Spotlight on **Onscreen Assessment**

Policy series: No. 5

Pearson

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Executive summary

The use of digital technologies is increasing in schools and colleges, be it for teaching and learning or formative assessment. This is well established and has been further accelerated by the pandemic and necessity of remote learning. Onscreen assessment has been used in the UK across vocational and professional qualifications for several years, but that move has yet to be made for high stakes examinations for general qualifications, namely GCSEs and A levels.

Our recent Future of Qualifications and Assessment research shows that teachers and learners see an increasing role for digital technologies in high stakes assessment. [1] And so, what is stopping the education system from bringing onscreen assessment into GCSE and A level assessment? How, if at all, can this be achieved?

This paper investigates these questions further by drawing upon desk research, two policy roundtable discussions, and the polling of teachers, learners, and school leaders.

Our research has found that for onscreen assessment to deliver the potential benefits that many believe it can, policy makers need to go beyond simply re-creating the current system online. And there is no appetite to replace the current "one size fits all" model with another. Embracing technology could have a transformative impact on the education system, leading to a more personalised and accessible assessment experience for all students. It also has the potential to drive wider changes in the curriculum: what is taught, how it is delivered, and when it is assessed. Another benefit is the way in which technology could help to mitigate some of the risks faced by the current system. These include exam paper security, the impact of unexpected events such as the pandemic, and other logistical and operational failings.

Three elements were identified as necessary to facilitate change: access to technology; a curriculum that better reflects the digital world we live in; and a shift in pedagogy to support teachers and

Executive summary (continued)

learners in a transition to onscreen assessment.

Key findings include:

Our research found the following points which should be addressed to support a wider adoption of onscreen assessment:

- **Technology in assessment is important for developing skills for the world we live in:** the assessment system needs to better reflect this, including the government's wider digital skills agenda.

- **'The future is already here' - the technology exists, the practical barriers need to be tackled:** onscreen assessment is already happening – and working – in parts of the system (e.g. for adult learners). A coordinated strategy and funding for digital access is required to tackle the barriers preventing wider adoption of onscreen assessment.

- **Balancing a transitional approach and realistic goals with the need for wider reform:** although an incremental approach will not lead to a "big bang" moment for the onscreen assessment of GCSEs and A levels, the progress being made will build confidence in system change.

- **Managing risk: the need to instil confidence in the system:** teachers are willing to embrace technology if they have the right support. And it is essential that any reforms are accompanied by steps to mitigate the sense of uncertainty and risk among educators and policy makers.
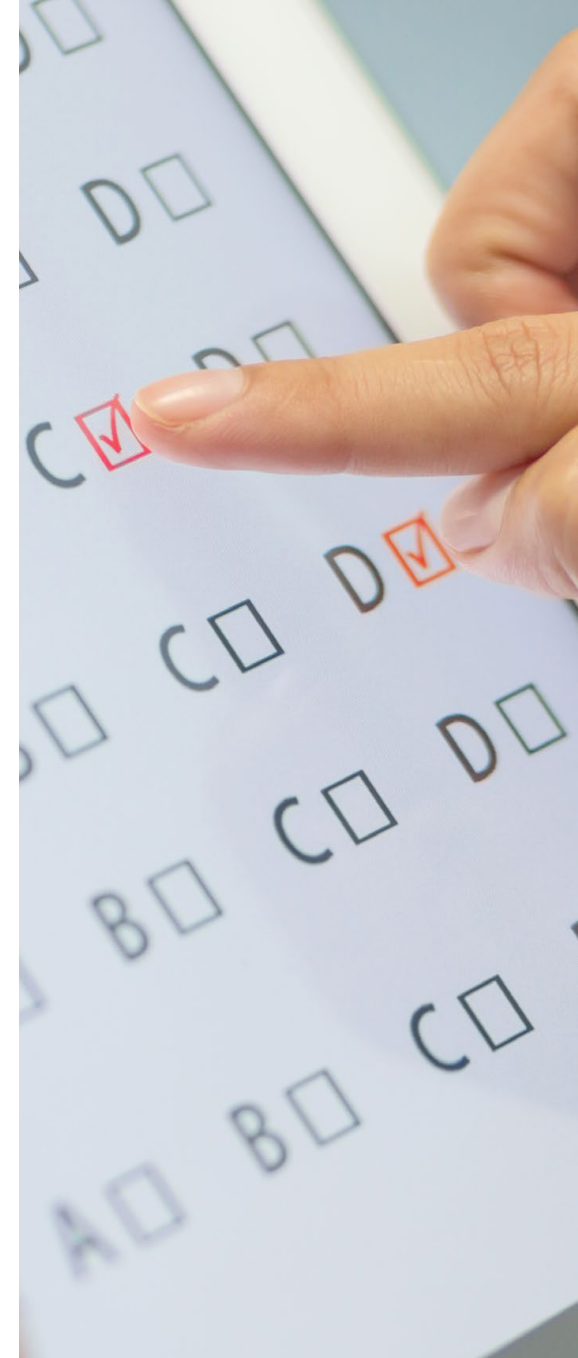
The benefits

Why onscreen assessment?

"New approaches to assessment, including the use of technology, have the potential to improve quality and fairness for students and apprentices and to strengthen the resilience of how qualifications and assessments are delivered."

Ofqual, May 2022

Greater use of technology has the potential to provide benefits across the system. Developed and delivered in the right way, onscreen assessment could:

- Provide an experience for learners that relates to how they live, learn, and think. Computers are integral to everyday schooling and so the assessment system should reflect that.

- Prepare students for the world of work and future careers, testing the skills and knowledge employers welcome. [2]

- Improve the authenticity and validity of assessments. [3]

- Enable more efficient delivery of assessment, including faster marking and delivery of results.

