



Final Project Report: eProctoring Pilot 2020-2022

Report Date: April 2022
Reviewed by UMT EG 14/04/2022

1. Introduction

The purpose of this report is to update the Registrar, as project sponsor, and UMT EG on the work undertaken and final findings and recommendations of the eProctoring pilot project 2020-2022. To date, Integrity Advocate's *Record and Review* eProctoring system has been used for 2,192 exam sittings, by 1,745 individual students, in 15 exams, during 2021. The project sought to determine the most suitable form of eProctoring to adopt, and what the key considerations were to ensure positive user experience for students and faculty. Support and Delivery strategies were developed as the project learned from each cohort's experience. A project group representing most colleges and different roles across the university and colleagues specifically involved in the pilot provided valuable contributions and insights captured in this report.

2. Lessons Learnt and Recommendations

2.1. Lessons Learnt

- eProctoring supports the academic integrity of online exams, in conjunction with other strategies that form part of assessment design. It is not, however, a 'silver bullet' that resolves all concerns regarding the integrity of online exams.
- The form of eProctoring utilised and the service provider selected have a significant impact on student experience, data protection and privacy, workload implications for faculty/staff and logistical considerations.
- Record and Review solutions provide the best balance between supporting academic integrity and the concerns listed above.
- Sufficient advance knowledge that eProctoring will be used in an exam and clear guidance and information is essential for a positive student experience.
- Using the eProctoring system generated additional anxiety for some students. This can be mitigated by clear communications with students, and in particular, reassurance that normal behaviour during exams will not be penalised.
- There are additional workload, resourcing and cost implications associated with the introduction, support and delivery of eProctoring.

2.2. Key Recommendations

- Lessons learnt from this project could be used to inform the strategic planning process related to Theme 2 of UCD's Strategy 2020-2024: Rising to the Future, "Transforming through Digital

Technology” and the Education and Student Success Strategy.

- eProctoring should be available to module coordinators to use, where deemed appropriate.
- Further consideration should be given by the university as to when it is appropriate to be used, as eProctoring is not appropriate for all assessment types.
- Where eProctoring is used, *Record and Review* solutions should be utilised.
- Students should be informed in advance, via the module descriptor, that their examinations will be eProctored, and be given opportunities to familiarise themselves with the solution via the practice assessment tool.
- Ownership should be agreed and additional adequate resourcing be put in place.

These recommendations are outlined in greater detail in section 3.3.6.

3. Project Overview/Summary

This pilot project was undertaken to procure and utilise an eProctoring, (remote invigilation), solution for a limited number of exam sittings, initially in the Spring Trimester, Jan-May 2021. This followed a request in Autumn 2020 from the Registrar to the Chief Information Officer, Director of Registry and staff across the two units to deliver a suitable solution for pilot use, while the University continued to deal with the impact of the pandemic on examinations. The learnings from this pilot project were to inform decisions in relation to the wider use of eProctoring to support the academic integrity of online exams. A project team consisting of staff from Assessment, UCD Registry and Educational Technology Services, IT Services, have managed the project, focusing on the end user (faculty, staff and student) experience, and data privacy, while keeping scalability in mind.

Following a comprehensive marketplace review and vendor selection process, Integrity Advocate was selected as the preferred vendor, to provide a Record and Review solution. While informed by experiences across the sector, the findings and learnings from this project are primarily based on use of this particular eProctoring solution, and cannot be assumed to hold true for other forms of eProctoring, or other Record and Review solutions. Integrity Advocate’s eProctoring solution is a partner of D2L(Brightspace VLE), which allows for almost seamless integration with the quiz assessments (exams) on Brightspace.

To date, Integrity Advocate’s *Record and Review* system has been used for 2,192 exam sittings, by 1,745 individual students, in 15 exams, during 2021. The performance of the Integrity Advocate system and the support provided by the vendor have, in the main, been satisfactory.

The system functioned as it should for all exams delivered during the pilot, but notably with very careful assistance and support during implementation and on a relatively small scale. From consulting with other Irish institutions, the project team are aware that this has not been the experience of other, similar pilots, where the pilots could not be completed, such was the severity of some of the issues encountered.

Privacy and data protection is the most controversial aspect of eProctoring, and the most common theme in media reporting on the subject. Students' privacy has been a key consideration throughout this project, particularly during the vendor selection process. The more invasive forms of eProctoring were avoided, a full Data Protection Impact Assessment (DPIA) was carried out in conjunction with the UCD Office of the DPO, and students received clear assurances in relation to their privacy. Integrity Advocate takes a 'Privacy by Design' approach to the solutions they offer, and differ in several ways from other providers as a result. The low levels of concern expressed by students in relation to privacy and data protection is a positive outcome of the pilot.

Student feedback was gathered through surveys and interviews. 50% of all respondents stated that they would recommend that UCD adopt eProctoring for future online examinations. There was considerable variation between cohorts in the responses to this question, which highlights the importance of careful management of the student experience of using the system. A number of concerns were raised by students, these are discussed in more detail in the feedback section.

Faculty involved in the pilot were interviewed and in general the feedback received was positive, although the limitations of eProctoring were acknowledged, particularly in relation to evidence gathering for actions to be taken on potential breaches of regulations. Faculty did not feel that eProctoring was capable of fulfilling the same role as an in-person invigilator, and voiced some concerns in relation to the potential workload involved for module coordinators reviewing the reports of potential breaches generated by Integrity Advocate post exam. Faculty involved in all cohorts, as well as the membership of the project Working Group, have highlighted the importance of careful consideration of eProctoring's place in the development of assessment strategies, as should be the case with all assessment strategy development.

A very high level of 'hands on' support was required to ensure the successful delivery of the eProctoring systems for the exams involved in the earlier cohorts. . This was the prudent and appropriate approach to take, considering the risks involved. A more sustainable support and delivery model was used for the December exams, which afforded the project group a greater understanding of how eProctoring would be delivered and supported post pilot. Advance notice to students, clear information channels, and a consistent, effective review process emerged as three key areas in the successful utilisation of the system.

3.1. Context/Background

This pilot was undertaken in the context of the restrictions on in-person examinations that had been in place since March 2020 due to Covid-19. In-person arrangements have traditionally served to provide standard and robust means to deliver the invigilated exam requirements for the University, as a result demand for eProctoring solutions had been limited until recently. In the context of the pandemic, there was a surge in requests to provide a university-supported remote proctoring solution.

3.2. Scope

The purpose of the pilot was to procure and pilot an eProctoring solution for a limited number of exam sittings, initially in the Spring Trimester 2021. The learnings from the pilot project were intended to inform decisions in relation to the wider use of eProctoring to support the academic integrity of online exams.

