

Guidance for digital / paperless assessment of taught courses

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Rationale for digital / paperless assessments

A change from paper-based to digital assessments was being considered for some examination formats prior to the Covid-19 pandemic. The pandemic necessitated a more rapid transition to the latter format than was originally planned and systems needed to be put in place quickly for remote ± proctored digital assessments, rather than the conventional exam hall/invigilated setting. There are many advantages to digital/paperless assessment, which means that a return to pre-pandemic assessment formats would be a retrograde step. However, we need to ensure that our digital assessments are reliable and robust, moving forward.

The main advantages of digital/paperless assessments are as follows:

- We have embraced a 'paperless' approach to our curricula, with paper-based handouts now used infrequently. Much of the learning material is accessible in a digital format (via Learn) and students are familiar with this digital environment for their learning. This includes undertaking formative assessments online, which can be better aligned with the summative assessment experience when also delivered digitally.
- Most students are using digital devices (rather than hand-written notes) for their learning and are less accustomed to spending long periods of time writing using pen and paper.
- Better opportunities for timely feedback. Most annotated written scripts returned to Exams Office are not viewed by students after the examination. Thus, a huge effort on the part of staff in providing feedback goes unnoticed. Digital systems have the potential to provide an opportunity for students to better engage in a more meaningful way with their feedback (both general and individualised), facilitating a more formative approach to all assessment activities.
- An opportunity to shift the focus of assessments towards testing higher order cognitive skills (analysis, application, synthesis) in an 'open book' approach, rather than focussing on knowledge and factual recall. Less reliance on memorisation and regurgitation of 'facts and figures' is likely to have a beneficial effect on student learning, with more emphasis placed on understanding concepts and principles and gaining skills in problem solving.
- Potential for more flexibility in undertaking assessments. It might be possible to allow remote digital assessments for some students on a case-by-case basis. This might be beneficial to some of our international students, who find prolonged residency in the UK problematic.
- Streamlining of exam processes. Exam papers can be set, delivered, marked and quality assured (internal and external) in a more integrated manner. Potential for reduced workload for exams office staff with less manual handling/processing of exam papers/exam scripts.
- More integrated/robust data systems. There is a reduced risk of transcription errors when compared with manual entry of data from hard copy marked scripts into spreadsheets.
- Less risk of misplaced scripts/marks. Manual handling and transport of written scripts from the examination hall to Exams Office and distribution across and between campuses carries the risk of misplaced documents. Traceability of individual scripts is

difficult to achieve in a paper-based system, an online system is more robust. Student handwriting is often difficult to read, increasing the marking time/burden on staff. From the examiner perspective, typed responses are somewhat easier to mark and may be less ambiguous (e.g. “hyper” vs “hypo”).

- More flexibility for examiners in carrying out their marking. Digital assessments offer the opportunity for remote online marking, regardless of geographical location and without a requirement to transport scripts.
- Reduced risk of delay in marking and processing marks, particularly when the examiner is off-site or working on another campus. There is a potential gain in terms of time allowed for examiners to meet their deadlines and return marks to Exams Office more expediently. Marking can commence as soon as the examination has ended.
- Greater flexibility for quality assurance processes. Sample marking, standard setting and external oversight is facilitated for internal and external examiners using online systems, rather than a paper-based system. Reduced requirement for external examiner time on- campus to fulfil their duties.

There are clearly major benefits to be gained for students and staff in continuing to deliver our assessments in a digital format. However, there are some technical and operational aspects that will need to be optimised in order for us to deliver digital/paperless assessments in a reliable and robust manner. These include consideration of student experience, IT infrastructure, software systems and mode of delivery. These are considered in the next section, with suggestions for how these issues may be addressed.

In the first instance, we will likely enter a transition period in terms of a return to face-to-face/on- campus assessment for some courses, but retention of some remote digital assessments (\pm proctoring) until such time as social distancing measures are no longer considered necessary and assessment accommodation can be identified and utilised.

1. General concerns that are common to all forms of digital assessment:

- Students will be required to have access to a suitable computer and a stable WIFI / broadband / internet connection. IT specifications (microphone/webcam) and bandwidth might be problematic for some students in a remote proctored examination. This is more problematic for assessments that are delivered online for the duration of the test (e.g. via LEARN Quiz) compared with those that can be completed offline (e.g. via download/upload to OCM) and therefore only require intermittent internet access. Support from the LEARN Team is necessary during the test period to respond to technical issues and students should be encouraged to contact the Exams Office in the event of a technical failure. Provision of invigilated assessment accommodation (either on campus or outsourced) should be made available, if the student’s internet access issues cannot be resolved prior to the examination or the student expresses concern with undertaking the examination remotely. This will require consideration and potentially upgrading of estates infrastructure in terms of WIFI bandwidth and power supply to rooms. A ‘bring-your-own-device’ approach would seem the most appropriate solution, albeit with spare laptops made available in the event of technical difficulties.