- Security would also be improved as physical papers would not have the opportunity to be leaked – however, online security risks would need to be managed and mitigated.

- Provide greater insight, through increased data, into student progression and depth of skill acquisition.

- Deliver insights and data, that will allow teachers to improve the effectiveness and impact of their delivery and assessment.

- Reduce teacher workload and administrative burden.

- Support inclusive design that facilitates fair access for all, including SEND learners. [4]

- Lead to more flexible scheduling to support the central submission and management of assessment evidence.

The use of technology also has the potential for truly transformational change. When designing the qualifications and assessments of the future, it is vital that we consider how they can best reflect the skills, competencies, knowledge, and understanding required for the changing world of study and work. Technology will have a key role in teaching, learning and assessment.

77% of teachers questioned supported greater use of technology in teaching and assessment

70% of teachers feel onscreen assessment will provide faster, better insights about students' performance to improve teaching and learning [5]

Onscreen assessment – the story so far

The widespread use of onscreen assessment in UK schools and colleges has long been predicted.

Across professional and vocational qualifications its use is commonplace. For example, in Functional Skills assessments and the End Point Assessment of many Apprenticeship standards we see technology playing a key role. The same cannot be said, however, for many high stakes exams (i.e. GCSEs & A levels) in schools and colleges, where progress towards digitisation has been slower than expected.

As a political issue, onscreen assessment has yet to make it on to a list of 'hot topics'. The last major reform of GCSEs and A levels assessment came in 2010, under the then Education Secretary, Michael Gove. Digital assessment did not feature in what was a significant overhaul of the system, with changes to grading and a move to terminal assessment (i.e. examination at the end of a course of study).

Globally, there are various examples of advances in onscreen assessment on a large scale. In Egypt, over 14 million high stakes onscreen assessments are taken by over 1.6 million senior secondary students each year. Australia, Finland, Israel, and New Zealand have also embraced the use of technology in assessment.

In the UK, Pearson will run onscreen GCSE Computer Science assessments for the first time in summer 2022. And recently (May 2022), the regulator, Ofqual announced plans to work with awarding bodies on the use of technology in assessments.[6] Generally, however, much of the work on onscreen assessment in the UK remains at pilot stage.

This is reflected in the lack of infrastructure needed to deliver onscreen assessment in schools. At a time when computers are deeply woven into the fabric of everyday life, work and – increasingly – learning, most students will leave school having taken most, if not all, their exams with pen and paper. What has been stopping the education system from committing to a larger scale shift?

Barriers

Research, including a paper by Ofqual, has highlighted several barriers to greater adoption of onscreen assessment in qualifications like GCSEs and A levels. [7]
These range from debates over validity and comparability, to how to tackle the operational challenges of delivery at scale. Some commonly highlighted issues can be grouped into the following categories:

The availability of technology and connectivity, and associated effects

- **IT provision and connectivity in centres:** there is risk of unfairness to students as there is a lack of equipment of a consistent specification. One of the biggest issues faced is the connectivity infrastructure within centres and the different contractual arrangements with internet providers.

- **Unreliable internet and security issues:** concerns around technology or connectivity failures, as well as risks associated with cyber security and the protection of data.

- **Digital inequalities:** disparities in access to digital devices, both at home and school, as well as gaps in digital literacy, mean that some students could be disadvantaged by using onscreen assessments. [8]

Expertise and understanding

- **Professional development:** a shift to onscreen assessment would require adequate technical support and expertise. Teaching staff must be supported to develop the skills and teaching practices necessary for preparing students and ensuring fairness in the system. This has related cost and resourcing implications.

95% of teachers agreed that they need more training in technology for teaching and assessment [9]

Comparability and fairness

- **Perceptions of comparability and fairness:** questions have been raised over how to ensure that the standards used to assess onscreen examinations are comparative to those of paper-based assessments. Regulatory requirements need awarding organisations to be able to show that a grade is worth the same regardless of the mode in which the assessment is taken.[10] This is a key consideration **for any assessment offered via dual modes or on paper and onscreen**.

- **Different needs for different subjects:** a fair approach for students requires thinking beyond a 'one size fits all' approach across subjects. Some subjects may be more suited than others to being assessed onscreen. For example, maths and science subjects require a greater level of consideration and more adaptation than many literary subjects.

Changing a stable and engrained system

- **The current exam system:** the rigidity of summer exams (in the case of GCSEs and A levels), with whole cohorts taking exams at a fixed time, can make the delivery of onscreen assessment more difficult logistically. Considering the exam system differently could lead to a transformation of the school year.

- **A digital first curriculum:** a shift in assessment method would require a similar shift in curriculum content and delivery. We have seen in other countries that the move to digital assessment has provided the catalyst for change.