The project sought to:

- Identify the optimal student cohort for the pilot. It was agreed that the first exams to be included would be outside of the end of trimester exam period.
- Ensure that any proctoring solution for consideration was fully compatible with Brightspace, data and security requirements and GDPR compliant.
- Determine the best form of eProctoring solution fit for the University, (Recorded, Live, Record & Review etc).
- Consider only proctoring solutions that can be purchased by the University (as opposed to models where students pay directly to the provider).
- Clarify responsibilities of faculty, staff, units, students and identify support requirements.
- Consider gaps in policies, regulations and procedures combining educational and technical considerations (including use of student devices for assessment).
- Consider accessibility issues in relation to eProctoring solutions and the University's obligations in relation to same.
- Agree recommendations on short-term and long-term university requirements to help develop principles and criteria for continued use of such solutions in a blended or predominantly face-to-face environment.

3.3. Functions, Limitations and Risks

3.3.1. Functions and Limitations

How a system functions varies depending on the solution. Some use AI only, some a combination of AI and a human proctor, and in the case of some Live Proctoring solutions, human proctor only. The following are the four key functions of eProctoring solutions and with details on how Integrity Advocate's solution functioned and the limitations:

- **ID Verification:** Students are required to show their ID card to the eProctoring system via their webcam prior to beginning their exam. The system takes a photo of the student to validate that the person taking the exam is the person on the ID card. The name on the ID card is cross referenced with the student name as it appears on the VLE.
- **Prevention:** The software blocks access to other applications on the device being used for the exam, limiting the opportunity for plagiarism, collaboration, accessing notes or any other unauthorised materials. The effectiveness of this, as a means of preventing misconduct, is limited by the potential use of secondary devices or other external resources. eProctoring cannot prevent use of these resources, only deter students from doing so.
- **Deterrent:** Students are recorded and potential breaches of exam regulations are noted and reviewed. While in most instances, it is difficult to prove categorically that breaches have occurred, eProctoring acts as a deterrent and therefore reduces the instances of misconduct. The impact of Covid19 restrictions on assessment strategies made it impossible to conclusively assess the impact of eProctoring in this regard, as comparisons of grade distributions from non-proctored exams were difficult. In the three exams that allowed the closest to 'like for like' comparisons, the indications were that eProctoring did add a deterrent value. As assessment strategies normalise, the impact of eProctoring will be easier to measure. Concerns were raised amongst members of the Working Group that the deterrent effect of eProctoring would become lessened as students become more accustomed to using it, and particularly if the student population become aware of its limitations for gathering evidence.
- **Gathering Evidence.** Where a clearly visible breach has occurred, e.g. where a telephone has been used in view of the camera, or personation occurs, the eProctoring system provides evidence in the form of still images from the recording. In order for data gathered by eProctoring to be taken into consideration as evidence, it must be robust enough to stand up to review and interrogation in a disciplinary or appeal process. Significant resources could be spent on gathering and considering data that would not stand up to review and interrogation, and would therefore be useless. For example, a student may look to a particular location several times in the course of an examination. This may arouse suspicion, and an assumption might be made that collaboration is occurring, or that this student is looking at unauthorised material. The student may, however, simply be considering their answer, or taking a break from the screen for a moment, or at least may explain their actions in this way. Where any assumption has been made on *why* the student is doing something that arouses suspicion, it is unlikely that any action will

be taken, as the student will be given the benefit of the doubt. To be considered 'evidence', the data must clearly show the breach taking place, (e.g. phone clearly being used), not behaviour that may lead one to believe a breach has occurred. While the number of instances of this type of evidence being gathered will be very small, the deterrent value of this function is significant. Where evidence is produced by eProctoring, this evidence should be considered as part of the university's standard protocols and disciplinary procedures. See proposed process map in Appendix 5.

3.3.2. Risks

a) Unrealistic expectations relating to the function of eProctoring

eProctoring is not a substitute for exam invigilation, and it is important that this is clearly understood by faculty and staff. Unrealistic expectations in relation to the purpose and capabilities of eProctoring should be avoided as they are likely to lead to:

- A missed opportunity to review a module's assessment methodology (design/strategy). eProctoring does not facilitate the reproduction of the invigilated environment of an exam centre remotely. It would be a missed opportunity if the option of eProctoring resulted in a return to, or continuation of the default, Exam Centre style of exam, albeit in an online context. Pedagogical considerations in relation to assessment strategies were beyond the scope of this project, but the findings of this pilot demonstrate that eProctoring does not replicate exam centre invigilation, and therefore the assessment of a module should be reconsidered in light of this.
- Overuse of eProctoring, with consequences for direct cost and support resources. There are risks associated with insufficient support. As highlighted above, overuse of eProctoring threatens its effectiveness as a deterrent.

b) Student Experience

Many students reported that eProctoring was a source of stress during their exams, particularly in relation to feeling that they could be penalised despite not breaching any regulations. Clear messaging in relation to why eProctoring is being used and how it works is crucial to allay these concerns. Students should receive this information in advance of the exam taking place, and ideally it should be captured on the module descriptor. One cohort of students were not informed that eProctoring was being used until a matter of days before their exams. The overall satisfaction levels and the percentage of students who would recommend the University adopt eProctoring was significantly lower for this module than those modules that received appropriate notice and support. There is likely to be some level of anxiety among some students whatever steps are taken.

c) Inconsistency in the handling of potential breaches

Reports from the eProctoring provider can go directly to the module coordinator via Brightspace. Inconsistent handling of these reports across the University may undermine the integrity of UCD's processes in relation to supporting academic integrity. Centralised oversight, as outlined in Appendix 5 would mitigate this risk, as well as providing a more effective process.

3.3.3. Support and Delivery

Adoption of eProctoring carries significant risk, and adequate support is identified in this report as an essential mitigating factor, particularly in the early stages of its adoption. eProctoring should be considered one of the suite of tools available to support online assessment. The question of how it is resourced and supported should form part of a broader consideration around the resourcing and support of online assessment more generally in the University. The following table is a proposed Support and Delivery model, based on the experience gained throughout this pilot.

