



What is this study?

This is the merger of two studies; one from a dissertation submitted for a Masters in Educational Assessment, and the second a longitudinal study of the implementation of the reformed GCSE curriculum and assessment.

We focus on mathematical knowledge and skills required for future careers and whether the reformed GCSE curriculum achieves this.



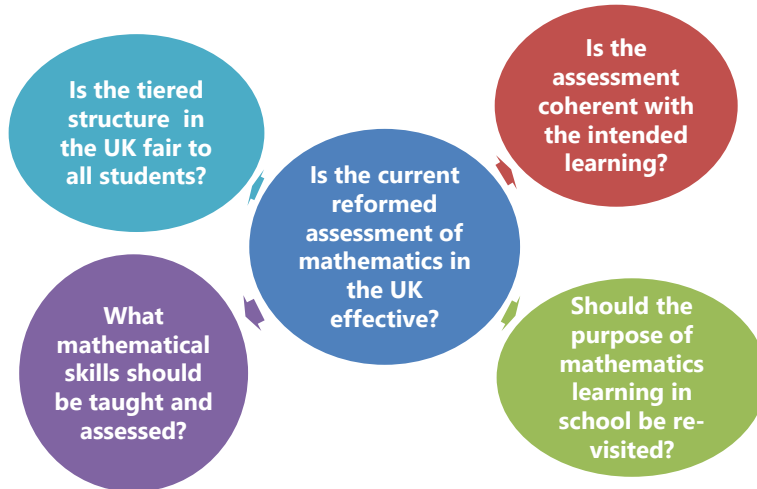
We critically evaluate the multiple purposes of GCSE Mathematics and examine the appropriateness of the tiered structure.

What is the evidence?

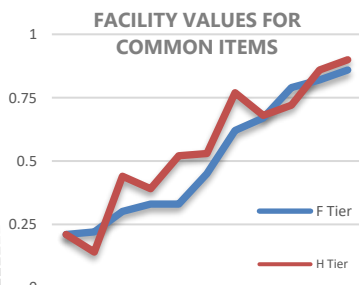
- Grade boundary positions are lower: 20% of maximum marks for a pass grade 4 (H).
- Priority given to “pass grade”; true learning opportunities missed.
- Grades do not translate to competence or confidence.
- Lack of fairness - Assessment performance analysis suggests tiered structure can be unfair.
- Media reports of a large number of students “left behind” and tend to fall further behind in life opportunities.



The Research Questions



The tiered assessment – overlapping grades



This graph shows the difference in facility values for the “common questions” for grade 4 students on the two tiers.

Higher tier “Grade 4” can be achieved with just common questions	
% common question marks	27-30%
% marks for grade 4 on Higher Tier	17-21%
% marks for grade 4 on Foundation Tier	52-57%

Scrutiny of performance data reveals that the tiered structure can cause bias. (Krishnaswamy, 2019)

Assessment tail wagging curriculum dog?

Sergiovanni and Starratt (2007)

The pressure on achieving a grade 4 for teachers and students leads to tactical teaching by teachers, fragmentary learning for students and claims of questions being too difficult if the context is changed.



(Krishnaswamy, 2019)

“High-stakes assessment such as GCSE has a large impact on classrooms, and so teaching and learning likewise tends to be fragmentary and procedural” (Ofsted 2008)

When staff were asked what additional resources they would appreciate, they requested more of what could potentially be seen in the live assessments, for example, groups of questions on specific topics and practice questions with prompts. Students were also asked what support materials they would appreciate; the most popular requests were more practice papers or questions, model answers / worked examples.

(UCL IoE and Pearson UK (2017) GCSE (9-1) Maths Qualification and Free Surround Efficacy Study Phase 1 Report.)

Recommendations and Conclusions

- Consider alternative ways of assessing mathematics, that support confidence and competency.
- Revisit the question of purpose - This needs to constantly adapt to economic and social needs.
- Equip students with the skills required for the future, to make them mathematically competent.

Some pertinent references

Burghes, D. Roddick, M. Tapson, F. (2001), “Tiering at GCSE: Is there a fairer system?” *Educational Research*, 43(2) pp175-187

Jones, I. (2013) ‘The fitness and impact of GCSE mathematics examinations’, in *Debates in Mathematics Education*. Taylor and Francis, pp. 186–195.