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NEWS

Nelson Mandela Metropolitan University
for tomorrow
Port Elizabeth & George

Editorial

The year 2015 has seen a beehive of Mathematics and Science research and development activities in the unit which stretched across 18 of the 23 districts of the Eastern Cape. Our partnership with the DBE and ETDP SETA saw more than 600 educators enrolled for the 1-year accredited Maths and Science skills upgrade programmes offered by the GMMDU. This re-affirmed the strategic role of the techno-blended model and TouchTutor™ digital support material as part of the effort to boost the quality of teaching and learning of Maths and Science in under-resourced secondary schools in this province. A new consolidated Maths and Science support model for secondary schools was also implemented for the first time this year. The Integrated TouchTutor™ Support (ITS) model for secondary schools combines a Laptop assisted professional learning community model for teachers with Tablet assisted learner support and PC based TouchTutor™ resource centres in project schools. The ITS model, which culminated from participative action research that was done in ten FirstRand Chair schools in PE over the past five years, was implemented successfully in 18 secondary schools around Bisho this year as part of the Old Mutual Education Flagship Maths and Science school programme. The ITS model enjoys the full support of the Skills Development and Curriculum directorates of the DBE at provincial level and key funders are already signed up to assist with the extension of the ITS model implementation to include, amongst others, more than 25 schools in the Nelson Mandela Metropolis from 2016 onwards. This year also saw the development of an exciting professional version of the TouchTutor™ package with additional built in functions like interactive Maths and Science language support and usage data logging and retrieval. In future this development will no doubt boost the quality of TouchTutor™ assisted support for teachers and learners. We look back on 2015 with great satisfaction as we have managed to scale and consolidate our development agenda in the province. At the same time, we look forward to 2016 with great confidence having even better quality Maths and Science teaching and learning support models lined up to assist with the teaching and learning of Maths and Science at FET level in schools and colleges.

Govan Mbeki Mathematics Development Unit
empowering young minds

GMMDU Newsletter

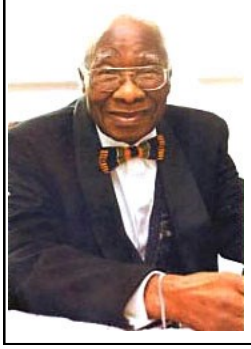
Govan Mbeki Maths Development Unit July - Dec 2015

MATHS & SCIENCE SKILLS DEVELOPMENT PROGRAMME

Teachers receiving their Maths (MATHSUP) and Physical Science (SSUP) certificates at various venues across the Eastern Cape Province.

OLD MUTUAL EDUCATION FLAGSHIP PROGRAMME

Teachers from 18 schools in Kingwilliamstown celebrate their results on the Maths Skills Upgrade Programme (MATHSUP). These teachers were also involved in the integrated TAPS learner sessions (after school peer support programme). Four of the teachers achieved a place in the top 10 of the 300 Maths teachers that participated in MATHSUP in 2015.



"Our South African youth must study maths and science in order for us to be a winning nation"

Dr Govan Mbeki (LLD)

GEOGEBRA GLOBAL GATHERING

Prof Werner Olivier and Dr Philip Collett attended the GeoGebra Global Gathering which took place from July 15-17, 2015 at Johannes Kepler University in Linz, Austria, the 'home' of GeoGebra. According to the organisers the "Global Gathering 2015 was a HUGE success, thanks to our community and partners."

Plenary sessions included GeoGebra 3D and beyond; Community and GeoGebra Institute Network; GeoGebraBook & GeoGebraGroups; GeoGebra and Mobile: Tablets, Phablets, Phones and Partner Support and Community Networks.

Professor Marcus Hohenwater and his international team not only presented a brilliant set of plenaries to highlight the state of the art in GeoGebra, but also showed their commitment to having fun in the process by organising a great conference dinner at the Eidenberger Alm, complete with traditional Tyrolean dancing; and a range of excursions to Vienna, Salzburg and Hallstadt.

Prof Olivier and Dr Collett did a joint presentation entitled *Scaffolding support using GeoGebra Applets and the TouchTutor™ System on Android Tablets* which generated good interest and some useful leads for collaboration.

Local GeoGebra enthusiasts can look forward to sharing in some of the latest developments at the next conference of the NMMU GeoGebra Virtual Institute.

The GMMDU looks forward to welcoming new full-time staff in 2016

Mr Arnold Rumosa-Gwaze
(Maths Project Officer)

Ms Natalie Wood
(Maths Project Officer)

Mr Brendan Barnes
(Technical Support Officer)

TouchTutor™ MATHS COMPETITION

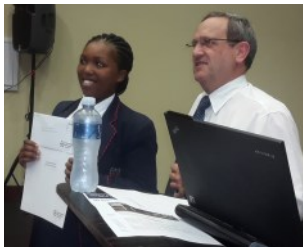
The TouchTutor™ Mathematics competition was run for the third year in 2015 and continued to enjoy enthusiastic support from those schools who promoted the use of cell phones to take advantage of this innovative opportunity to compete with peers using mobile technology.

Winners in the third and final round came from Alexander Road High School and Pearson High School, the latter also winning the school prize for the greatest number of participants in the competition.

For the first time this year a number of schools from the Old Mutual Education Flagship Pragramme participated, with Breidbach High School winning a school prize and Nangamso Moyeni, a grade 11 learner from Bisho High, being awarded a prize for the top competitor in this category.

