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PUBLIC EDUCATION: working for progress

Our public education system is viewed mostly in a negative light by the general population of this country. There are good reasons for this, including the negative publicity generated by debacles such as the Limpopo textbook saga, the death of children in pit toilets, mud schools, the inability of the Eastern Cape Education Department to resolve the issues of excess teachers with the majority union SADTU, and the generally poor performance of learners in nationally and internationally benchmarked assessment tests in Language and Mathematics. The failure of public education institutions to produce sufficient numbers of learners with the knowledge and skills needed to meet the requirements of the labour market is repeatedly identified as a critical impediment to this country's economic growth prospects.

While the criticism of our public schooling system is in many instances well deserved, its persistent nature can have debilitating consequences for the many thousands of teachers and department officials at every level in the system who are working hard and achieving some success in turning things around. Maintaining a positive mindset can be a challenge for these individuals and some tips on how to do this can be found in Eric Cloete's article on the art of reframing, which is the process of reformulating our perceptions of difficult or apparently intractable problems in order to make them less threatening and more manageable.

Eric Cloete's second article in this edition deals with the specific problems associated with the teaching of Mathematics in Grade 4, which is one of the critical articulation points of this subject. For many schools and teachers, the challenge of teaching Mathematics in Grade 4 – the first year of the Intermediate Phase of schooling – is that it is the first time that learners will be taught through the medium of a language that is not their mother tongue. People who do not have first-hand experience of the realities and practicalities of the challenges that this poses for teachers and learners can have very little idea of the disruptive consequences of this change. The problem is not simply a matter of learners struggling with English, which in the Intermediate Phase becomes the Language of Learning and Teaching (LoLT) of most schools. In many cases, particularly in townships and rural areas, the LoLT of the school is not the mother tongue of the teacher. Primary teachers are trained as generalists because they are required to teach the full range of subjects offered in this phase and few have the deeper understanding of the Mathematics concepts that they are required to teach at this level. Eric Cloete's article reports on a study that examined some of these challenges at one primary school and provides some guidance on how best to tackle these.

Also in this edition is a good-news story about a school in Khayelitisha that has not only managed to achieve a dramatic turnaround in terms of learner performance over the past three years thanks to the leadership of the principal and the hard work of her staff, but has also gained the support of the community that it serves to the extent that they volunteered their services during the December 2013 holidays to give the outside of the school a new coat of paint.

This edition also includes our summary of a report commissioned by the DBE that was published during the latter stages of 2013, which examines what it describes as 'The internal efficiency of the school system'. The report highlights some of the good progress that has been made in terms of the accessibility of schooling and interestingly notes that there have also been some significant improvements in the performance of learners in internationally benchmarked Mathematics tests. The inefficiencies that it identifies are ones that we have reported on in past editions, with the most significant of these being the high retention (failure) rates of learners, particularly in Grades 9, 10 and 11. Perhaps this is why the DBE and its provincial counterparts instructed all high schools to automatically 'progress' learners who had already failed at least once in the FET band. The consequences of this decision are likely to be exposed with the release of the 2014 NSC results – or will they be?

REFRAMING as a *thinking tool* to improve teachers' happiness and school morale

Various factors have contributed over the past years to an epidemic of dissatisfaction and low morale among teachers in South African schools. Currently few Grade 12 learners want to become teachers and many enter teaching as a second- or third-choice career. Student teacher enrolment has declined drastically over the years in spite of the predicted shortage of teachers. Systemic factors that have contributed to this situation include the process of redeployment and redistribution, the introduction and re-alignment of various educational policies, constant change, teacher–learner ratios not being conducive to quality teaching and learning, a decrease in teachers who are willing to teach large classes due to disciplinary issues, uncertainty and anxiety about job security, inequality in salaries between departmental and school governing body posts, lack of motivation and interest by learners in their schooling and the constant release of media reports that portray the education sector as hopeless and unable to meet performance requirements.