- **Attitudes towards risk:** the perception of risk means that some are reluctant to change the status quo. Ongoing work to validate onscreen tests aims to provide the evidence to reassure those worried about the impact of this assessment on students.
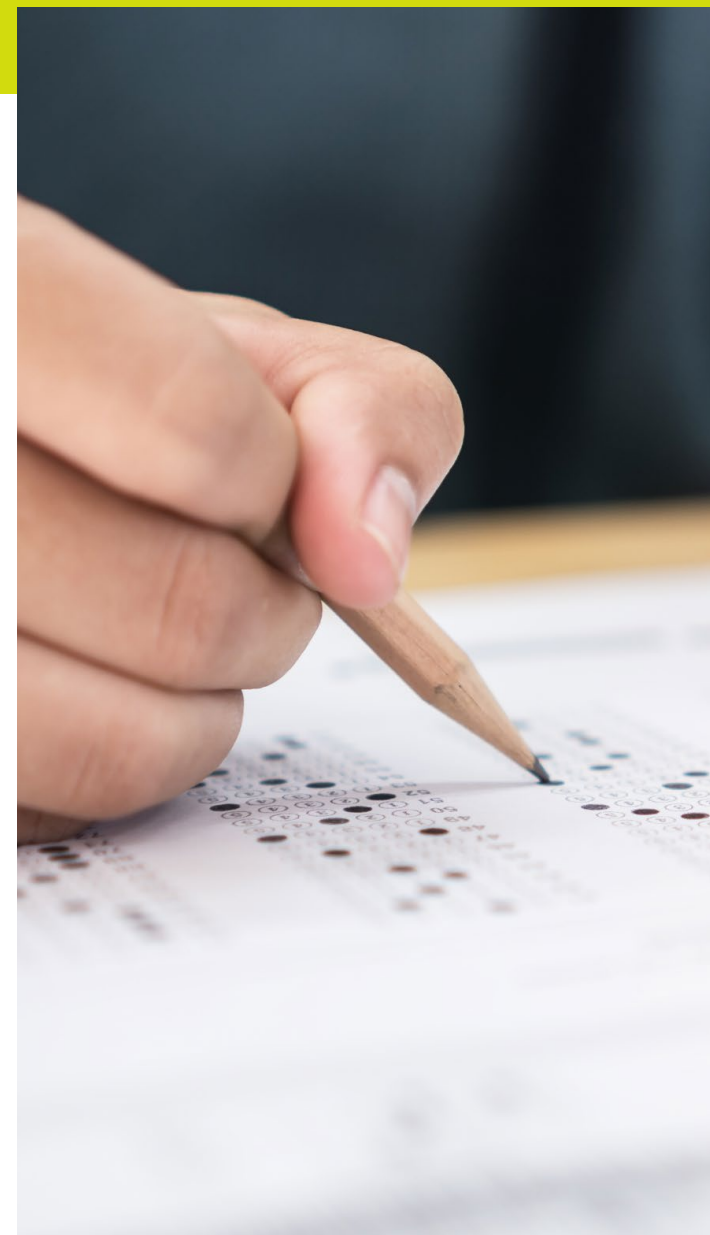
View from the roundtables

In February we held two policy roundtables to discuss the wider use of onscreen assessment, especially in GCSEs and A levels. Eight clear themes emerged:

1 **General Qualifications are behind the times**
- Participants were broadly supportive of a move towards onscreen assessment. Many highlighted the progress made and use of technology in vocational and technical education.

- According to one participant, 'the future is already here' in Further Education – both in terms of moving towards a 'stage not age' model of testing (see below), and in using technology for assessment.

- It was argued that assessments involving pen and paper are becoming an increasingly less valid way of measuring the skills and learning experiences of students who are accustomed to using technology in their day-to-day learning.

2 **Practical barriers to delivering the technology at scale**
- There was a consensus that we already have the technology needed to implement successful onscreen assessment. This can be seen in its increasing use in exam systems not only overseas but also in the UK, with the GCSE in computer science cited as an example.

- Some progress has also been made elsewhere in the UK, with Wales currently exploring a holistic approach towards the use of technology across curriculum and assessment.

- However, several barriers were identified regarding the logistics of large-scale delivery including: capacity for whole year groups to access a screen at the same time; security risks regarding the technology; risks of students walking to school with devices; connectivity and IT issues; and training for staff and students to use the technology effectively.

3. Beyond recreating the current system online

3 **Realising the potential technology presents**

- Most agreed that effective onscreen assessment should not be an issue of simply taking what we have now and putting it onscreen. It was suggested that, although this would be making use of technology, it would not represent progress.

- Instead, the technology available to us allows for adaptive assessment, whereby students are provided with a tailored set of questions which adjust to individual ability throughout testing. The benefits include a more personalised and effective assessment experience, as well as being able to adapt the format for different subjects.

**4** **'Stage not age': wider curriculum and system reform**

- A shift towards onscreen assessment was often mentioned in the context of a 'stage not age' approach, whereby individual students can sit assessments 'on demand' when they are deemed ready to do so. For many participants, this would have implications not only for the wider school system and how the academic year is structured, but also for the nature of the curriculum itself.

- Some suggested that the delay in implementing widespread onscreen assessment is due to the time spent looking at "the wrong end of the problem". Rather than starting with the question of assessment as an end in itself, we should begin by considering what the curriculum is trying to achieve. This view has recently been reflected in the response to Ofqual's announcements of its plans to explore new approaches to assessment – including the role of adaptive testing - with some education unions arguing that greater use of technology should form part of a much wider context of exam reform. [12]

- Some expressed concerns that the more we try to squeeze technology into the existing system, the more we delay broader change. However, others questioned whether a transitional approach would be more realistic. This could involve shifting some assessment onscreen in the short term, while pushing for a move towards adaptive assessment in the longer term. Doing so would allow us to test the system's capacity for change.

5 Cultural barriers: managing risk and creating space for innovation

- It was suggested that some policy makers and teachers may be more comfortable with the status quo because it is familiar and reflects how they themselves were assessed at school. One participant shared that in their experience of developing 'on demand' BTECs, most teachers reverted to scheduling exams in larger sessional cohorts. They may also be deterred by the perceived risks of change.

- If we are to demonstrate and experience the benefits of onscreen assessment in practice, it is therefore important to develop a route to change that the system can manage. One way of facilitating this could be to create a regulatory 'sandbox' in which pilots and innovations can be tested out in a safe, lower stakes environment. As part of this, it would be important to set clear definitions of what 'good' outcomes of these pilots would look like.

- Other suggestions of opportunities to test out onscreen assessment included mock exams and GSCE English and maths in FE colleges where a culture of using technology in assessment already exists.

6 Impact on inequalities

- As reflected in existing research, disparities in access to devices and a stable internet connection was raised as a priority. The inequalities here relate to not just the test taking, but the entirety of a student's learning experiences. This led to a call for a national strategy on devices and connectivity.

