl/files/2020-04/surf-rapport-online-proctoring_2020%2C%20update-april-2020.pdf) [proctoring\_2020, update-april-2020.pdf](https://www.surf.nl/files/2020-04/surf-rapport-online-proctoring_2020%2C%20update-april-2020.pdf)

(Dutch only)

* + Level 2: Medium proctoring: Record & review, screen capture, one camera, lockdown capabilities of the computer and logging websites and applications.
  + Level 3: Live proctoring with lock-down capabilities of the computer and full activity logging on the computer, or record & review including a second camera and the rest of the same features.

None of these forms have so far been permitted at Rotterdam University of Applied Sciences. The restrictions placed on online proctoring are not without reason. In short, our organisation has very limited to no experience whatsoever in this field and the domain of online proctoring is extensive and complex.

There are issues around the use of online proctoring from various perspectives, with a number of examples for each perspective. These descriptions are not complete but give a picture of the breadth of the key considerations that are important for this issue.

## Pedagogical perspective

Students are not used to being exclusively taught online and are therefore also not used to online testing. The extent to which students feel comfortable with this form of testing and the extent to which online proctoring is used differs greatly per student. Students may experience the use of cameras that give an insight into their private situation, but also the use of tools that can take over areas of their computer and/or record actions on the computer as very unpleasant and restrictive or as an invasion of their privacy. The possibility that technical problems may occur during an important moment such as a test may also cause frustration, stress, or uncertainty among students. All these possible effects may interfere in the learning and testing process. This does not apply to every student, but we should not overlook this perspective.

## Didactic perspective

The correct didactic application of online proctoring requires attention. Especially in the current scenario where the situation increases the risk of more ‘pragmatic’ but less didactic choices. In this sense, online proctoring is primarily a solution to a location problem and not a solution to the problem of the correct test format. We should keep in mind that the choice of a specific test format becomes less desirable if the use of online proctoring is also part of the test administration. That is why we must analyse if the use of online proctoring for a certain test format and the way in which this is applied, affects the design and implementation of education.

If the use of online proctoring is deemed necessary depends on factors such as the test format, the risk of fraud and the importance of the test. Some test formats have a much greater need for invigilation than others: there are various test formats (for example writing a paper) that students normally also perform unsupervised at home. With other types of tests, such as exams largely made up of multiple-choice questions, the risk of fraud is higher. Also, not every test is of equal importance: there is a wide range of gradations between a practice test and a graduation thesis. As a rule of thumb: the greater the importance and the higher the risk of fraud, the more invigilation is required, and therefore the higher the desired level of online proctoring.

Reliability must also be taken into account when determining the test format and considering (the desired form of) online proctoring: measuring errors may occur due to the student’s nervousness with the new situation, being interrupted during the test by interventions from the invigilator (who, for example, asks to see the environment again) or distractions caused by the situation at home.

## Organisational perspective

When using online proctoring, we must also consider the organisational elements. In addition to organisation-wide elements such as tendering, selection, procurement, scheduling, linking to (different) test applications and learning management systems and administration, we must also take into account the various programme-specific elements such as scheduling online proctoring and the technical assessment of an individual student’s setup. Invigilators must be trained, or the invigilation should be outsourced (usually in the case of proctoring by ‘record & review’). Clear protocols need to be established for exceptions.

## Legal perspective

The freedom of movement of education for the application of online proctoring is also limited by legal aspects. It is important to have some insight in these. An important framework in this respect is the General Data Protection Regulation (GDPR or AVG in Dutch). This regulation protects the privacy rights of customers and users within the European Union. The legislation applies to all companies and organisations that record and/or process personal data and contains several obligations that must be met.

The SURF ICT education network has conducted an analysis of a number of providers of online proctoring. This analysis shows that the suppliers they investigated and the solutions they provided that are currently used in Dutch higher education do not yet fully comply with GDPR guidelines.

