

# A NOVEL METHOD TO LECTURE AND TO PROVIDE ASSESSMENT FEEDBACK TO MATHEMATICS STUDENTS

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## BACKGROUND

Effective teaching and learning require appropriate assessment tasks and prompt feedback. Feedback is critical to inform students if they are on track to achieve the course learning goals. According to Sadler (1989) useful feedback should provide evidence of learning that fills a gap between what is understood and what is aimed to be understood. In mathematics, the most effective form of assessment is weekly assignments to learn how to write mathematics. This is a difficult skill that requires a lot of practice and guidance. It is not sufficient to write down the correct answer or to give a list of calculations without adequate explanation. Students must employ precise use of words, formulae, symbols and punctuation. It is essential for students to receive feedback not only on the correctness of their answers, but also on their writing abilities in mathematics.

## AIMS

The main aim of this project is to improve student learning of mathematics by promoting changes in mathematics assessment and teaching methods through the adoption of electronic pens and tablets. This strategy allows: (i) the online submission and marking of assignments which gives students constructive feedback on their assessment, and (ii) lecturers to demonstrate proofs and examples in class in a step-by-step fashion that is also very effective for lecture recording. This is aimed at facilitating students' flexible learning making it easier to study mathematics in their own time wherever they are: at home, in a library or on public transport.

## APPROACH

We have endeavoured to leverage changes in mathematics assessment and teaching methods by adopting electronic pens and tablets to allow online submissions, electronic assignments' marking and delivery of lectures. We have purchased a number of Samsung tablets equipped with a Wacom e-pen for the teaching staff of our first year mathematics service and honours courses (total enrolment of 450 students).

## CONCLUSIONS

Lecturers have found that the use of e-pens on tablet is a very powerful method to deliver lectures that also allows for easy recording. However, lecturers and tutors have found that whilst providing written feedback to students once the assignments are marked results in an excellent learning outcome, marking assignments on tablets is still not as easy as marking them on paper, due to limitations in the available software. This has resulted in delays in returning marked assignments to students.

## REFERENCES

Sadler, D.R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18,144.

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