- Scheduling of assessments should be carefully considered with communication between the relevant course team, Exams Office and LEARN team in order to minimise, where possible, the load on the cloud-based system during busy periods. Examinations should be scheduled during UK normal working hours. It is possible that international students will return to their home country during the revision period, but students should be informed that the expectation is that they return to the UK to undertake the examinations. We may consider a request to undertake remote online assessments from abroad, although the time-zone difference will need to be accepted and no dispensation will be made in terms of the timing of the examination.
- Examinations should normally be time-limited once they have started and consideration given to the duration of the test period, with longer periods of assessment delivered in 'chunks' with breaks in between. Some extra time (e.g. 15 minutes) may be permitted to allow acclimation with the online environment. Where the test is 'open' for an extended period, clear guidance should be provided in terms of expectations of how much time should be spent completing the examination.
- The security of questions is a concern. Online (non-proctored) delivery may release the questions into the public domain. Consideration should be given in terms of re-use of questions following delivery in an online environment. This may require more new questions being written, with less reliance on 'banked' questions. This would have advantages in terms of provision of feedback, where model answers could be released/discussed with students without security concerns.
- There is an increased risk of academic misconduct (cheating or collaboration) with remote online assessments, compared with invigilated examinations. Students are expected to sign up to an "academic honesty and integrity" statement. Academic (mis)conduct of students needs to be monitored for summative assessments, either through review of proctored recordings or use of plagiarism software for submitted pieces of work.
- A proctoring solution (Proctorio) is currently embedded within Moodle and should be employed for summative assessment of factual knowledge (e.g. MCQ) using the LEARN Quiz environment. Students must have a proctored formative assessment in advance, so that they can experience this online environment before any proctored summative assessment takes place. Guidance is provided in LEARN to inform students on how online proctoring works and they will have an opportunity to familiarise themselves with the proctoring software through a test site. Students should be encouraged to resolve all Proctorio setup issues using the test site and through any formative opportunities prior to any summative assessments taking place.
- Special Exam Arrangements (SEA) will remain in place for students who have had these authorised by the Advice Centre. Students who are in receipt of an additional time allowance will have this included in the length of their exam period for digital assessments. Students with a rest break allocation will have this time added onto any remote online assessment as they would for invigilated exams. Should the student (or the RVC) feel that their approved SEA is not compatible with undertaking the assessment remotely, the Disability Adviser should be contacted in the first instance and on campus (invigilated) assessment accommodation should be recommended.
- "Open book" or "non-proctored" examinations should be considered as an alternative to remote proctoring for those types of assessment requiring a written/typed response. However, there needs to be some adjustment in the style of questioning to assess higher order cognitive skills (understanding, analysis, application and synthesis of information) rather than factual recall/knowledge. Plagiarism software

(Turnitin) should be routinely used and reports evaluated in a systematic manner. Consideration will need to be given in terms of advice to students who opt to undertake open book examinations on campus, with respect to physical resources that they wish to bring to the exam.

- Feedback to students from an online system is likely to be superior to hand-written annotation of written scripts in terms of accessibility. The software used should encourage and facilitate staff marking and provision of individualised feedback that can be released in a timely manner.
- Marking of online assessments will extend periods of Digital Screen Equipment (DSE) use for academic staff. An unsuitable workstation setup (including prolonged laptop use) can exacerbate eyestrain. Therefore, staff are reminded of the College's Health & Safety DSE policies which are available on the Health and Safety page: (<https://intranet.rvc.ac.uk/professional-services/estates/health-and-safety/information-a-to-z.cfm#Display-Screen-Equipment>)

2. Specific assessment types

2.1 Single best answer (MCQ)

Traditional format:

Invigilated exam hall delivery. Question paper provided as hard copy (generated from Ripley Systems). Paper-based answer sheet is completed manually by student. Scanned and automated marking. Statistical (item) analysis provided for quality assurance processes. Spreadsheet provided for standard setting and incorporation into Final Mark Sheet.

Digital format:

Online delivery currently via remote proctored Moodle Quiz, but other software (e.g. Speedwell) is available and could be considered. Invigilated assessment accommodation should be made available for those students who require it, although Proctorio will need to be active (except perhaps webcam function), or an alternative 'lock-down browser' (e.g. Safe Exam Browser) implemented. For summative assessment, the test should be released within a limited time window and be time limited once started. Test should be divided into 'chunks' with breaks in between. Where possible and appropriate, questions and responses should be randomised in order and, if considered necessary, large student cohorts may be divided up into a number of smaller groups, with the paper divided into different sets of questions released in each consecutive section. Consideration should be given to sourcing a single software solution, whereby the questions are held in a bank for selection into an exam paper, which is delivered and marked/quality assured/standard set within the same platform.