If we want to make testing with online invigilation mandatory for students, the GDPR requires that we have weighed the justified interest of conducting this kind of testing against the invasion of students’ privacy. Are there less far-reaching alternatives? What forms of proctoring are required to adequately prevent fraud? We also must properly inform students about the data we collect from them and about their right to object.

This also requires a great deal of attention from the universities of applied sciences because student recruitment and/or the current study conditions (EER) make little or no reference to this aspect.

## Technological perspective:

Not all study programmes at Rotterdam University of Applied Sciences are used to working with digital testing yet. In addition to the use of online proctoring, this also poses the challenge of implementing applications for digital testing in the short term. In addition, not all students and teachers have the required facilities (at home).

SURF has also identified various challenges in scaling up online proctoring. Especially if there is a ‘live’ review by external parties, the capacity of those external parties will come under pressure when there are large numbers of students.

Finally, if online proctoring is going to be used on a larger scale or for a longer period, students will find ways to commit fraud like they do in regular testing. A quick Google search provides enough information [https://jakebinstein.com/blog/on-knuckle-scanners-and-cheating-how-to-](https://jakebinstein.com/blog/on-knuckle-scanners-and-cheating-how-to-bypass-proctortrack/) [bypass proctortrack/.](https://jakebinstein.com/blog/on-knuckle-scanners-and-cheating-how-to-bypass-proctortrack/) This can create a false sense of security when we assume that online proctoring has been properly set up, while students have already found ways to circumvent the implemented measures.

# Experiments with online proctoring

Because the perceived importance of online proctoring among lecturers, for example, is significant and growing in the current situation and as it may also be a viable solution in the (near) future of education, we are investigating if there are possibilities - and if so, which ones - to introduce online proctoring quickly and responsibly. For this purpose, a number of verifiable (small-scale) experiments will be conducted. The aim of these experiments is to come to a broadly and (multidisciplinary) supported protocol, which lowers the risk profile.

The experiments and discussions on possible further upscaling will have to take the perspectives above into account. The appendix includes a more detailed interpretation of these perspectives with some relevant examples.

## Learning outcomes of the experiment

The Rotterdam University of Applied Sciences is not the only party to undertake these experiments. Other higher education institutions have also started doing this. In general, these are relatively new initiatives, in some cases there has been a longer experience, but mostly on a small scale or in different contexts (for example for students who are temporarily abroad). Initial experience has shown that there are certainly various possibilities, but there are many aspects to consider. Naturally, as many ‘lessons learned’ as possible from these initiatives are included in our own experiments, and similarly our own experiences are shared with fellow institutions. However, it is now also clear that each supplier (of both test applications and services for online proctoring) works in a different way and institutions differ from each other in terms of organisation, culture, et cetera, so the experiences of others do not provide a definitive answer on their suitability for our specific situation.

## Limited application of online proctoring

Within Rotterdam University of Applied Sciences, the experiments are specifically focused on the possibilities of Level 1 online proctoring: for those tests that, according to SURF’s selection model, have a relatively low risk of fraud and/or are of minor importance. It goes without saying that the lessons learned from these experiments are expected to be relevant both to tests of higher importance and greater risk of fraud and less important risk at level 0.

# Scheduling and limitations of online proctoring

The diagram below outlines what is currently allowed for tests at the Rotterdam University of Applied Sciences. It goes without saying that any changes to test formats can only be made with the permission of the Exam Board.