Action/Task	Responsibility for task completion
Faculty & Staff Information	<ul style="list-style-type: none"> ● Centrally provided by T&L, Assessment and IT Services via comms campaign ● Consideration of the pedagogical issues relating to eProctoring, its uses and limitations should take place at the appropriate committee/area of the university ● Criteria for use/advice re: appropriate assessment types and issues that arise depending on type - T&L to identify where it is suitable ● IT requirements - Info and responsibility for setting up
Decision to use eProctoring	<ul style="list-style-type: none"> ● School decision, based on centrally provided guidance Decision making should be at School-level, based on the suitability of the assessment ● Assessment should have oversight
Inclusion in Module Descriptor	<ul style="list-style-type: none"> ● School/module coordinator level ● Registry oversight. eProctoring enabled only for assessments that have been flagged as such in the module descriptor
Addition of eProctoring to Brightspace Module	<ul style="list-style-type: none"> ● IT Services/Assessment
Student Information	<ul style="list-style-type: none"> ● Assessment ● Information sits in a suite of resources re: assessment guidelines ● Specific/additional guidelines required for online assessment
Student Communications re: Use of eProctoring	<ul style="list-style-type: none"> ● School/Module Coordinator & Assessment for information in relation to University adoption of eProctoring
Practice Assessment (Attaching IA Demo Mode to quiz)	<ul style="list-style-type: none"> ● Assessment & Module Coordinator ● Practice Assessment is a crucial part of the process and must be completed prior to each exam

Student Support	<ul style="list-style-type: none"> ● eProctoring provider & Assessment's static information ● Strong Service Level Agreement required as support will be outsourced, with minimal oversight from UCD ● Possible use of Connector to direct students to static resources or provider, possibly a UCD staff member redirecting query
Adding eProctoring to Exam	<ul style="list-style-type: none"> ● Assessment ● 'Self-service' system for checking/confirming for module coordinators should be introduced
Further information to students pre-exam	<ul style="list-style-type: none"> ● Module coordinator or automated system, with module coordinator and eProctoring provider as contact ● Possible auto-message to students with eProctoring-specific guidance
Student support during exam	<ul style="list-style-type: none"> ● eProctoring provider & Assessment's static information ● Strong Service Level Agreement required as support will be outsourced, with minimal oversight from UCD
Review of recordings and report production	<ul style="list-style-type: none"> ● eProctoring provider ● Reports to be sent to a central role in Assessment for review.
Review of invalid reports	<ul style="list-style-type: none"> ● Central review model
Actions based on reports	<ul style="list-style-type: none"> ● School and appropriate University Disciplinary process ● At this point, the process should be similar to a plagiarism case, or an exam centre breach, in line with the Student Discipline Procedure.

3.3.4. Costs

Costs vary significantly depending on the solution. Indicative pricing received from Integrity Advocate, provided in August 2021:

Number of sittings per annum	Cost per sitting
35,000 +	€5.95
10,000 - 34,999	€8.93
3,000 - 9,999	€10.65

Projected Demand for eProctoring

This is difficult to quantify at the time of writing, however the feedback from module coordinators has indicated that if they were to run further online examinations, they would use eProctoring if it were available to them. There are strategic, pedagogical questions relating to online assessment and its place in the assessment landscape of the University, that are beyond the scope of this project, but that have been flagged by faculty involved in the project as crucial. The outcome of those discussions should drive the level of demand for eProctoring. The number of online exam sittings has risen from 3619 in Autumn 2019 to 11,039 for the Spring 2022 trimester. The figures below show projected demand for eProctoring for Spring 2022, based on the level of interest expressed in Autumn 2022. A number of modules dropped out of the pilot for various reasons. This accounts for the discrepancy between the figures for expression of interest and utilisation.

Autumn 202100	No of Modules	As % of all online modules	No of sittings	As % of all online sittings
Advanced expression of interest	14	9%	2,596	24
Utilised eProctoring	9	6%	1,463	13.5
Projected demand for Spring 2022 exams, based on level of interest in Autumn 2021				
Spring 202100	Total Online	Projected demand in no of modules if opened to all online exams	Total Sittings Online	Projected demand in no of sittings if opened to all online
	201	28	11,039	2,649

The academic integrity support strategy used for an assessment should align with the perceived risk. For example, if there is a perceived high risk of impersonation or face to face collaboration associated with an assessment, eProctoring can mitigate those risks, whereas if the perceived significant risk is plagiarism, Originality Checking software would be more appropriate. It is beyond the scope of this project to map out all assessment strategies and their suitable academic integrity supports, but the following proposed approach, using the assessment type most commonly used in this pilot, may be useful.

Assessment	Online/ In person	High/Low stakes	Risk to Academic Integrity	Academic Integrity Support Strategy	Resource Implications
MCQ	Online	High	Unauthorised material Collaboration Personation	- Question Banks. Appropriate amount of time for exams. - ID Verification. - eProctoring.	- Cost of eProctoring solutions (per sitting). - Resources required for review process. - Resources required for supporting students (local and central).

Worked Examples

Costs depend on the delivery model and potential demand. The figures below are based on the proposed Implementation Model outlined in Appendix 5.

Number of sittings	Number of flags to review	Hours required to review*	Cost of secondary review**	Integrity Advocate Cost***	Total Cost
2649****	477	22	296	28159	€28,455
7000	1260	57	783	74410	€75,193
10000	1800	82	1118	106300	€107,418
35000	6300	286	3915	208250	€212,165

*@ 1 review per 2 mins, working 45 min to the hour

**@ €13.67 per hour invigilator rate

***@ costs as per table above

**** Based on projected demand as per previous table

3.3.5. Conclusions

eProctoring is different to other tools used as part of module assessment in UCD. There are unique and significant demands on resources involved, both centrally and at modular/school level.

eProctoring supports the academic integrity of online examinations through ID verification, reducing access to unauthorised materials and acts as a deterrent to breaches of exam regulations. It supports a move away from traditional, in-person examinations and has the potential to be a valuable resource in future delivery of online examinations.

The pedagogical issues surrounding the appropriate use of eProctoring solutions should be considered in the context of online delivery of assessments and exams. Faculty members of the project Working Group highlighted the importance of this issue, noting that eProctoring is most effective with assessment of learning type examinations, and less so where *assessment as* and *assessment for* teaching models are adopted.

Privacy and data protection concerns, and possible challenges on those grounds, should not be underestimated. The form of eProctoring that is utilised has a very significant impact on this. eProctoring has proven not to be a panacea that ensures there are no breaches of exam regulations during online exams. Therefore it is critical to manage expectations with regard to what tangible value eProctoring can add in the area of Academic Integrity.

Integrity Advocate was chosen following a marketplace review and vendor selection process. They have provided a satisfactory service to date. A new procurement, and potentially tendering, process will need to be undertaken depending on the scale of future eProctoring use in UCD.

This pilot was undertaken as a response to Covid19 restrictions and took place in the difficult context of the remote teaching and assessment period. As restrictions ease, the discussion of eProctoring, in the context of online assessment more generally, can be driven from a more realistic position.

