

Implementing Interactive Oral Examinations in Tertiary Mathematics Classes

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While traditional written mathematics examinations tend to focus on procedural understanding, interactive oral examinations can assess students' conceptual understanding and verbal communication skills (Theobold, 2021). This style of assessment provides an authentic check of understanding at a time of increasing artificial intelligence use in other assessment formats (Fenton, 2025). Despite this, the uptake of this assessment in tertiary mathematics has been slow due to a perception that this format will not scale to large class sizes (Videnovic, 2020). We present trial results for interactive oral assessments in a first-year tertiary mathematics class with initial enrolments of up to approximately 300 students. Each student was asked questions designed to explore conceptual understanding with ten minutes allocated per student, which has been found to be a sufficient length (Iannone & Simpson, 2012). Follow-up questions were used to prompt students to justify the answers provided. This assessment proved to be efficient and provided a better separation of final grades than seen from written examinations. Students were invited to complete pre- and post-assessment surveys, featuring the same seven Likert-scale questions and one text-based response, with 19 and 22 responses received, respectively. The results showed that students felt apprehensive about this new assessment type, with high levels of nervousness reported both before and after the oral exams, while also indicating that this assessment aided engagement and understanding. This trial revealed limitations in students' verbal communication skills and conceptual understanding, as reflected in students' perception of their own preparation, which are barriers to further study. A series of communication activities has since been embedded to address these issues and the design is presented here. Overall, this trial has demonstrated that oral assessment can be an effective method for assessing mathematics and can be run efficiently for large cohorts.

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References

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