- Strong arguments were made for the shift towards onscreen assessment to benefit students with disabilities, citing a small scale pilot study which found that almost all students with SEND who took part in the trial were 'very much in favour' of digital assessment. [13]

- Other questions regarding equality related to the nature of knowledge itself, with a need to consider how onscreen assessment could assess certain 'soft skills' or qualitative learning.
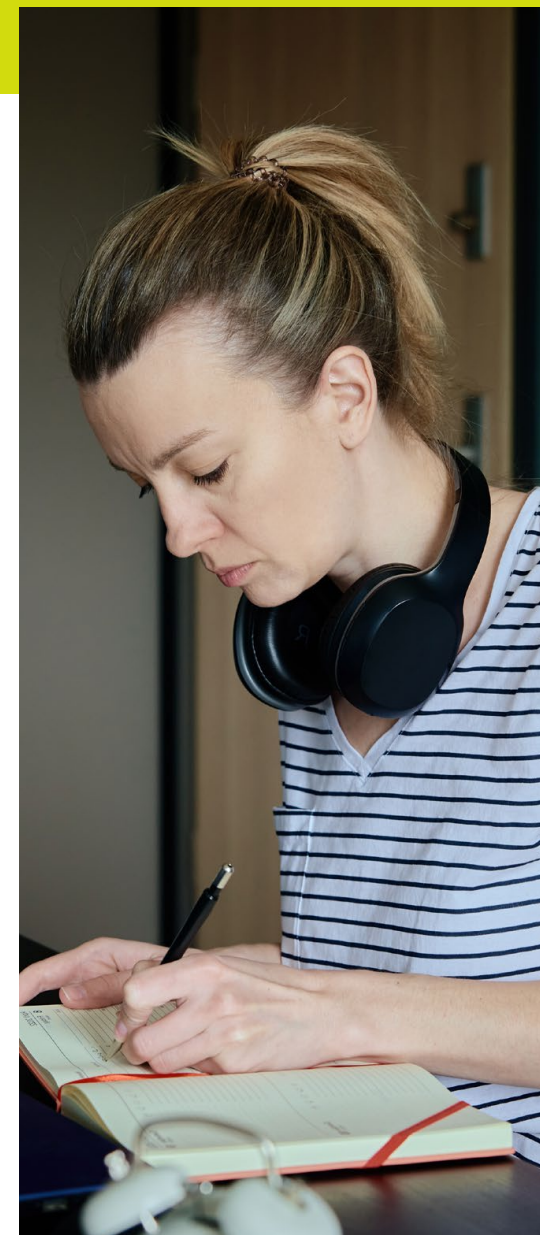
7 Implications for grading

- Questions were raised over the implications of a shift to onscreen in terms of standard setting and grading, with concerns that any change to the status quo could undermine public faith in the exam system. The fact that there was nothing to adequately replace exams during the pandemic means that some may now idealise the existing system as something we need to return to.

- However, controversy over algorithmic grading during the pandemic has also led many parents to consider the exam system for the first time, meaning that they may be more receptive to system changes. One particular benefit is that adaptive testing would remove the need for tiering.

8 Use of technology in formative assessment

- Away from the issue of high stakes assessments, it was suggested that students could use devices such as mobile phones to take part in quick, formative assessment throughout the year. This would allow for teachers to gather information on their students' progress over time, while also familiarising them with the process of onscreen assessment. Doing so could be an effective way of building confidence in the concept of onscreen assessment.

What the polling told us

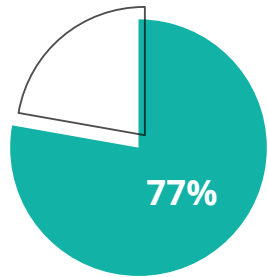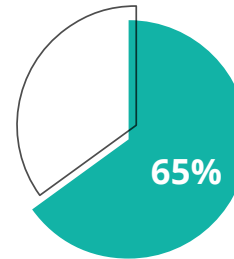## Teacher support for greater use of technology in teaching and assessment

In a survey of teachers in over 1000 schools, we found an openness to considering onscreen assessment:
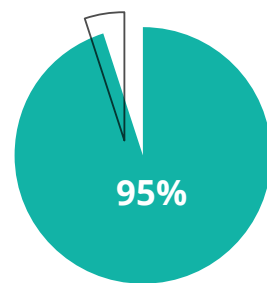
51%
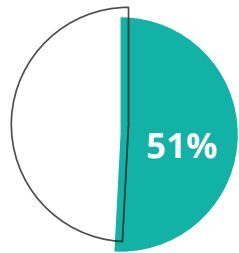
51% of respondents said they would be interested in adopting onscreen assessment now if it was available in their subject area
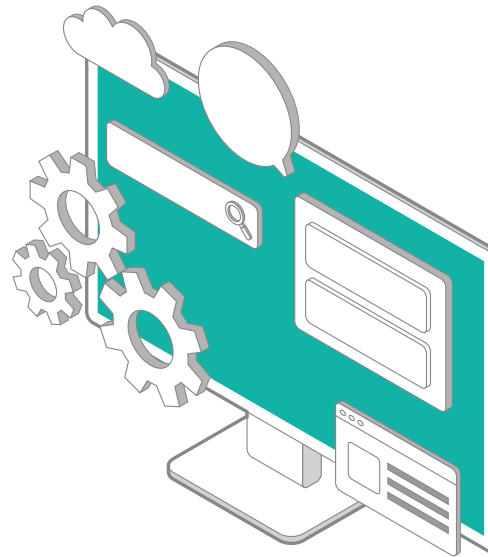
65% said they would be interested in adopting onscreen assessment within the next 1-4 years

65%

77%

A large majority of teachers supported greater use of technology more broadly in teaching and assessment …