3.3.6. Detailed Recommendations

The following provides additional details on the key recommendations outlined in section 2.2 of this document:

- **eProctoring should be available to faculty for use in online examinations, subject to the following considerations:**
 - Cost, both in terms of credits per sitting and the resources required to support and deliver eProctoring satisfactorily.
 - Appropriateness of use for exams. Weighting, exam type etc. should be considered at local level.

- **If eProctoring is used, *Record and Review* should be the form of eProctoring utilised, for the following reasons:**
 - It supports academic integrity while minimising the invasiveness of eProctoring for students.
 - This approach minimises the data collected and shared, which is important from a GDPR perspective.
 - Logistically, it is straightforward to implement, as students do not need to be matched with a proctor prior to taking an exam.
 - It makes only limited use of Artificial Intelligence.
 - The first review of potential breaches carried out by the provider means that the workload for UCD is manageable.

- **Information relating to eProctoring should be included in support and information provided for all students in relation to online assessment, for the following reasons:**
 - To avoid duplication of effort.
 - To ensure there is consistent, high quality information and support available to students, the importance of which has been highlighted throughout the pilot.
 - To ensure that students are directed, in the first instance, to information related to eProctoring in UCD and not to eProctoring more generally. As noted, the term eProctoring covers a wide range of solutions, many of which are likely to generate significant concern and resistance amongst students. Unless communication is carefully managed, adoption of eProctoring is likely to experience resistance on the basis of concerns that do not apply to the form of eProctoring being used by UCD and how it is implemented in UCD.

- **The use of eProctoring be flagged in the Assessment Strategy section of Module Descriptors, for the following reasons:**
 - To ensure students are aware that eProctoring will be used from the beginning of the module.
 - To ensure that there is management and oversight of the use of eProctoring at local level.

- **Ownership should be agreed and additional adequate resourcing be put in place for the following reasons:**
 - To ensure consistent and effective management and support of eProctoring.
 - To ensure that eProctoring is utilised to its full potential and in a way that ensures compliance with the relevant university's regulations and guidelines.

Appendices

Appendix 1 - Project Governance

The project team for this pilot was formed in October 2020. Weekly meetings of the project team took place from November 2020, moving to fortnightly meetings in June 2021. Membership of the project team was as follows:

Karen McHugh	Director of Assessment, UCD Registry
Niall Dennehy	Project Manager, Assessment, UCD Registry
Trish Mountjoy	Head of Educational Technology Services, UCD IT Services
David Kane	Project Manager – Educational Technology Services, UCD IT Services
Bianca Shaw	Deputy Director of Assessment, UCD Registry

A Project Working Group was established to provide expertise and perspectives from across the University. The Working Group convened on 6 occasions. Membership of the Working Group was as follows:

eProctoring Pilot Project Working Group Membership	
Karen McHugh	Chair of Project Working Group, Director of Assessment, UCD Registry
Niall Dennehy	Project Manager, Assessment, UCD Registry
James Lyng	Professor, School of Agriculture and Food Science
Tara McMorro	Associate Dean of Science
Sue Rackard	Vice Principal for T&L in the College of Health and Agriculture
Suzanne Donnelly	Associate Dean, Programmes and Education in School of Medicine
Amanda Gibney	Head of the School of Civil Engineering
Ailish O' Halloran	Deputy Provost, BDIC
Julie Tonge	Disability Officer, UCD Access and Lifelong Learning
Orla O'Shea	Assessment Business and Data Analyst, UCD Registry
Ciarán Ó Hultacháin	Data Protection Mainstreaming Manager, Office of the Data Protection Officer
Trish Mountjoy	Head of Educational Technology Services, UCD IT Services
David Kane	Project Manager – Educational Technology Services, UCD IT Services
Bianca Shaw	Deputy Director of Assessment, UCD Registry

Appendix 2 - Research & Collaboration

Internal to UCD

Unit	Purpose/outcome of meeting(s) etc.
<p>UCD Student Engagement, Conduct, Complaints and Appeals</p> <p>Lynn Foster</p>	<p>Lynn Foster, Student Engagement Manager, attended a meeting of the Project Team to discuss eProctoring in the context of current procedures regarding student conduct. This meeting clarified that once eProctoring has gathered evidence of a breach of regulations, any disciplinary process should proceed as normal.</p>
<p>Office of the Data Protection Officer, UCD Legal</p> <p>Ciarán Ó hUiltacháin</p>	<p>Meetings were held between the Project Manager and the Data Protection Mainstream Manager to discuss the implications of using eProctoring for Data Protection and Privacy. These meetings resulted in the completion of a DPIA. During this process the significance of the Data Protection and Privacy features of the solution used in this pilot became clear. Potentially serious issues were mitigated by aspects of the approach taken such as lack of room scan, minimum data storage etc.</p>
<p>UCD School of Veterinary Medicine</p> <p>Diane Cashman</p>	<p>The Project Manager met with Diane Cashman, UCD School of Veterinary Medicine, who was undertaking a project related to online assessment design and e-assessment software, to consider possible synergies between the projects, particularly in approaches to Data Protection and Privacy, and consideration of where eProctoring would be appropriate and the decision making process related to its use.</p>
<p>UCD School of Agriculture and Food Science</p> <p>Prof James Lyng</p>	<p>Prof Lyng has been using eProctoring for a number of years and provided useful insights to the Project Team on the entire process.</p>
<p>UCD Students' Union</p> <p>Carla Gummerson, Ruairi Power, Aoife Bracken</p>	<p>Niall Dennehy & Bianca Shaw met with members of the SU in April and September 2021 to discuss the project and to hear any concerns that they had. Both meetings were very positive and the SU were reassured by the student centred approach of the project and the high priority being given to students' privacy and data protection.</p>

External to UCD

Universities' Roundtable

The project team initiated and hosted a roundtable discussion with 8 other Irish HEA's, namely UL, NUIG, TCD, UCC, MTU, DCU, TUD & MU, in May 2021. Three other institutions ran centrally supported pilots; one using Integrity Advocate and the two others using a leading provider of Live Proctoring solutions. A further two institutions reported that some schools had independently used eProctoring with mixed results. The remaining three institutions had not used eProctoring solutions, (although one had used Zoom to monitor one set of exams), but were gathering information and waiting to see what direction teaching and assessment strategies in their institutions would take.

