



I concluded last month's Corner, which was on the topic of effective technology transfer in the underground narrow tabular mining industry, with a question: 'do we fully understand the problem and do we have the right approach and skills to achieve a solution?' I would like to explore the link between minerals industry success and appropriate skills development a bit further this month.

There are developing expectations for mining companies to play a greater role in infrastructural development in the communities in which they operate.

These expectations are not clearly defined and are often complicated by shifting community demands for employment opportunities, health care and education facilities, and skills development - social needs typically addressed by government in other mining jurisdictions. Conceptually these needs should be met by an appropriate social and labour plan associated with the mining rights; however, alignment of all stakeholder objectives, over time, is difficult to sustain. South African mining companies thus, in addition to meeting the interests of investors and organized labour, need to evaluate and understand evolving community and government expectations while maintaining operational sustainability. A core element of operational sustainability, apart from the mineral resource, is skills - skills to effectively and efficiently execute mining operations, now and in the future.

As the world becomes increasingly dependent on technology, it is envisaged that the long-term key to the competitiveness of the South African minerals industry, given the incredible wealth of our mineral endowment, will be the supply and the quality of a workforce competent in science, technology, engineering, and mathematics (STEM). The STEM disciplines are central to national economic competitiveness and growth; with long-term strategies to increase living standards and reduce the extent of poverty, unemployment, and inequality being dependent on an adequate supply of STEM competencies. The minerals industry value chain, from exploration to downstream beneficiation of industry outputs, relies on people with appropriate STEM skills. A key enabler for entry into the STEM disciplines is competence in mathematics and science and the ability to solve problems and think logically. However, not enough young people are choosing to enter these disciplines because of the inadequacies of the education system in these subjects. Critically, basic maths and science enabling should occur at primary school.

The recently released World Economic Forum (WEF) Global Information Technology Report 2013 ranks South Africa's mathematics and science education second last in the world, ahead only of Yemen. It further ranks South Africa in terms of the quality of our education system in general at 140 of 144 countries, and of internet access in schools at 111 of 143 countries. Interventions such as the recently established special task team to investigate the progress of teaching programmes in maths, science, and technology across South Africa should assist in determining the deficiencies in the system and provide guidance on the way forward. This will take time, and sadly another generation of children with inadequate mathematics and science skills will pass into the employment market in an increasingly technologically sophisticated world.

My intent is not to unfairly criticize the education system but simply to highlight that the South African minerals industry is facing a challenge in the supply of adequately skilled people to engage in an increasingly technologically sophisticated workplace.

Perhaps part of the solution lies in finding creative ways to engender enthusiasm about mathematics and science at our community schools. Many of the choices young people make in life are perception- or belief-based, rather than being based on the reality of their circumstances or real potential. We need to make young people believe they 'can do' maths and science. The importance of role models in dispelling the myth that maths and science are 'too difficult' cannot be ignored. Caring coaches who can explain simple fundamental concepts in simple relevant terms are the way forward.

I firmly believe we need a grassroots initiative to make the next generation believe they 'can do' maths and science - to inspire, to change belief. However, we need different delivery mechanisms that aren't classroom bound; they need to be interactive, activity-based, and linked to real-life requirements - tasks, exercises, programmes that link maths and science to real-life activities. I am out of my depth here - I know what the problem is, I think I know what should be done, but I don't know how to do it. Perhaps you know somebody with the right skills who with the support of your company can make a difference to the future of the industry, beginning with their immediate community.

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