95%

… while the vast majority agreed that they need more training in technology for teaching and assessment

What the polling told us (continued)
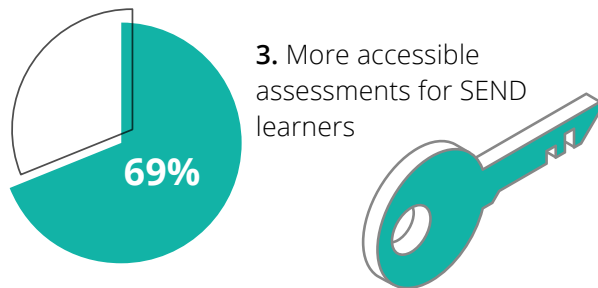
Teacher perceptions: the benefits and barriers

When asked about the most important factors in considering onscreen assessment, the top three answers were:

70%

1. Faster, better insights about my students' performance to improve teaching and learning
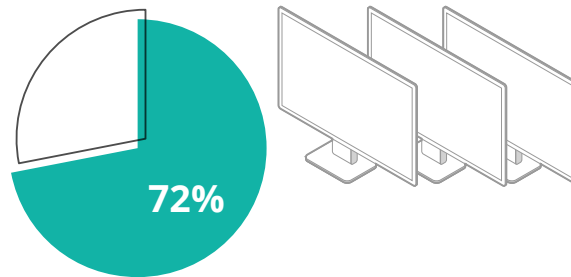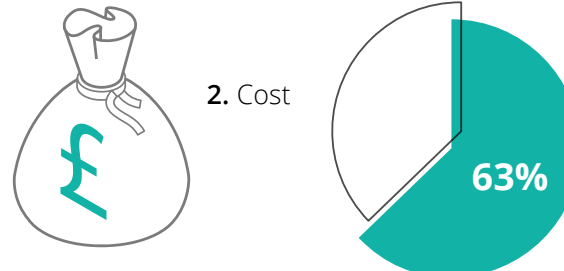
2. More secure assessments

66%

3. More accessible assessments for SEND learners
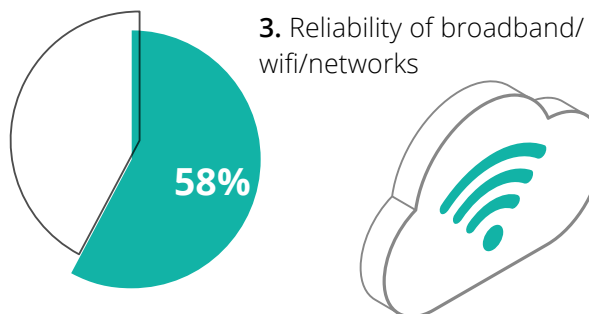
69%

The top three most commonly cited barriers to adopting onscreen assessment were:

72%

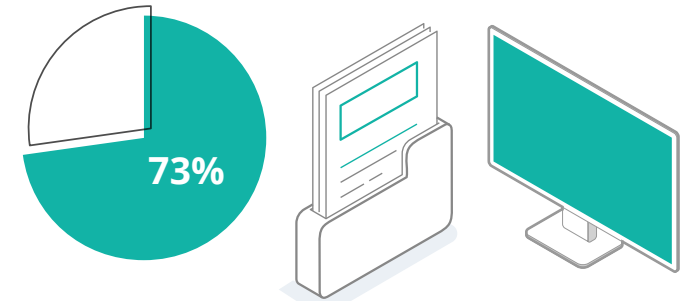**1.** Access to suitable spaces where computers can be set up in exam conditions

2. Cost

63%

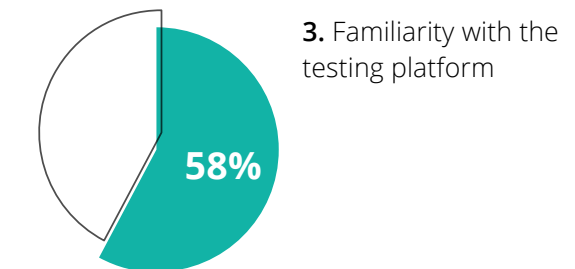**3.** Reliability of broadband/wifi/networks

58%

The top three most commonly cited factors impacting teacher confidence in onscreen assessment were:

73%

1. Consistency between paper-based and onscreen tests

**2.** Reliability of the testing platform

72%

**3.** Familiarity with the testing platform

58%

What the polling told us (continued)

Digital literacy skills in schools

While a large majority of teachers had experienced successful integration of technology into day-to-day learning, only a minority felt that their workplace was strong at teaching and assessing digital literacy skills.

38%
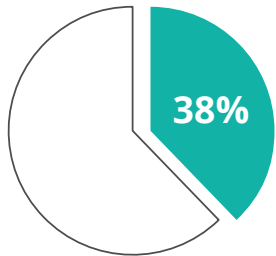
38% felt that their school/college was 'doing a great job' of teaching digital literacy skills to students

30%
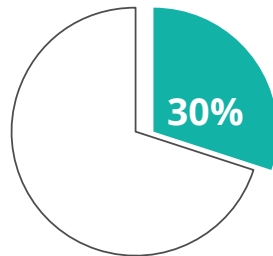
30% felt that their school/college was doing a great job of assessing digital literacy skills

81%
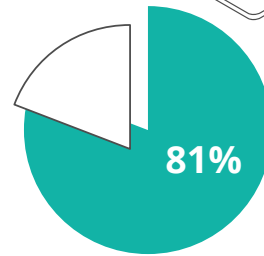
81% agreed that their school/college has successfully integrated technology into aspects of day to-day teaching and learning

Students who have experienced onscreen assessment indicated high levels of support

The results of another Pearson study suggest that support for onscreen assessment is higher among those who have experience of trying it out. Following a small scale trial of the International GSCE English Language Exam we found that:

77%
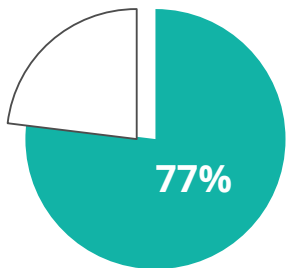
77% of students said they would rather take the exam onscreen

95%
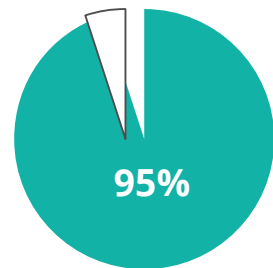
95% said they find working with technology easy

89%
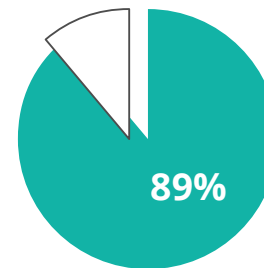
89% disagreed with the statement that 'I found typing more difficult than writing by hand'
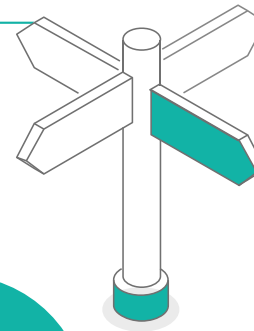
Impact of digital inequalities

In the Pearson Digital Classroom Survey of educators' views on online learning following the experience of the pandemic, concerns were raised over the digital divide.

55%
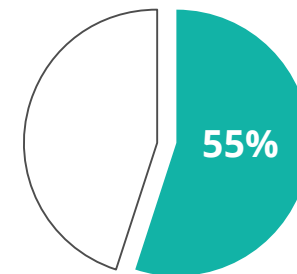
Overall, 55% of educators noted access to digital resources and technology as a challenge for their students

This increased to 74% reporting it in schools with the highest proportion of students eligible for free school meals.

74%
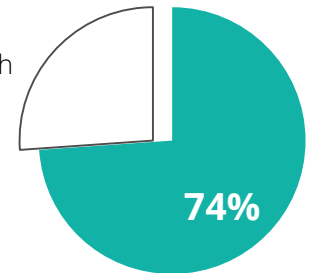
Case studies

Onscreen assessment is already being used successfully across a broad range of qualification types and assessment models. As well as vocational and professional testing, digital assessment is now being applied to academic qualifications, including GSCEs, with several exam boards running pilot programmes.

General qualifications

- **Computer Science GCSE** Pearson will run its first onscreen GCSE Computer Science assessments in summer 2022. Candidates will be required to write, test, and refine programs within their selected Integrated Development Environment (IDE), with outputs uploaded to the Pearson Digital Learner Work Transfer portal for marking. The digital format tests real-world programming skills via a realistic and practical assessment. As a result, students should be well prepared to apply their skills beyond the classroom.

- **Wales** In Wales, adaptive on-screen assessments were introduced for national tests in Years 2 to 9 from 2018. Qualifications Wales is now looking at options for modernizing assessment at the 14-19 level, considering how technology can make the assessment experience more engaging and relevant for learners. Within this, the regulator is considering technology from an 'end to end' perspective – how to integrate it into not only assessments, but also into subject content throughout the learning experience. This includes encouraging learners to think about current and future benefits of technology within the subject or skill area they are studying, so that they are well prepared for the jobs and challenges of the future.

- **Mock GCSE exams** The Pearson onscreen Mocks Service was launched in 2020, providing schools and colleges with the Pearson Edexcel GCSE and A level exam papers for use in mock examinations. Over the 2021 lockdown period Pearson delivered 4,000 student mock exams completely onscreen. These exams are taken online, with results delivered electronically.

- **International GCSE English** Following onscreen trials with schools across a range of subjects, Pearson has been working with a small number of schools in the Middle East and Europe to deliver the International GSCE English qualification onscreen. In preparation for onscreen assessments later in 2022, students have taken onscreen mock exams. The feedback from the first mock exams, in November 2021, was positive. 78% of students expressed a preference for completing their assessment onscreen, rather than on paper. The final assessments will be taken onscreen for the first time in 2022.

Vocational qualifications & assessments

- Onscreen testing has formed part of Pearson vocational qualifications and assessments for many years. Pearson BTEC Level 2 qualifications, Functional Skills qualifications (Maths and English), and Pearson professional assessments all make use of online delivery. Remote invigilation gives candidates the option to securely take Functional Skills assessments at home.

Professional testing

- Through Pearson VUE test centres, computer-based testing (CBT) is used to deliver assessments across numerous professions – ranging from healthcare to financial services. The exams are delivered via a network of more than 5,000 test centres in 180 countries. Working with the Chartered Institute of Management Accountants (CIMA), Pearson transformed their whole syllabus to CBT, including long-answer questions that put the candidate in real-life situations to test how they will later perform in the workplace. The exams are now completely computerised, and the rigour of the assessment has been maintained. [10]

Adaptive assessment

- **Pearson Test of English** This is a fully onscreen English Language test which is currently offered in 53 countries. It is used by governments of the UK, Australia, and New Zealand for visa purposes, as well as by over 3000 universities globally. The tests can be taken at home, with the use of remote invigilation software. The assessment continually adjusts in difficulty according to the answers the student gives - meaning it is never too easy or too hard, and every student sits a different test.

International examples

- **Finland** Students choosing the academic route at age 16 go on to complete Matriculation exams (the only national exam in the system) in the final year of study (age 18). In 2010, Finland's Government were reconciling data across PISA and OECD, and noted a gap between a lack of digital literacy in education and the high digital literacy in the labour market. This led to a strategic shift towards digital assessment from 2011. By 2019, all subjects were being assessed entirely online. Exams are offered twice a year – in Autumn and Spring.

