



Matric 2011: Playing the number crunching game yet again

1. Introduction

For many students, Matric is not the end of the road, but rather just the start of another chapter in their pursuit of education. For others it is the beginning of a life of unemployment. After all the figures have been analysed to death, after all the congratulatory pats on the back, it is perhaps with a sad realisation that we come to the conclusion that there is nothing much we can do for the class of 2011. However, we can certainly learn from their experience, and in this way perhaps achieve something for those who are just starting out their long twelve-year journey.

This paper is an attempt to examine some of the challenges that the class of 2011 faced.

2. Starting Early and Keeping Them Schooled

Many agree that to improve our dismal matric results we need to invest more in getting it right from the beginning – in other words, improving early childhood development (ECD). ECD is defined in the Children's Act 38 of 2005¹ as the 'process of children developing their emotional, cognitive, sensory, spiritual, moral, physical, social and communication capabilities from birth to school-going age'. It is well documented that delays in early childhood development will have long-lasting educational consequences for children. According to the National Planning Commission's *National Development Plan*, pre-school interventions have the benefit of improving not only enrolment rates but also retention rates.

The attrition rate is a massive problem – just over half of the cohort that enrolled in Grade 1 in 2000 made it all the way through to matric in 2011. Some 923 463 learners began Grade 1 in 2000 but only 496,090 wrote matric in 2011². Unfortunately the Department of Education has not done any studies to investigate why learners drop out; however, a study conducted by Social Surveys Africa and the Centre for Applied Legal Studies (CALs) indicated that the majority of learners who drop out do so during the FET phase (Grade 10 – 12), when they are between 16 and 18 years of age. The reasons varied, from teenage pregnancy to having to work to contribute to family finances³.

In the context of our matric results, it is perhaps more important that the reasons why learners are dropping out be addressed, rather than over-emphasising how many of the 'survivors' managed to pass at the end of their 12 year journey.

3. Mathematics v Mathematical Literacy

Not only did fewer candidates write pure mathematics, but only marginally more than 46% passed the mathematics exam with a score of more than 30%. Of the 275 380 candidates who wrote mathematical literacy, 86% passed with more than 30%. These results should not, however, come as a complete surprise – the Annual National Assessment of learner performance at grades 3 and 6 carried out in 2011 showed that the national average performance in numeracy for grade 3 was only

28%. At grade 6, the national average performance in mathematics was 30%. The various comments and analyses of the matric results have all pointed to the dismal figures of the mathematics pass rate. Many argue, and rightly so, that this does not bode well for South Africa in its quest to produce more doctors, engineers and technicians. Some have also argued that there is a trend towards pushing learners to take 'easier subjects' (which means no pure mathematics or physical science) so that the pass rate of the school is not negatively affected.

While the focus is on those who did not pass pure mathematics, or just about passed it, not much is being said about those who opted to do mathematical literacy. If this relatively new subject is talked about at all, it is usually in the negative – it is regarded as 'dumbed-down maths', which 'doesn't get you anywhere'.

But does it really deserve this negativity? Mathematics literacy is not an alternative to the old standard grade mathematics, say its advocates, but an entirely new and independent subject⁴. It is not as highly technical and abstract as pure mathematics, but according to the Department of Education, it provides learners with '*an awareness and understanding of the role that mathematics plays in the modern world. Mathematical Literacy is a subject driven by life-related applications of mathematics. It enables learners to develop the ability and confidence to think numerically and spatially in order to interpret and critically analyse everyday situations and to solve problems*'. Some argue that the everyday language of mathematics literacy lends itself well to those who do not have English as their mother-tongue.

It is interesting to note that before the new National Senior Certificate curriculum was introduced in 2008, learners could choose to do Mathematics on either the Higher or the Standard Grade, or not at all. According to a report by Aarnout Brombacher,⁵ as much as 40% of learners did not take mathematics during 2000 – 2005. The majority of those who did do mathematics opted for the Standard Grade, with the result that, out of the whole matric cohort of that period, only 5.2% managed to pass Higher Grade mathematics. The trend was for learners to bet on Higher Grade mathematics so as to improve their options for tertiary education, but many fell short and failed, leaving them with no option, or very reduced options, of entering tertiary education. Against this background,

mathematics literacy was introduced to offer learners the opportunity to get a mathematical education without having to do pure mathematics.

It is a fact that not everyone is particularly good at mathematics – it takes the right aptitude and a very good teacher to get across the very abstract and technical nature of pure mathematics. For many learners with inadequately trained mathematics teachers (or in some cases no teachers) and the lack of mother-tongue teaching, mathematics literacy might be the only chance they have of acquiring any mathematical skills at all. According to Dr Martin Prew, director for the Centre for Education Policy Development, 'poor English skills is one of the reasons why achieving high results in maths and science is still a problem, as it acts as a gatekeeper for the understanding of these subjects'.⁶ Dr Prew's sentiments is echoed in the Department of Education's diagnostic report on the matric examinations where it states that the poor language skills (English proficiency skills) led to many matriculants not being able to answer conceptual questions very well which consequently meant that they could not identify the mathematical skills required to complete the question⁷.