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| --- | --- | --- |
| **Level** | **Description** | **Allowed** |
| Preventive | Measures that can be taken before the test to reduce the risk of fraud. For example:   * Alternative question or test formats (see the magazine Toetsen op afstand) * Measures when setting up an online test (time limit, randomised question sequence) | Yes |
| Level 0:  Online conferencing software for up to 10 students; | Measures with an incomplete form of online proctoring, in which the camera is turned on.  Please note: Recordings of oral tests and presentations, which must be available for later viewing in case of complaints, calibration assessments, resits, examination committees, etc. (so not specifically used for invigilation/identification purposes) are permitted. Recordings that must/will be saved for accreditation purposes are also permitted. As mentioned before, in these cases the student is not asked for consent, but an appeal is made to legitimate interest. Please observe the legal retention periods. | No |
| Level 1: Minimum proctoring | This involves recording and reviewing, capturing screenshots, capturing images from one camera, and capturing consulted websites. | Experiment  This concerns the experiments performed by Facilities and Information Technology department (FIT), any RUAS other experiments are not permitted. |

|  |  |  |
| --- | --- | --- |
| Level 2: Medium proctoring | This involves recording and reviewing, capturing screenshots, capturing images from one camera, and capturing consulted websites and applications, as well as lockdown capabilities of the computer. | No |
| Level 3: Maximum proctoring | Live proctoring with lockdown capabilities of the computer and complete recording of activities on the computer, or recording and reviewing, including a second camera and the rest of the features as mentioned under Level 2. | No |

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# Appendix: further clarification of research questions for experiments

1. *Pedagogical perspective:* How do you properly prepare students to work this way so that the other way of working has as little effect as possible on the performance to be delivered? Become acquainted with the programme, trial test, protocol for the student on what to do in case of.
2. *Didactic perspective: which tests are suitable for (what form of) online proctoring?*

Which levels of online proctoring are necessary and/or suitable for the different levels of testing? Focus on the didactically sound choices for appropriate tests. Not every test of a certain level lends itself to online proctoring.

1. *Didactic perspective: for which students should there be an alternative?*

It is likely that there will be students who are unable to meet one or more of the requirements for online proctoring. For example, the student does not have the right hardware, the internet connection is insufficiently stable, or the student cannot provide the right setting to sit a good test. How do we as a university of applied sciences deal with this and what didactically sound alternatives are there?

1. *Organisational perspective: what is the maximum load for invigilators in online invigilation?*

The ‘lightest level’ of online proctoring involves active monitoring by a remote invigilator when students are sitting the tests. This is potentially a significant burden on the invigilator, who is expected to actively monitor several video images for a longer period. This influences the risk mitigation measure. What is the real burden (without a significant increase in risk) and what does this mean for the number of students that have to be tested and the number of invigilators needed?

1. *Legal perspective: what are the rights and obligations of both the university of applied sciences and the student?*

Can administering online tests become mandatory if it is not/was not yet part of the intake requirements? Is Rotterdam University of Applied Sciences Rotterdam obligated to offer timely alternatives for students who cannot or do not want to use online proctoring? Should these fully developed alternatives be available in advance, so students do not have to make this decision under pressure?

1. *Legal perspective: how to act in exceptional situations*

What to do if a student’s connection is disrupted while taking the test or if the computer crashes? Does this mean the student’s test is invalid? Under what conditions? What does this mean for the risk of fraud?

1. *Legal perspective: what are the frameworks in terms of privacy and general data protection regulations?*

What to do when a student objects to the use of video images based on GDPR? To what data classification do these images belong and what are the consequences? What does this mean for the ability or inability to store and review video images? What are the requirements for external suppliers who offer solutions for online proctoring?

1. *Technological perspective: which applications are available and which work?*

Which applications can be used for the different ‘levels’ of online proctoring? Can Microsoft Teams be used for online invigilation and under what conditions or with what settings? Why is Zoom not a suitable alternative even though multiple video images are visible? What are the advantages and limitations of the major commercial solutions?

1. *Technological perspective: which settings in test applications are important?*

Some online test applications, such as Remindo, have a function that warns if a student leaves the application and opens another window, for example. Which settings are accepted or are even strongly recommended and how are students adequately prepared for this?

1. *Organisational perspective: need for equipment supplied by Rotterdam University of Applied Sciences*

Which solutions does Rotterdam University of Applied Sciences want to provide, what can it provide and what should it provide for students who do not have the required equipment for online proctoring? How often do we encounter this?

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