TITLE: THE MATHLETE PROJECT

Presenter: Laurie Butgereit, Adele Botha, Surika Hickling

Meraka Institute, CSIR

Nelson Mandela Metropolitan University

Cornwall High School

The Mathlete project is based on the adage "You don't know something until you have to teach it." Mature Grade 11 pupils with reasonable scores in mathematics are invited to tutor younger pupils up through Grade 9 level mathematics. The Mathlete project is hosted on the Dr Math tutoring platform. The younger pupils use MXit on their cell phones or they use Google Chat on Android based phones. The Grade 11 tutors use full sized Internet based work stations. The Grade 11 pupils are invited to tutor for an entire year beginning in September of their Grade 11 year and ending in July or August of their matric year. As the Grade 11 tutors get promoted to Grade 12, they are invited to tutor as Dr Math where they field questions up through matric level if they feel comfortable. It is envisioned that these tutors will have revised the entire mathematics curriculum by the time they write their matric preliminary examinations.

INTRODUCTION

Every hero has a sidekick. Batman has Robin. Sherlock Holmes has Watson. Hercule Poirot has Hastings. And now, Dr Math™ also has a sidekick, the Mathlete.

Dr Math is a mobile online mathematics tutoring environment. Pupils use chat protocols on their cell phones such as MXit or Google Chat. Tutors use traditional Internet workstations. The Dr Math tutoring platform links the pupils with the tutors keeping all identities hidden from all participants. The Dr Math project was started in 2007 and currently tens of thousands of pupils have registered with the Dr Math service.

Dr Math uses volunteer tutors to assist the pupils with their mathematics homework. Traditionally, these volunteer tutors came from South African universities. Many South African universities require that their students perform some sort of community service during their years of study and the Dr Math project made it easy for these university students to be virtual volunteers and assist pupils using the Internet as a communication medium.

During the course of running the Dr Math project, a number of remarks from tutors and pupils have guided the Dr Math researchers in starting the Mathlete project: These comments include:

1. The university volunteer tutors have often commented that they have learned a lot while being a Dr Math tutor. The volunteer tutors have often explained how they have forgotten various aspects of their high school mathematics and that they have been forced to relearn those topics while being a tutor.
2. Many of the pupils who use Dr Math and ask questions have commented that it must be "fun" to be a Dr Math tutor and chat with so many people. They have often asked how they could help and become a Dr Math tutor.

The authors considered these comments and decided to implement a research project to investigate this.

The Mathlete project leverages the fact that people learn by doing. Pupils who volunteer to become Mathletes will help younger pupils with their mathematics homework using a medium (MXit and/or Google Chat) which they consider to be fun. The Mathlete project also leverages the fact that high school pupils enjoy using social media.

MATHLETE AT CORNWALL HILL COLLEGE

Currently, one South African middle school is taking part in the Mathlete project. Just under forty Grade 11 and Grade 12 pupils are tutoring other pupils up through Grade 9 level mathematics. A handful of these Grade 12 pupils are also tutoring as Dr Math and fielding questions up through matric level mathematics.

The Mathlete tutors have been given two hours of training by the authors on how to use the technology platform. They have been given extensive documentation on how to maintain the Mathlete *persona.* The Mathlete project includes a reward system in the form of a pin which can be affixed to the tutors school blazer. The pin is in the shape of a π. A blue pin is awarded after the tutor has finished the two hours of training and has tutoring for an additional two hours. A silver pin is awarded after twenty hours of tutoring. A gold pin is awarded after forty hours of tutoring. The timing of the awards is intended to approximately span one year of tutoring.

RESULTS

Mathlete was born in January 2012 and the first tutors were trained in February. At the time of writing this paper, there are over 4,000 end users (pupils asking questions via their cell phones). There is one high school providing Mathlete tutors (Cornwall Hill College), and two

additional schools in the process joining the project. We will hopefully have more numerical results at the presentation of this paper.

To date, the Mathletes from Cornwall Hill College have helped 243 end user pupils for a total of 117 hours. A number of the Cornwall Hill Mathletes are also tutoring as Dr Math and fielding questions up through matric level mathematics.

Although grim statistics about mathematics education abounds, it is good to celebrate projects which seem to be doing something right. We have been very privileged to discover such a diamond and are looking forward to where this journey might lead.

ACKNOWLEDGEMENTS

This research is partially funded by the HP Catalyst New Learner Consortiums. Dr Math is a trademark of Meraka Instiute. CSIR.