2.2 Short answer / problem-solving questions

Traditional format:

Invigilated exam hall delivery. Question paper provided as hard copy. Paper-based answer booklet completed by student. Scripts need to be distributed to markers (often more than one per question). Manual annotation of scripts for feedback/justification of mark. Sample marking of hard copy. Review of scripts/markings by external examiners. Scripts made available to students for feedback (particularly failing students).

Digital format:

Online delivery currently via Moodle Quiz, although other software solutions should be evaluated. The examination could be either 'open-book' or proctored. The former is recommended for questions that are designed to assess problem-solving/application of knowledge rather than factual recall. Invigilated assessment accommodation should be made available for those students who require it, although there may be limitations for physical resources that on-site students are able to bring in for the open book format of examination. For summative assessment, the test should be released within a limited time window and be time limited once started. Tests should be divided into 'chunks' with breaks in between where necessary. Possible to release general feedback (shortly after the examination) and individualised feedback (after completion of marking and release of marks) to all students. For problem-solving questions of a more discursive nature it might be considered more appropriate to deliver these as in section 2.3, below.

2.3 Long answer / Essay / Clinical & Professional Reasoning Question (CPRQ)**Traditional format:**

Invigilated exam hall delivery. Question paper provided as hard copy. Paper-based answer booklet completed by student. Scripts need to be distributed to markers (often more than one per question). Manual annotation of scripts for feedback/justification of mark. Sample marking of hard copy. Review of scripts/markings by external examiners. Scripts made available to students for feedback (particularly failing students).

Digital format:

Online delivery via Learn/Online Coursework Management (OCM) system as an 'open book' or 'restricted resource' assignment. After initial ID Verification using Proctorio (may not be necessary), students can access the document/task from Learn, must complete this within the designated time period and upload responses via OCM. Consideration should be given to the length of time students are expected to work on the assignment; this should be long enough to allow completion of the task, but not so long that they spend an extended period of time working on it. An advisory word count may be suggested to encourage students to provide responses that are precise and succinct. Turnitin must be reviewed for any evidence of plagiarism.

2.4 Written research project**Traditional format:**

Students complete their research project. One draft version submitted for feedback. Final document submitted electronically via OCM. Turnitin review for plagiarism. Either single marked and sampled or double marked online via OCM. Facilitation sometimes required for discrepant marks. Written feedback provided. External examiners can review remotely via OCM.

Digital format:

Unchanged.

2.5 Viva voce examination

Traditional format:

Student undertakes a viva voce examination in the presence of two (or more) examiners.

Digital format:

Student undertakes a viva voce examination in an online environment (e.g. MS Teams, Zoom) with two (or more) examiners present. Although this format gives flexibility in terms of the location of students and examiners, the default should be face-to-face examination. A compromise model, whereby only one participant is online needs careful consideration of appropriateness and should only be undertaken if justified under exceptional circumstances.

2.6 Assessed presentation

Traditional format:

Student (or student group) present their work using a visual aid (PowerPoint slides or poster) in the presence of two (or more) examiners. Marking rubric typically used for marking/feedback.

Digital format:

Student (or student group) presents their work by sharing a visual aid (such as PowerPoint slides or poster) in an online environment (e.g. MS Teams, Zoom) with one (or more) examiners present, or students submit their work as a pre-recorded file, such as a narrated PowerPoint presentation, video recording or similar type of AV file, for subsequent marking by examiners. Marking rubric typically used for marking/feedback. The course management team should decide whether this is a suitable alternative format for assessment, based on constructive alignment with the stated learning outcomes. Alternatively, this format may be considered as a 'reasonable adjustment' if recommended by the Advice Centre for those students with Special Exam Arrangements.

2.7 ISF oral

Traditional format:

Students participate in a multi-mini interview style oral examination in the Dissection Room, where they are questioned around various 'props' in terms of their ability to integrate structure and function. A potentially 'tactile' experience.

Digital format:

Discussions are initiated by sharing a visual aid (image, photograph) in an online environment (e.g. MS Teams, Zoom) with one (or more) examiners present. Marking rubric typically used for marking/feedback. This format should only be considered in exceptional circumstances for international students.

2.8 OSCE

Traditional format:

Students must negotiate a number of OSCE stations to demonstrate a variety of clinical skills, while being observed and graded by examiners.

Digital format:

Not applicable.