  To support delivery, a server is placed in every school and exams are run offline, to negate any need for internet connectivity. Encrypted files are used and sent by the school to the Matriculation Board for final grading. Ahead of this, exams are marked by the classroom teachers.

- **New Zealand** The New Zealand Qualifications Authority made the decision to shift to digital assessment to ensure qualifications remained credible and relevant.

  Small exploratory investigations began in 2016, with government funding covering the initial development. The first trials helped centres to familiarise themselves with the platforms and digital assessments. The second phase was to replace end of year written exams. Students and Assistant Head Teachers/curriculum heads were involved in the design, testing, and trialling approach. Challenges remain in bringing non-literary subjects onscreen, and development continues.

  A mix of 'Bring your own device' and schools owned devices are used, with minimum screen size and other specifications provided. The application requirements must ensure they cater to the lowest common denominator (i.e. no touchscreen use).

  Schools were (and still are) provided with an opt-in approach, with take up doubling year on year.

Key findings and recommendations

Our research has revealed an appetite for greater use of onscreen assessment in the education sector, including in high stakes exams like GCSEs and A levels. It has also highlighted the importance of developing a route to change that the system can manage – something that would appear a realistic goal in the near future.

In seeking to create the right conditions for this, it will be important to take account of the following findings:

1 **Using technology in assessment is important for developing skills for the world we live in**

- The answer to the question of why we should use technology in assessment is a simple one: for the same reasons we use them in everyday life. Technology is central to the way we live – and so in the face of this, an exam system based on pen and paper appears anachronistic. Most aspects of adult life, be it work or play, depends upon the use of technology to a greater or lesser extent. Therefore, **we require a system of assessment that better reflects the adult world, and which relates to the government's wider digital skills agenda.**

2 **'The future is already here' - the technology exists, the practical barriers need to be tackled**

- The examples and case studies in this paper demonstrate that onscreen assessment is already happening – and working – in parts of the system. This is true not only overseas, but also in the UK, where trials in general qualifications have received promising feedback from learners. In Wales, national onscreen adaptive assessment across primary and lower secondary education has been introduced.

- Effective technology for onscreen assessment exists, and **developing and implementing the necessary infrastructure for large-scale delivery in the UK** should be achievable in the near future.

- However, in doing so policy makers will need to **prioritise access to digital devices and internet connections for all students**. This will involve a coordinated strategy and funding. The Secretary of State's announcement that every school will be able to access high-speed internet by 2025 is a welcome step in the right direction. [14]

3 **Balancing a transitional approach whilst recognising the transformational potential technology offers**

- **Realising the full benefits offered by onscreen assessment will require looking beyond the online re-creation of the current system,** towards the implementation of adaptive assessment. Some argue that this adaptive model would be most effective in the context of wider reform to the curriculum and the structure of the school year. We welcome Ofqual's recent announcement that it will be exploring the use of adaptive assessment. [15]

- The process of designing new onscreen tests will inevitably involve considering what skills and knowledge the qualifications are seeking to assess – during which the content of the curriculum will have to be considered. However, there is a risk that delaying moves towards onscreen assessment until a point where wider reform is on the agenda could see significant time pass without progress being made.

- **All new qualifications and their specifications should be designed to allow for onscreen approaches to assessment**. A new generation of qualifications are being developed and entering the market – T Levels, Higher Technical Qualifications – and there is a danger that a failure to encourage innovative approaches will entrench the traditional pen and paper system further.

- Although an incremental approach will not lead to a "big bang" moment for the onscreen assessment of GCSEs and A levels, the progress being made will build confidence in system change. It should also help facilitate discussions around "technology friendly" subject criteria as well as more transformational thinking around the opportunities technology could unlock.

4 Building on the willingness of teachers to embrace change

- A successful transition towards onscreen assessment will require buy-in from those working in the school system. Our research found a willingness from teachers to embrace technology in assessment, with most feeling the need for more training in this area.

- Given the importance of high stakes assessments to students' future opportunities, it is **essential that any reforms are accompanied by steps to mitigate the sense of uncertainty and risk among both educators and policy makers**. In doing so, we can seek to develop a route to change that the system can manage. One way of facilitating this could be to create a regulatory 'sandbox' in which pilots and innovations can be tested out in a safe, lower stakes environment.

- **Online delivery needs to become a fundamental part of a teacher's training and ongoing development**, be it curriculum delivery or assessment. This is something the profession made clear through our research. **A shift in pedagogy**, that ensures teachers have the necessary skills, expertise, and confidence will support any wider shift towards online and onscreen solutions.

The top three most commonly cited factors impacting teacher confidence in onscreen assessment were:

- Consistency between paper-based and onscreen tests: **73%**

- Reliability of the testing platform: **72%**

- Familiarity with the testing platform: **58%** [16]

Areas for further exploration

This paper has focused on the benefits of onscreen assessment and potential solutions, and as result there areas of policy that warrant further investigation.

The QCA, the then regulator, was looking at onscreen assessment 15 years ago and so what prevented change then? And has continued to do so in the intervening period? What lessons can be learned?

What is the appetite for, and the possibility of, a digital first approach to curriculum design? What precisely would need to change in the curriculum to make a digital first experience? And how can we practically address some of the questions that have been raised around fairness and comparability?

There are parts of the education system already making use of onscreen assessment. What lessons can be learned where this type of assessment is already embedded? How have they overcome the issues posed by the adoption of digital assessment?

Methodology

We held two policy roundtables in February 2022, investigating the question of onscreen assessment in high stakes examinations. The debates were chaired by Mary Curnock Cook, Non-Executive Director and Chair of Pearson Education Ltd Board.

Each event ran for 1.5 hours and included policy makers, regulators, politicians, education providers, representative bodies, assessment experts, and academics. For a full list of participants, see "Acknowledgements".

