

# REVIEW AND REFLECTION – ENGAGING FIRST YEAR MATHEMATICS STUDENTS AS SELF-REFLECTIVE LEARNERS

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## ABSTRACT:

Mathematical competency and confidence can be built through scaffolding of learning tasks followed by frequent opportunities for students to test their knowledge and skills after each topic. Students who enter university science, technology, engineering and mathematics disciplines with inadequate mathematics backgrounds for the courses they are undertaking are often apprehensive about undergoing formal testing of their mathematical skills. Many introductory and bridging mathematics courses therefore take a portfolio based approach to continuous assessment, with students submitting completed class work but often with minimal formal testing. It is also desirable for first year students to develop self-reflective study skills appropriate for effective learning in a university environment. As part of an essential mathematics for science unit, continuous testing of students' skills in a non-threatening and self-reflective setting was implemented. Students were given the opportunity at the end of each segment of content to undertake a review task, focussing on the skills they should be able to demonstrate at that point. These were administered in tutorial sessions and were similar in content to a topic test, but students were given the opportunity to ask questions and clarification from the tutor and to consult their notes. Students were otherwise encouraged to work under test conditions without any peer collaboration. The task concluded with a self-reflective Likert scale survey of each of the mathematical skills covered by the questions allowing students to rank their self-confidence with each mathematical skill. Students were also given the opportunity for open ended responses about the skills they found easiest and most difficult. Samples and results from these review and reflection tasks will be presented and the usefulness of such a testing regime discussed. Student reflection around confidence and ability provides constructive feedback for both students and teaching practitioners.

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