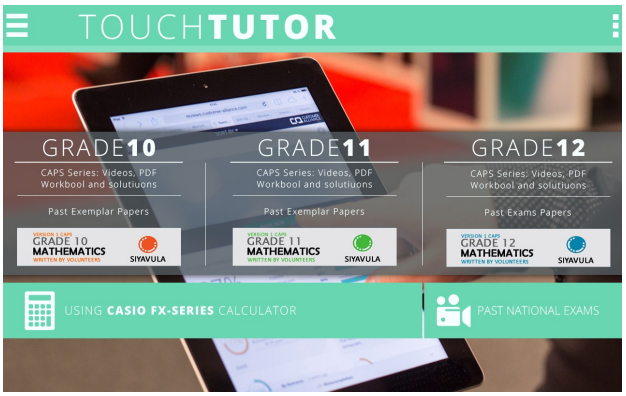
Amongst other considerations, changes within Mxit have prompted the GMMDU to explore alternative technical platforms for the competition for the future, while retaining the base of participation from interested schools and learners. We look forward to these innovations in 2016 as well as the launch of the curriculum support application which will open up participation in mathematics problem solving and revision assessments on mobile devices to many more learners.

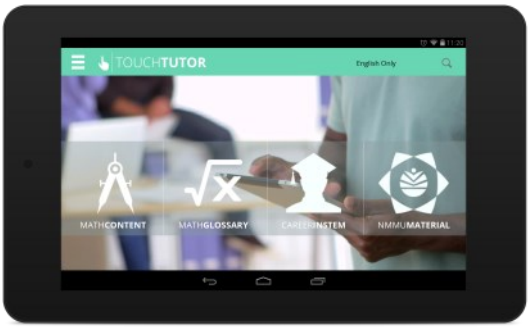
TouchTutor™ competition winners receive their prizes



Nangamso Moyeni from Bisho High School receives her award

TouchTutor™ TECHNICAL DEVELOPMENT



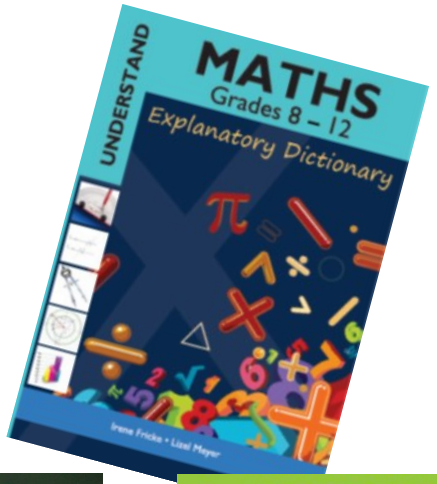


2015 has seen an intensive collaboration between the GMMDU and **The Code Group**, aimed at producing systems to deploy and monitor the extensive learning materials, in FET Maths and Science, developed by the GMMDU. The Code Group is an award-winning local software company specialising in mobile and web-based applications, led by NMMU graduates Devereaux Joubert and Mohammed Casim.

The products of this collaboration so far include an extensive web-based management system which enables the GMMDU to store, manage and deploy its e-learning materials as well as monitor their use on mobile devices. A mobile application has been developed for Android devices to make e-learning in Maths and Science available to learners, including videos, tests and investigations. These core products will form the base of the GMMDU's project operations in Integrated School projects from 2016. Technically the system combines the power of a large database and on-line management with 24-7 off- line accessibility through a tablet which is provided to learners.

The power and beauty of the systems developed so far is that they are general enough in design to be used for any subject. This opens up to possibility of flexible collation of learning packages in various subjects and at different levels. Already there is strong demand for a package for GET mathematics for grades 7 to 9 to address learning challenges at that level. The GMMDU intends to have these resources available, through the TouchTutor™ system in the course of 2016.

PARTNERSHIP WITH ITHUTA BOOKS



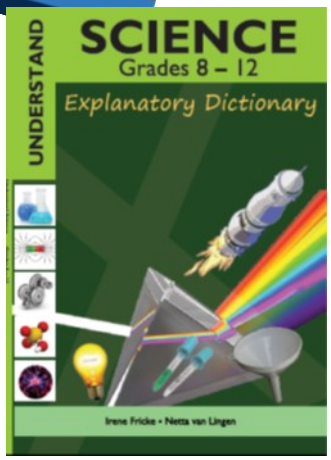
GMMDU recently partnered with Ithuta Books to extend the TouchTutor™ maths and science resource to include explanations in learners' mother tongues.

Ithuta Books has produced explanatory maths, science and technology dictionaries, in which there are at least 800 reference words for which the English meanings/explanations are given. Thousands of cross-reference opportunities are possible to enhance the learning experience and for development of more complete understanding.

These dictionaries are available for grades 4-7 Maths, Science and Technology and grades 8-12 Maths and Science. There are two versions available: 1) English-language-only (monolingual) dictionaries. 2) Unique bilingual dictionaries, where the explanations are given in both English and the learner's Mother tongue (for English-second-language learners) to promote concept development and support understanding. Languages of translation available are isiXhosa, isiZulu, Sesotho, Sesotho sa Leboa, Setswana and Tshivenda.

These dictionaries all offer many years' curriculum, allowing learners opportunity to develop the concepts of the new material and also revise previous years' terminology. The resource is now available as part of the TouchTutor™ application and also available in e-book format. For further information on the dictionaries, see www.ithutabooks.co.za.

Learners at Olievenhoutbosch Secondary School with Maths and Science Dictionaries.



On behalf of hundreds of learners in the Nelson Mandela Metropole, the GMMDU would like to extend our heartfelt gratitude to **SASOL** for their valuable support for the Unit's Mathematics and Physical Science incubation programmes over the past decade. We wish Sasol well with their future endeavours.



The GMMDU would like to express our sincere gratitude to our current sponsors and partners, who contribute towards, support and enable the many Mathematics and Physical Science Programmes of the GMMDU.

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The GMMDU would like to extend our best wishes to all our stakeholders and sponsors for a happy and safe festive season.