The institute that used Integrity Advocate was satisfied with the product and associated support provided. Their main issue was related to having exams that were not quizzes housed in the Quiz function of Brightspace, as Integrity Advocate was only compatible with the Quiz function at the time of their pilot. A subsequently released updated version of Integrity Advocate does allow eProctoring of other assessment types within Brightspace.

The two institutions that piloted live proctoring, using the same provider, had very negative experiences that led to both pilots being abandoned prematurely. Both institutions cited serious shortcomings in the support provided by the vendor, difficulties in the logistics of matching students to proctors, significant wait time for receiving reports, incomplete sets of reports being returned, quality of proctoring and concern regarding proctors' communication with students during exams as some of the issues experienced. Both institutions stated that their experience of eProctoring has led to a re-examination of their assessment strategies. The provider they used is a well-known provider of live proctoring and the project team met with them as part of the marketplace review. They are one of the few providers that store their data in the EU or a third country, and would therefore be considered suitable from a GDPR perspective.

Chartered Accountants Ireland

The project manager met with Ian Browne from [Chartered Accountants Ireland](#) who have used Live Proctoring for a number of years. They intended a phased expansion of their use of eProctoring, but were forced to expand much more quickly due to Covid 19 restrictions. CAI had a broadly positive experience, but Ian noted that CAI had much smaller numbers than UCD, and expressed the opinion that scaling up the solution they used would be very problematic for an institution such as UCD.

ACER

A meeting was held in May 2021 with [Acer](#), who run the HPAT, GAMSAT and MSAP examinations. They have used eProctoring extensively but have encountered significant difficulty with some providers of Live Proctoring recently, which is likely due to the rapid increase in demand over the last 18 months. Their experience highlighted the risks associated with Live Proctoring and lack of suitability for University exams.

Quality and Qualifications Ireland

The project manager contributed to Professor Paul Giller's report, "[eProctoring in Theory and Practice - a review](#)", which was commissioned by QQI and published in November 2021.

Appendix 3 - Marketplace Review

The project team conducted an extensive marketplace review from October - December 2020, reviewing solutions offered by 11 providers. Following extensive desktop research, the project team met with several vendors for information and demonstration sessions. Meetings were held with colleagues in UCD with experience in this area and other institutions with experience of eProctoring. As part of the initial marketplace review some vendors were eliminated from considerations due to high profile security breaches, legal action and integration issues. It became apparent that the team’s focus needed to be on deciding what form of eProctoring would be adopted, rather than focusing on vendors in the first instance. The term eProctoring refers to a broad range of solutions, with significant variations in relation to issues including:

- Data Protection and Privacy
- Functionality/Product Specifications
- Cost
- VLE Integration
- Associated workload for UCD

The vendors offer eProctoring solutions that can be mapped onto a spectrum ranging from very basic recording to live proctoring with a 2:1 ratio. Vendors either provide one type of solution or specialise in one while also offering a second option. Solutions and shortlisted providers were categorised as follows:

Categories of eProctoring & Shortlisted Providers	Commentary
Record Only Proctorfree Respondus	Record Only eProctoring involves recording students taking their exams and sending the entire recording to UCD for review. ID verification is carried out and <i>Lockdown Browsers</i> are used to limit students' access to unauthorised material on their device. AI is used to varying extents to highlight potential breaches. The workload associated with this approach was deemed to be likely excessive. The use of AI, without a human reviewer, results in a very large number of false flags being returned to the University for review. It was envisaged that the pilot would test the Respondus system, in a non-exam test environment, but, due to GDPR concerns, this was not completed.
Record and Review PSI	Record and Review eProctoring involves recording students taking their exam, but unlike the <i>Record only</i> approach, the recording is reviewed by the solution provider before sending a report to the University. This greatly reduces the number of false flags that are returned for review. Where the reviewer deems that actions recorded should be reviewed by the University, video clips, or still images, complete with

Integrity Advocate	comments from the reviewer, are provided. ID verification is also carried out, but in some cases involve a human reviewer as well as AI. Lockdown Browsers, or similar technologies are used to limit access to unauthorised materials.
Live Proctoring Examity	Live Proctoring involves the monitoring of students while they are sitting their exam. A proctor, who is an employee of the solution provider, observes the student during their exam and can intervene in the event of a suspected breach of regulations. ID verification is carried out and Lockdown Browsers are used in Live Proctoring. There is a significant administrative burden involved in setting up the eProctoring of examinations using this format, as the students must be matched with a proctor. This issue was flagged by other institutions who had used this approach as severely limiting the scalability of Live Proctoring. Live Proctoring is also the most controversial approach in relation to Privacy concerns, and creates significant concern amongst students in relation to its invasive nature.

Considerations

Privacy and Data Protection

The project team sought advice from the UCD Office of the DPO, and were advised that data gathered during the eProctoring process should be stored in the EU, or a country with third country status. This was a significant factor as many of the providers stored their data in the US or other countries that were not within the EU or considered third countries. Notably, Canada, where Integrity Advocate is based, has third country status.

A full DPIA (data privacy impact assessment) was conducted with the assistance of the UCD Office of the DPO. Through this thorough consideration of how University and student data is protected, the significant differences between the various forms of eProctoring, and even between the approaches of different vendors providing the same form of eProctoring was highlighted.

Integrity Advocate (IA) performed very strongly in this regard. The company has adopted a ‘Privacy by Design’ approach to their solution, with privacy and data protection a key consideration of every aspect of the eProctoring solution they provide. For example, a room scan is not carried out as part of the solution, nor does Integrity Advocate share video or audio recordings with the institution.

Functionality/Product Specifications

Room scans are a particularly invasive aspect of many eProctoring solutions, but in reality do not add significant value. The limitations of room scans have become more widely acknowledged, and in an effort to be more effective, some institutions have adopted multiple camera requirements, or the use of mirrors to provide a view of the entire room. The project team felt that this approach was unacceptably invasive in the context of university exams. Similarly, the Integrity Advocate solution does not share audio or video data with the Institution, and is unique in this respect, as this is regarded as unnecessary data collection. This was initially a concern and viewed as a limitation by the project team and the faculty using the system. Upon testing, usage and review of the solution it became evident that the time

stamped photo images received, provided as much value as video or audio recordings would. It also became apparent that the resources required to review video or audio recordings would be unfeasible.

VLE Integration

Integration with Brightspace was identified as a key criteria for selection as it would have a significant impact on the solution’s performance for all UCD stakeholders.