Perhaps it is unrealistic, given the huge schooling inequalities, to expect that all schools should aim to do well in pure mathematics. Perhaps we should, as UCT's Jonathan Clark argues, focus on the high-achieving mathematics and science schools. In any event, there is no reason to assume that all learners want to enter fields for which a matric pass in pure mathematics is necessary; this being so, perhaps mathematics literacy is a more practical option, and one which deserves to be promoted.

4. Entry to Tertiary Education

The recent 'stampede' incident at the University of Johannesburg and the subsequent headline 'Dying to get an education' tragically sums it up – getting a tertiary education is for many the Holy Grail that will lift them out of their poverty. Having a matric certificate is not enough – the chances of finding employment dramatically increases with a tertiary education and even more so if it equips one with a scarce skill.

It is often argued that a good indicator of the quality of education is the ratio of learners

passing well enough to pursue a university degree or diploma. If so, the picture is bleak yet again – only 24.3% of the class of 2011 achieved a bachelor's degree pass (university pass)⁸. In absolute numbers, 120 767 learners managed to put their fingers on the Holy Grail but, in sad reality, only about a half of these will actually attend university, and only about a third will complete their degrees! This does not auger well for the ambitions of the National Planning Commission and the Department of Basic Education, which have both indicated that participation in tertiary education should be increased by at least 30% in order to meet skills demand. The proposal by the National Planning Commission that the university mathematics and science entrants should be increased to 450 000 by 2030 seems highly ambitious if one considers the 2011 mathematics and physical science results. Only 67 541 candidates passed mathematics with 40% or more; 61 109 passed physical science with 40%⁹ or more which means that only 128 650 candidates could potentially be eligible to pursue a university degree within the mathematics or physical science faculties. Another reality to consider is that the figure of 128 650 potential mathematics and physical science university entrants would be far lower because there are no statistics available (since the Department does not publish it) for those candidates who passed with more than 50% in mathematics and physical science (an entry requirement for most university mathematics and physical science faculties).

However, failing to achieve a university entrance pass should not be the end of the road for the class of 2011. Many have not explored the possibility of studying at an FET college simply because these institutions are not considered a viable option – they are often poorly run, lack

qualified lecturers, and don't offer vocational training that responds well to the economy's needs. The Department of Education has recognised this gap in post-school education, and addressed it in the Green Paper on Post-School Education and Training. It states: '*FET colleges must become institutions of choice for young school leavers, offering general vocational training as well as providing academic and theoretical education for apprentices. They must articulate with universities so that those who choose a vocational training route can later continue their studies at university level if they choose to do so. They must develop close ties to workplaces in the public and private sectors, becoming responsive to the needs of the employers in their surrounding communities, and offering tailor-made programmes where possible in addition to their core programme*'.

5. Conclusion

It seems that the same story unfolds every year – on the one side is government hailing its achievement of getting learners through their twelve years of schooling, some with a certificate that may get them into a tertiary education. On the other side are concerned academics, teachers, NGOs and parents lamenting the poor quality of the passes and the many children that didn't make it to matric. Surely it is time that government stops patting itself on the back and instead develops the political will to make sure that no child is left behind, and that the quality and quantity of the matric pass is something we all can be proud of.

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¹ Republic of South Africa (2006): *Children's Act, 2005*. Government Gazette, No. 28944. Vol. 492

² Jon Hodgson (2012): *Big decline in no. of 2011 matric maths passes – Equal Education*. Online at www.politicsweb.co.za

³ Kenny Pasensie (2010): *The Devil is in the Detail: Analysing the 2010 matric results*. CPLD Briefing Paper No. 253

⁴ Robyn Clark (2012): *Math v Math Literacy: the continuing debate*. Available online at www.thoughtleader.co.za

⁵ *Maths and Maths Literacy*, quoted by Clark, *op cit*.

⁶ Victoria John (2012): *Pass rate may be deceiving*. Mail & Guardian Online, <http://mg.co.za/article/2012-01-06-matric-pass-rate-may-be-deceiving>

⁷ Department of Basic Education (2011): *Report on the 2011 National Senior Certificate examinations: National diagnostic report on learner performance*. Available online at www.education.gov.za

⁸ For a bachelor's degree pass, a candidate is required to attain 30% in the language of learning and teaching of the Higher Education Institute (which is effectively English or occasionally, Afrikaans), and more than 50% in four of the following subjects: Accounting, Information Technology, Agricultural Science, Languages, Business Studies, Life

Sciences, Consumer Studies, Mathematics, Mathematics Literacy, Dramatic Arts, Economics, Music, Engineering, Graphics and Design, Physical Science, Geography, Religion Studies, Visual Arts and History.

⁹ Department of Basic Education (2011): *Report on the 2011 National Senior Certificate: Technical report.*

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