Position paper: onscreen assessment in GCSE Mathematics

The Mathematical Association has noted that Awarding Bodies have begun to trial onscreen assessment for GCSE Mathematics. Ofqual's corporate plan 2022 to 2025 encourages this approach: "We plan to … support the use of innovative practice and technology and remove regulatory barriers where innovation promotes valid and efficient assessment" (Ofqual, 2022). The recent pandemic brought the limitations of the current examination system into sharp focus and there are other reasons why it might now be appropriate to explore change, not least the significant cost of examination fees. Screens are pervasive throughout society so it seems that a transition to some form of onscreen assessment may only be a matter of time. Advantages could include responsive and adaptive questions, the ability to incorporate dynamic geometry, algebra and spreadsheets and improved accessibility for students with special education needs or disabilities. The potential savings that may follow a move away from paper-based assessment are not, in themselves, sufficient to justify such a radical change. The rigour and breadth of assessment must be maintained and the benefits of technology harnessed to improve upon the current system. Although we support these trials and a wider exploration of onscreen assessment, we have some concerns that are outlined below.

The first consideration must be to ensure equality for students from a variety of locations and demographics. Students in disadvantaged areas already face challenges with the current system, but this could be exacerbated by the need for schools and colleges to provide appropriate facilities to allow them to take their examinations online or on a screen. There is a risk that institutions with the finest equipment and facilities could be rewarded with enhanced grades widening existing attainment gaps. Significant investment would be needed to ensure that all institutions have a sufficient number of devices with the necessary specification and stable, reliable, high speed internet connections. Access to necessary technology outside school or college may be limited by a student's home circumstances and this could provide an additional barrier.

Multiple-choice assessments may be the easiest to mark electronically but could lead to closed rather than open questioning. The automated compilation of a bespoke examination from a large multiple-choice question bank would not be sufficient to produce a robust assessment. Questions that require the inclusion of methods and allow extended responses to demonstrate mathematical reasoning would be required to ensure the benefits of the current assessments are not lost. A blended approach with some paper and some onscreen elements may be necessary to avoid reducing the scope of the assessment. Given that the current curriculum was not designed with onscreen assessment in mind, the curriculum itself may ultimately need to be modified.

Logistical issues mean it is probable that schools and colleges would need to schedule on-demand examinations in a window spanning a period of weeks. It is our view that on-demand assessment must not result in a return to "gaming" with students being repeatedly presented for examination. Teachers would need to be trained to integrate the use of the assessment platform within their teaching to ensure that students are tested on their understanding and knowledge rather than on how well they can operate a particular program. Appropriate funding and sufficient time would need to be allocated and students will also require dedicated curriculum time to become familiar with the new systems.

Onscreen assessments have the potential to revolutionise how we assess mathematics and the recent trials, run alongside traditional paper-based exams, and subsequent discussions should be welcomed. However, caution is needed to ensure that any changes are for the better and that issues, such as students' lack of confidence with IT, are addressed by ensuring that they have opportunities to develop proficiency with the new platforms. If such issues are properly considered and implementation not rushed, it should be possible to design a system that is robust, easy to use and improves upon current assessment methods.

Reference:

(Ofqual, 2022) Ofqual corporate plan 2022 to 2025
www.gov.uk/government/publications/ofquals-corporate-plan/ofqual-corporate-plan-2022-to-2025