Cost

Different costing models applied to the various approaches, and generally, the costs involved reflect the level of involvement required on the part of the solution provider.

eProctoring - Cost Summary			
Vendor	Type	Costing Model	€ Cost per sitting*
Examity	Live proctoring	Cost per sitting, based on volume	€11.55
D2L/Integrity Advocate	Record and Review	Cost per sitting	€8.93//€10.65 *
Respondus**	Record and AI only	Based on FTE Free trial offered	€12.71
Honorlock	Pop-In Live	Cost per sitting, minimum purchase required	€24.65

* Cost per sitting varies depending on the amount purchased. UCD is likely to remain in the €10.65 bracket post-pilot.

**The costing model used by Respondus would result in a lower per sitting cost as scale increased, but the extra associated work for UCD would outweigh any savings made compared to other solutions.

Outcome of the Marketplace Review

Based on the above, *Record and Review* was chosen as the form of eProctoring to be utilised, and [Integrity Advocate](#), a Canadian company, was selected as the preferred vendor, based on Product Specifications, (and associated workloads), Integration with Brightspace, Data Protection & Privacy, and Cost.

Appendix 4 - Selection of Student/Module Cohort for Pilot and associated Support Models

Suitable cohorts for the first phases of the pilot were selected based on the criteria/guidelines for inclusion outlined below. Suitability for inclusion in the initial phases of the eProctoring pilot was not necessarily a measure of suitability for eProctoring more generally.

Cohort Size

The pilot was limited in terms of the number of sittings that could be included. The initial project scope limited the number of sittings to a maximum of 1,000.

Length of Examination

Examinations with a long duration were excluded. Longer examinations were deemed to be less suited to eProctoring, as it is impossible to monitor students once they leave the view of the webcam to avail of bathroom breaks. This limitation must be borne in mind in relation to exams longer than one hour, in particular.

Accreditation Requirements

Programmes may be required by external accreditation bodies to engage with eProctoring. Programmes that are accredited by external bodies often place requirements on student assessments outside of the normal UCD requirements or expectations. The introduction of a new element to their assessment landscape may be less likely to cause undue stress and concern to students.

Credit bearing exam

Given that this was a pilot project and eProctoring was a new measure for the University, exams with a significant impact on students' degree GPAs were excluded. However, it was important that the exam result should be significant enough for students to be invested in their result.

Experience of eProctoring

Where a cohort of students had previously used eProctoring systems, their inclusion in the pilot was considered to be less onerous on the project in terms of familiarising students to the concept, requirements, procedures etc., and provided the pilot with useful findings in terms of comparative experiences.

Where faculty and staff involved in the module(s) had familiarity with eProctoring, their experience was found to be advantageous for the purposes of managing eProctoring within their exam(s), and also for comparative purposes.

Contribution to project

There was an expectation that faculty and staff involved in the delivery of modules included in this pilot would contribute to the pilot, and would be asked to provide feedback on the process etc.

Student cohorts and modules participated in the pilot

School	Module	No. Students	Date	Exam Format	Exam Duration
UCD School of Medicine	MEDN 30000	149	23/03/21	Written paper	1
UCD School of Medicine	MDSA30300	149	23/03/21	Written paper	1
UCD School of Medicine	MDSA40060	149	24/03/21	MCQ	1
UCD School of Medicine	MEDN40040	149	25/03/21	MCQ	1
UCD School of Agriculture and Food Science	FDSC40040 FDSC40450	54 (49+5)	11/05/21	Written paper	2.5
UCD Michael Smurfit Graduate Business School	MIS40220	69	04/08/21	Written paper	3
UCD School of Medicine	RDGY41220	91	07/12/21	MCQ	1
UCD School of Agriculture and Food Science	FDSC40030	45	20/12/21	Quiz - mixed format	3
UCD School of Medicine	FLME40130	260	17/12/21	MCQ	1
UCD School of Agriculture and Food Science	PHPS40610	78	21/12/21	MCQ	1
UCD School of Agriculture and Food Science	FDSC10010	628	22/12/21	MCQ	1
UCD School of Agriculture and Food Science	FDSC2027K	167	23/12/21	MCQ	1
UCD School of Medicine	RDGY41720	21	15/12/21	MCQ	1
UCD School of Medicine	MDCS42190	167	17/12/21	MCQ	1
UCD School of Medicine	MDCS42330	16	21/12/21	MCQ	2

It was initially unclear whether a continuation beyond the first cohort would be required. Following the March examinations, a decision was taken with the Registrar as project sponsor to extend the pilot to further cohorts in summer and autumn. The extension of the pilot to another trimester was to allow for the following to be assessed:

The impact of adjustments made to the settings following the March sittings

The inclusion of the “use of unauthorised materials” violation, in particular, created unforeseen difficulties in the March sittings. As students were permitted to use rough work paper while this violation was active and being flagged, an extremely large number of flags were raised for review that showed students using rough work, or at least using material that could have been rough work

Review and analysis of support offered to each cohort:

- ***High level of support***

It was evident from the UEM exams that support and resourcing was a key issue, and that any consideration of how eProctoring might be adapted on a wider scale would need to be cognisant of the significant differences in resources available to support assessment at modular level across the University. The Technology Enhanced Learning (TEL) team in the School of Medicine provided significant support to the modules in UEM. While some of the work involved was due to the UEM exams being the first to use a centrally supported eProctoring system, a significant amount of it was not. The TEL team, along with module administrators were the core part of the support team that monitored the exams. It was noted that the resources available in this regard for the UEM programme were atypical. From the perspective of this project this was valuable in ensuring that eProctoring was supported to such an extent that there was confidence in its successful introduction. This approach did lead to gaps in the project team’s understanding of how eProctoring would be scaled up without such intensive support. It was quickly evident that further piloting of the eProctoring solution would be required before recommendations could be made.

- ***Prior experience of proctoring***

The second cohort to take part in the pilot was made up of students from the School of Agriculture and Food Science, taking the FDSC40040 & FDSC40540 modules. (FDSC40540 is an online version of FDSC40040 and the exam is the same for both modules). A total of 54 students were involved, split 49:5 between the modules. This group was selected for participation in the pilot as the module coordinator has been using eProctoring for several years and this cohort of students had used an eProctoring solution provided by another company during their Christmas exams in December 2020. This provided the opportunity to compare the faculty and student experience of using two different eProctoring solutions, provided by different vendors. The module coordinator’s experience and students’ familiarity with eProctoring also allowed the project team to take a less intensive approach to providing support, without the risk that would be associated with scaling back the team’s ‘hands on’ support for the first time with a cohort unfamiliar with eProctoring. The module coordinator was solely responsible for the running of the exam, with no other support for the eProctoring of the exam at School level. This was at the other end of the scale of School level support vs. UEM and provided a second reference point to begin modelling support models.

