

Skewed Maths exams favour top learners and handicap the below-average

by Aslam Mukadam

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The adjustment of the Maths marks by Umalusi is simply treating the symptoms of a broken system. These inflated marks do not reveal the true potential of the candidates and are deceiving to both the learner as well as the tertiary institution.

In order to prevent this from happening again we need to take a closer look at the assessment system.

There are many challenges in Maths education but one of the major challenges of the new curriculum is the structure of the assessment system.

The new Maths curriculum as it stands is designed for the modern society and does not require major changes except for Euclidean Geometry to be made compulsory again. It is the assessment structure that needs a major overhaul.

After a detailed analysis we have arrived at the conclusion that the assessment system is skewed in favour of the above-average and top learner, and disadvantages the below-average learner. Moreover, it does not adequately prepare the top learner to cope at University.

According to the departmental Subject Assessment Guidelines the Maths paper is supposed to be split into 55% knowledge and routine based questions, and the other 45% into problem-solving and higher-level questions.

This 45% is outside the reach of most below-average learners and it is therefore clear that these learners start off the exams with a handicap of about 45% and are unfairly disadvantaged.

In order to end up with a 30% pass mark, the below-average learner actually requires to score close to 60% as almost half of the paper is inaccessible to them.

On the other hand, the top learner is advantaged because half of the paper they can do with their eyes closed and it is only the other half that really provides a challenge.

Although in the 2008 final exams the top learners scored the highest number of A symbols ever achieved in Maths, this does not reflect accurately on the mathematical abilities of these learners; they are not necessarily equipped to cope at tertiary level in Maths related courses.

Generally universities are complaining about the calibre of the students. Wits University's pass rate dropped by 37% in June 2009 in their first-year Maths class.

They are complaining that students who achieved more than 80% in last year's exam are failing first year Maths.

The curriculum, especially the structure of the assessment system, did not adequately challenge these learners enough to be able to deal with University Maths.

In the 2009 final exams the learners found Maths Paper 1 to be extremely difficult. We agree that standards had to be raised because in 2008 the maths papers were far too easy.

The sample Maths Paper 1 which the education department made available in mid-October last year did not adequately prepare learners for such a challenging paper.

If we don't change the structure of our assessment system we are forever going to have this "see-saw syndrome" where one year the paper is too easy and the next the paper is too difficult.

It is practically impossible for this "one-size-fits-all" assessment system to satisfy both the top learner as well as the below-average learner.

Our recommendation is that the optional Maths Paper 3 to be made compulsory, and most of the higher level questions of Paper 1 and Paper 2 should be shifted to Paper 3.

This Paper 3 would then also be a 3 hour paper for 150 marks instead of a 2 hour paper for 100 marks. The Paper 3 mark should then still be reported separately from Papers 1 and 2. A good Paper 1 and 2 mark will then not be diluted by a weak Paper 3 mark.

In this way learners who wish to further their studies at universities of technology and colleges won't be disadvantaged and demoralized with an overall weak mark. This strategy will also make Maths more accessible to all learners.

We have requested a meeting with the Ministry of Education to discuss the details of making Paper 3 and Euclidean Geometry compulsory. We hope to meet the ministry in the next few weeks.

We do not want to be seen as only criticising the education department; we welcome the changes been made by the dropping of the OBE portfolios and we look forward to more positive changes.

On our part, we have set up a dedicated, user-friendly website containing Maths and Science resources to assist teachers and learners at www.mathsexcellence.co.za where we have posted free Maths and Science textbooks, question papers, exemplars and tutorials and curriculum guidelines for teachers.

- **Aslam Mukadam is the co-ordinator of Concerned Maths Educators, a network of Maths teachers in schools and institutions throughout South Africa committed to improving maths education and making maths more accessible to all learners.**