

Qualifications reforms: opportunities and challenges - a focus on A level Mathematics in England

Sub-theme: National Tests and Examinations

(Combining A level Maths research and Future of Assessment report)

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Short Abstract

In the context of a rapidly changing educational landscape and fundamental shifts in the skills required for employment, we present an overview of the challenges and opportunities of qualification reform. Using data from a four-year study (2017-2021) which explored reformed Mathematics A levels in England, we discuss the opportunities for more aspirational and holistic learning created, aligning with the needs of higher education and future employers. However, we also show challenges for teachers, already under pressure, as they adapt to changing expectations while engaging with more mathematically demanding content and teaching for increasingly high-stakes assessments. We also draw on *'The Future of Assessment'* report which shows that teachers, while supportive of reform in principle, are cautious about impacts that successive reforms in short timeframes may have. When considering post-pandemic reflections, we saw appetite for more diverse forms of assessment, but there was also recognition from a range of stakeholders that high-stakes assessments have a central role to play in the educational journey of learners. In line with this, feedback from multiple stakeholders put emphasis on evolutionary change over time as a sustainable model for improving educational systems, building on current strengths, utilising institutional memory, and maintaining stability.

Long Abstract

In the context of a rapidly changing educational landscape, alongside fundamental shifts in the skills required for employment (Bakhshi et al. 2017), we present an overview of the challenges and opportunities of qualification reform. In order to do this, we draw data from *The A levels in Mathematics Efficacy Study: a four year (2017-2021), classroom-close study*, which explores teachers' and students' experiences of A levels in mathematics which were reformed in 2017. From 2020 onwards, the study was adapted to explore also the impact of Covid_19. It draws on data from a fairly representative sample of up to 42 mathematics A level classes in 21 schools and colleges, collecting termly surveys or interviews from students and teachers, and full semi-structured lesson observations. Analysis employed an institutional ethnographic approach.

A level Mathematics is a post 16 qualification which represents a key entry requirement for most mathematics intensive university courses in the UK. It sits alongside A level Further Mathematics which is designed to support more specialist students, particularly those going on to study Mathematics at university. The 2017 reforms to these qualifications, which formed part of a wider overhaul of A levels in England, aimed to meet the needs of higher education (ALCAB, 2014). The new specification was designed to be more aspirational with

an emphasis on mathematically important processes, greater depth and breadth of content, as well as increased focus on problem solving and reasoning. The changes also included a shift from a modular model to high-stakes terminal assessments at the end of two years of study. Our data showed that teachers were in favour of these reforms in principle. However, the new pedagogical and subject knowledge required to deliver the reformed content, and the increased depth of mathematical engagement needed, as well as uncertainty around assessment, created significant challenges for teachers (Redmond et al. 2020, Mason et al. 2021). Our data showed that the intentions of the reforms were still not being consistently realised prior to the emergence of Covid19, with the pandemic further disrupting this (Redmond et al. 2021).

These findings mirror recent findings from the Pearson (2021) *Future of Assessment* in-depth report. Research was conducted with a range of stakeholders, exploring perspectives on future reforms to wider qualifications and assessments in the UK. Findings suggest that teachers, along with other key stakeholders in the education system, are generally supportive of the intentions of reform, but cautious about the potential impacts on teaching and learning that successive reforms, often driven by short political cycles, may have. When considering reflections on reforms to assessment post-pandemic, we saw an appetite for more diverse forms of assessment in the future, and at the same time a recognition that high-stakes assessments are central to the current education system, and, importantly, have a key role to play in learners' educational journey. This was evident both in the broad findings in *The Future of Assessment* and in the more specific context of the *A levels in Mathematics Efficacy Study*, where students and teachers were mixed in their hopes for future assessment models but consistently recognised the value of exams both as an established benchmark of achievement and as a tool which supports the consolidation and strengthening of student learning (e.g. Golding et al., submitted).

Aligned with such findings, feedback from multiple stakeholders consulted as part of *The Future of Assessment Research* put the emphasis on evolutionary change over time as a sustainable model for creating improvements to educational systems while building on current strengths and utilising institutional memory. These findings are particularly pertinent at this point in time, when we are recovering from the effects of the pandemic and its impacts on teaching and learning, and when the status quo has been disrupted. The context offers the opportunity for fruitful change, but also puts a huge strain on education systems at all levels, which need a degree of stability to support their recovery.

References

ALCAB (2014). *Report of the ALCAB panel on Mathematics and Further Mathematics*. <https://alevelcontent.files.wordpress.com/2014/07/alcab-report-on-mathematics-and-further-mathematics-july-2014.pdf>

Bakhshi, H. et al. (2017). *The future of skills in employment in 2030*, <https://futureskills.pearson.com/research/assets/pdfs/technical-report.pdf>

Golding, J. et al. (submitted) *Transformation of mathematics assessments in England: student and teacher stories of opportunities and challenges during the pandemic*.

Mason, K. et al. (2021) *A level Mathematics Qualification Efficacy Report*. Pearson UK. <https://qualifications.pearson.com/en/qualifications/edexcel-A-levels/mathematics-2017/Efficacy-Report.html>

Pearson (2021). *Qualified to Succeed: Building a 14-19 education system of choice, diversity and opportunity*, <https://www.pearson.com/content/dam/one-dot-com/one-dot-com/uk/documents/future-of-assessment/pearson-report-future-qualifications-assessment-england.pdf>

Redmond et al. (2020). *Teaching and learning for 'moving goal-posts': Reformed A levels in mathematics*, Marks, R. (Ed.) Proceedings of the British Society for Research into Learning Mathematics 40 (1), <https://bsrlm.org.uk/wp-content/uploads/2020/05/BSRLM-CP-40-1-13.pdf>

Redmond et al. (2021). *Hard to focus, difficult to learn': Covid19 impacts on teaching, learning and progression for A levels in mathematics*, Marks, R. (Ed.) Proceedings of the British Society for Research into Learning Mathematics 41(2), <https://bsrlm.org.uk/wp-content/uploads/2021/08/BSRLM-CP-41-2-16.pdf>