- ***“Hands off” support***

The experience of the FDSC cohort did mean that there was still a gap in understanding how a manageable support model would work for faculty and students unfamiliar with eProctoring. To

address this, a third cohort was selected for the pilot. MIS40220, Statistical Analysis in the School of Business held an exam on August 4th and provided an opportunity to apply the learning gained from the first two cohorts to a group unfamiliar with eProctoring. Improved information sheets were circulated, and the information presented to students by the Project Manager at a meeting addressed the concerns that had arisen for the earlier cohorts. This resulted in far fewer queries being raised by students prior to their exams.

- ***Development and trial of sustainable Support and Delivery model.***

Nine exams in December 2021 used the eProctoring solution. Information relating to eProctoring was published in the [UCD Assessment website](#) and Module Coordinator's were advised to direct students to the website for information. Information sheets were not distributed, and the project manager did not meet with students, as had happened with the earlier cohorts. The UCD Assessment Code of Practice and Exam Regulations were updated to include information relating to online examinations and eProctoring. The project team carried out an initial review of the reports received and the project manager met with module coordinators to further review those cases that required further input/clarification.

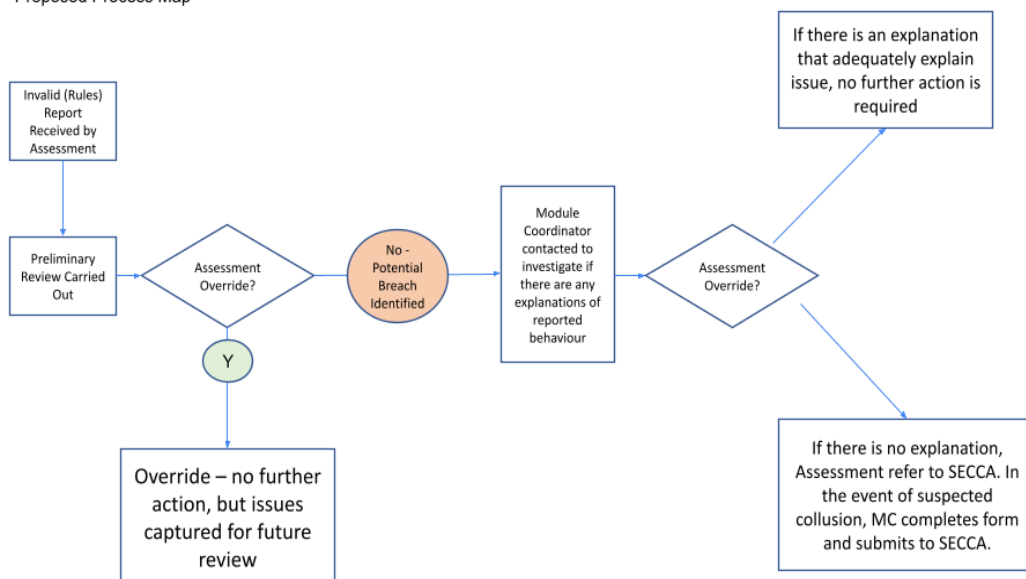
Appendix 5 - Implementation and Delivery

Technical set-up and implementation

The solution in use (as with most eProctoring solutions) had been designed for installation and implementation at an institutional level and for use and review by individual module coordinators. This approach was adopted for the first three cohorts of the pilot, with the programme manager joining the module coordinators as they reviewed the reports. A more centralised approach to the management, collation and review of reports was adopted for the December 2021 cohort. Reports were reviewed by the project team and only reports that were deemed to require clarification and/or follow up were reviewed by module coordinators. This provided for a more consistent approach and a more efficient management of workflows.

Implementation/ Delivery Action	Cohort 1 (UEM)	Cohorts 2, 3 & 4	Proposed Implementation model
Activation of Integrity Advocate solution for module	School Ed Tech team, liaising with IT Services and Integrity Advocate and Project Manager	IT Services, liaising with Module Coordinator, Integrity Advocate and Project Manager	Integrity Advocate is applied to all modules in the background. Mod Co's request solution for particular assessment(s) in CMS. Assessment activates for specific assessment.
Receipt and Review of reports showing potential violations	Module Coordinators and School level review.	Module Coordinators, with Project Manager observing. The Project Team carried out an initial review of the December reports and consulted with MC's as appropriate.	Centralised role within Assessment that will review and progress any cases as appropriate, liaising with module coordinators. See Process Map below

Proposed Process Map



Appendix 6 - Implementation/Delivery Milestones

Date	Project Milestone
January 21	<ul style="list-style-type: none"> ● First meeting with students and first information sheet circulated to students ● First meeting with UCD School of Medicine faculty and staff involved in pilot
February 21	<ul style="list-style-type: none"> ● Data Protection Agreement and Order Form signed off. (Project Team, UCD Legal, UCD DPO, D2L) ● Purchase Order submitted to D2L. 625 eProctored sittings, total = €5581 ● Product integration in test instance, (UCD IT Services & Integrity Advocate) ● Staff testing of Integrity Advocate in test instance ● Product Integration to live system completed. (UCD IT Services & Integrity Advocate)
March 21	<ul style="list-style-type: none"> ● Practice Assessment made available to UEM students ● Four examinations using Integrity Advocate take place for UEM students 149 students in the cohort, each exam scheduled for 1 hour
April 2021	<ul style="list-style-type: none"> ● Survey and Interview feedback collected from UEM students. Interviews held with faculty and staff involved ● Review of invalid flags carried out by module coordinators, supported by Project Manager. Significant work involved in developing an approach to this work ● Meeting with FDSC cohort ● Both information documents and Privacy Agreement circulated ● Practice Assessment made available for FDSC students
May 21	<ul style="list-style-type: none"> ● FDSC exam takes place ● Survey feedback collected from FDSC students
June 21	<ul style="list-style-type: none"> ● Invalid reports for FDSC reviewed by Project Manager and Module Coordinator ● Meeting with MIS Cohort - Documentation circulated after meeting ● Practice Assessment made available to MIS cohort
August 21	<ul style="list-style-type: none"> ● MIS exam takes place ● Survey and interview feedback collected from MIS students. Interview held with MC's
September 21	<ul style="list-style-type: none"> ● Invalid reports for MIS reviewed by Project Manager and Module Coordinator
October 21	<ul style="list-style-type: none"> ● MC's with online exams & School T&L's emailed re: use of eP for Dec exam
November 21	<ul style="list-style-type: none"> ● Project Manager held information sessions held for MC's ● UCD Assessment website updated to include information re: eProctoring
December 21	<ul style="list-style-type: none"> ● Issue detected with Int Adv and Brightspace. Int Adv removed from all modules ● Exams take place successfully
January 22	<ul style="list-style-type: none"> ● Reports received from Integrity Advocate reviewed by Assessment. Cases requiring clarification etc brought to module coordinator
February 22	<ul style="list-style-type: none"> ● Surveys circulated to students
April 22	<ul style="list-style-type: none"> ● Final Report, incorporating the learnings from the Dec 2022 cohort, submitted to UMT EG

Appendix 7 - Feedback

Student Feedback

Feedback was gathered via surveys and interviews with students. Survey responses were as follows:

Cohort	Survey responses	% Response
UEM	61	41%
FDSC	28	52%
MIS	32	46%
All December 2021	167	13%*
Total	288	18%

*It was not possible to circulate surveys to one cohort via the targeted communication system.