Public polling

As part of our ongoing work in developing onscreen assessment solutions we have undertaken the following surveys, the findings of which have fed into this paper:

- In May 2021, Pearson surveyed teachers in 1000 UK and more than 100 International schools on the subject of high stakes (summative) Onscreen Assessment at GCSE/International GCSE level.

- A Pearson survey of students from the Middle East and Europe conducted after they had sat the International GSCE English qualification onscreen mock examination - November 2021.

- Pearson Digital Classroom Survey. The survey was carried out on 6,817 educators in February 2021, including classroom teachers, middle leaders and school leaders (including headteachers). The data has been reweighted to make it representative of the population.

- The Pearson report into the Future of Qualifications & Assessment in England was published in March 2022 and was the culmination of a year long project. This included a survey of 6,000 stakeholders across the education spectrum, including students, teachers, parents, and policy makers.

Acknowledgements

We are grateful for the following people's time in attending the policy roundtables and wider engagement with the project. Their insights have been instrumental in shaping this report. The final recommendations are our own and are not intended to reflect the views of any individual or organisation.

Glossary

Computer-Based Testing: Where the candidate is presented with the question onscreen and responds to the question using the computer. [17]

e-Assessment: E-Assessment describes a range of activities where technology is used to enhance an end-to-end educational assessment process in which ICT is used for the presentation of assessment activity and the recording of responses. [18]

Blended versions of E-assessment combine mainstream E-assessment features with traditional assessment approaches where respondents provide their answers on paper. [19]

Onscreen assessment (digital assessment): An assessment delivered to the candidate on a computer screen, and where the candidate provides their response on-screen (for example by typing or clicking on the correct response). [20] 'Computer screen' has evolved to incorporate many other types of screen, such as a tablet, a laptop or a mobile phone.

One form of onscreen (digital) assessment is 'paper behind glass' (PBG) where the paper assessment is replicated on a screen.

Digital First Assessment: Unlike PBG, digital first assessments are designed from the outset to exploit the capabilities of digital technology to give students a fully digital experience.

Online assessment: An onscreen assessment which relies on an internet connection during the test to download subsequent questions and upload candidate responses. Sometimes termed "conducting a test live over the internet".

Onscreen with offline delivery: An onscreen assessment which is conducted without using an internet connection during the test (although an internet connection may well be used to deliver the test to the client computer prior to the test starting, and to upload the candidate responses once the test has been completed). [21]

Technology Enhanced Assessment (TEA): A broad term that encompasses the diverse methods by which technology can be used to support the management and delivery of assessment. [22]

Endnotes

1   Pearson (2022) Qualified to Succeed: Building a 14-19 education system of choice, diversity and opportunity
    https://www.pearson.com/uk/news-and-policy/future-of-assessment.html [accessed 12 April]

2   Ibid p.12

3   Michelle Meadows, Ofqual, TES (June 2021) **https://www.tes.com/magazine/news/secondary/gcses-4-benefits-moving-exams-online-says-ofqual**
    [accessed 12 April 2022]

4   Pearson (2022), The Accessibility and User Experience of a Pearson Digital Assessment Platform for GCSE Learners with Special Education Needs and Disabilities (SEND)
    https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/educator/schools/issues/Digital-Innovation/SEND-accessibility-report.pdf

5   Pearson survey of teachers in 1000 schools (May 2021)

6   Ofqual Corporate Plan 2022-2025, **https://www.gov.uk/government/publications/ofquals-corporate-plan**

7   Ofqual (2020), Online and on-screen assessment in high stakes, sessional qualifications
    https://www.gov.uk/government/publications/online-and-on-screen-assessment-in-high-stakes-sessional-qualifications [accessed 12 April]

8   ONS and Ofcom estimate that 2% of households with school-age children live in a household that is not online (227,000 - 559,000 children) and that around one million children only
    have access to the internet via a mobile phone. **https://www.bcs.org/articles-opinion-and-research/bridging-the-digital-divide-in-education/**

9   Pearson survey of teachers in 1000 schools (May 2021)

10 Ofqual Handbook: Section G - Setting and delivering the assessment - Ofqual Handbook: General Conditions of Recognition - Guidance - GOV.UK (**www.gov.uk**)
    Reg 3.1 "has a clear rationale for any optional routes through a qualification, combinations or pathways and can explain how, as far as is possible, these are comparable
    in terms of the Level of Demand and the amount of subject content required to be taught and on which Learners will be assessed" [accessed 12 April 2022]

11 **https://home.pearsonvue.com/Test-owners/Industry-expertise/Finance.aspx** [accessed 12 April 2022]

12 **https://www.independent.co.uk/news/uk/ofqual-geoff-barton-mary-bousted-gcses-association-of-school-and-college-leaders-b2071253.html**
    [Accessed: 4 May 2022]

13 See endnote 4 above.

14 **https://www.gov.uk/government/news/all-schools-to-have-high-speed-internet-by-2025** [accessed 12 April 2022]

15 Ofqual Corporate Plan 2022-2025, **https://www.gov.uk/government/publications/ofquals-corporate-plan**

16 Pearson survey of teachers in 1000 schools (May 2021)

Endnotes (continued)

17 'Computer-aided assessment (or "computer-assisted assessment") describes assessments delivered with the help of computers. This includes assessments delivered to the candidate on-screen, developed on computer but delivered on paper, marked on-screen or electronically', The e-Assessment Association, **https://www.e-assessment.com/glossary-of-terms/** [accessed 12 April 2022]

18 JISC (2007), Effective Practice with e-Assessment, p. 6

19 Martín Llamas et al., 'Blended e-assessment: Migrating classical exams to the digital world', Computers & Education, 62 (March 2013), 72-87 https://doi.org/10.1016/j.compedu.2012.10.021 [accessed 12 April 2022]

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