A total of 11 students were interviewed, 7 from the UEM cohort and 4 from the MIS cohort, including a class representative. Interviews were carried out by members of the Assessment team and the Project Manager.

It should be noted that this pilot took place at a time of significant stress for students. The UEM cohort were preparing for clinical placements which were greatly complicated by the pandemic. Several students referred to this difficult context in their feedback.

The students' user experience was on the whole positive. Students were asked to rate their experience of several aspects of using the eProctoring system. Feedback gathered from each of the first three cohorts informed the next phases of the pilot.

Navigation & User Experience (UX)

Students were asked to rate the following aspects of using the eProctoring system on the day of the exam:

1. Navigating the system prior to beginning the exam
2. Integration with Brightspace

* This question was not included in the first survey issued to UEM students

3. Use during the exam
4. The ID verification process

The following is a high-level summary of the student feedback:

- Satisfaction with the functionality of the eProctoring solution was high, with 68% of all students describing their experience of using the system during the exam as either 'Excellent' or 'Good'.
- There was a significant difference in the level of satisfaction between the different cohorts. 87% of the MIS students, and 83% of the FDSC students rated their experience as 'Excellent' or 'Good', but this figure drops to 45% for the UEM students.

- When asked if they would recommend that eProctoring be used in the future in UCD, 50% of students responded positively.
- There were significant differences between cohorts' responses to this question. Advance knowledge that eProctoring will be used is extremely important for students. The feedback showed significant dissatisfaction where students felt they were being blindsided by the introduction of eProctoring.

Student comments and concerns

Students were asked to provide comments or details of concerns in free text answers. Some common themes and issues that emerged are as follows:

Academic Integrity

- Students understood the importance of academic integrity and the role that eProctoring could play in supporting it for online exams.

Non-intrusive system

- Many students commented that the solution used was not as intrusive as they thought it would be, specifically mentioning the lack of live proctoring and room scan.

Encouraged focus and preparation

- Students commented that using eProctoring made them more focused in preparing for, and taking their exam.

Equity

- Student feedback highlighted significant concerns and dissatisfaction among some students that they were being required to use the eProctoring solution, when fellow students were not. This became the primary source of dissatisfaction amongst the UEM cohort, and generated significant work for the School and project team in managing the concerns.
- The importance of equitable utilisation, and clear communication of the rationale behind its use, should, therefore, not be underestimated. Singling out cohorts of students, modules or programmes, or being seen to do so, is likely to lead to resistance from students. In principle, any student may be required to use eProctoring, and this report recommends that eProctoring becomes part of the assessment landscape for all students and that the information and support relating to eProctoring is available to all.
- Some students were unhappy that they were only made aware that eProctoring would be used in their exam mid-trimester, or later in the case of one module. Module coordinators should indicate that eProctoring features in their assessment strategy when completing their module detail on the CMS system.

Being penalised for innocent behaviour

- The second major area of concern for students was being penalised due to the system recognizing innocent behaviour as breaches of regulations. The most common example of this was where students stated that they were reluctant to look away from the screen in case they were accused of looking at unauthorised materials.
- This issue was exacerbated when students were completing significant pieces of handwritten work during their exam. Consideration must be given to what students are required to do during their exam, (e.g. handwritten diagrams), and given appropriate advice and assurances prior to the exam.

Data protection and Privacy

- Student feedback suggests that the lack of a room scan and the fact that live proctoring was not used were significant factors for students, and allayed concerns in relation to data protection and privacy.

Support

- The information provided to students was well received, particularly in the earlier cohorts, where the project manager met with students to talk them through what they should expect. Students highlighted the importance of support being available in the event of them experiencing any issues. The reassurance this provided was noted as being important. Ongoing support must be a key feature of any SLA and/or resourcing model within UCD.

Faculty Feedback

Responses from faculty have been generally positive, but have acknowledged the limitations of eProctoring. The following are some of the common themes that emerged from faculty feedback.

- Faculty commented that eProctoring supported the academic integrity of their exams, particularly in relation to potential collusion.
- Where faculty had experience of using eProctoring solutions that provide video recordings of potential breaches, it was noted that reviewing still images took significantly less time than video, while providing equally useful evidence.
- Integrity Advocate's integration with Brightspace was highlighted as a positive feature by faculty.
- Faculty were conscious of Privacy and Data Protection concerns and were satisfied with how the Integrity Advocate solutions protects students' privacy and data.
- The lack of audio and video footage in the reports received was noted as a point of concern for faculty prior to using the system, but having reviewed the reports, faculty felt that there would be little to be gained from having video and/or audio footage. Having multiple images of a

potential breach, all of which are time stamped (hour:minute:second), was deemed sufficient to make a call on whether a breach had occurred or not, or whether or not further explanation was required from a student. The time stamp was crucial to making these decisions based on still images.

- Faculty all commented on the limitations of the evidence provided by eProctoring in terms of any potential escalation/investigation. A student's behaviour may arouse suspicion, for example, by looking away from the screen during the exam, but there is no way to prove whether that student was looking at unauthorised materials or simply taking a break from looking at the screen etc. Unless the image provided clearly shows a breach, (e.g. student using a telephone, or collaboration with another person present), the data provided by the eProctoring system was not conclusive enough to progress.
- The UEM exams resulted in excessively high numbers of reports being returned to module coordinators, which was flagged as an area of concern. This was due to a contradiction between allowing students to use rough work paper, and listing "Use of external resources" as a breach to be flagged. The issue was addressed in the later stages of the pilot, but consideration of the type of exam that eProctoring suits is still an important issue for further consideration.
- The faculty members involved in the pilot, particularly the earlier cohorts, devoted a considerable amount of time to the process. In their feedback, faculty commented on the scale of the undertaking, while acknowledging that the complexity of the subject required such intensive preparatory and review work.