Over the years many educationists and school leaders have involved themselves in various initiatives and discussions in an effort to find possible ways and best practices to improve teacher morale and restore teaching as a prestigious profession. Schools still continue to seek, relentlessly, all possible ways to provide for their teachers, in an effort to secure an environment in which they feel safe, happy and engaged. In spite of these efforts only limited success is achieved. Too many teachers place the responsibility for their own engagement levels, happiness at work and an increased school morale fully on the school system or even school leadership, instead of acknowledging their own important role and contribution in the process.

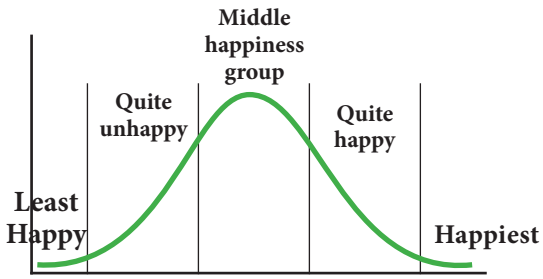
Research has suggested that people who are happy at work help others more, are liked more, get better feedback, learn more, have more energy, are more creative, have a greater belief that they are doing something worthwhile, are more connected at work, are promoted faster, are more resilient and achieve more goals. When comparing the happiest employees with the least happy, research has also found that:

- 180% are more energised at work.
- 108% are more engaged at work.
- 50% are more motivated and have more belief in their potential.
- 40% have more self-confidence.

It also suggested a definite correlation between happiness at work and the level of success obtained. Happiness at work can actually be seen as a science. It is a mindset that enables action to maximise performance and achievement of potential. The improvement of happiness in the workplace is actually something that could improve the morale of teachers and learners and ultimately benefit the education system as a whole.

At most workplaces, including schools, happiness has a normal distribution as shown in Figure 1.

Figure 1
Normal Distribution - Happiness



Too many teachers outsource their happiness at school to the education department or school management. As long as this is the case, it would be difficult to record a substantial improvement in school morale. Teachers should own their happiness in order to improve school morale but for this to happen they need to improve their thinking skills.

The importance of the thinking process

Many people have a tendency to believe that perfect conditions must be in place before the happiness or morale of the individual teacher or school can improve. The fact is that the school environments in which most teachers find themselves have a number of shortcomings, and it takes appropriate leadership and thinking skills to counter the negative circumstances. In an unpredictable environment, great ability does not always result in high performance, unless it is matched by great adaptability. It is therefore of paramount importance that teachers adapt to the many negative issues they experience in education.

One way to do this is to improve the way they think. In the knowledge economy of the twenty-first century, people, including teachers, are paid to think. This is in sharp contrast to the industrial age where most people were factory workers using their hands to manufacture products. Given the emphasis on the importance of thinking it is astonishing how little attention education has paid over the years to the skill of thinking. There is a common belief that intelligence is enough but intelligence can be likened to the horsepower of a car,

while thinking can be likened to the skill with which the car is driven. Research done at Harvard by David Perkins showed that 90% of the errors of thinking are errors of perception and not of logic. It would therefore be necessary for teachers to expand their thinking skills beyond logic, critical thinking and analysis.

Framing and reframing

Framing is a way of structuring or presenting a problem or issue. Take a look at how the following two problems are framed: 'What is the sum of 5 plus 5?' and 'Which two numbers add up to 10?' The answer to the sum, what is 5 plus 5 would be easy as the sum has only one correct answer, which is 10. On the other hand, a question of which two numbers add up to 10 would have an infinite number of solutions, including negative numbers and fractions. These two problems, which rely on simple addition, differ only in the way they are framed. In fact, questions are the frame into which the answers fall. As can be seen in the example above, by changing the frame or reframing, the range of possible solutions or alternatives is changed dramatically. Reframing takes effort, attention and practice, but when people do get it right it enables them to see the world around them in a brand new light as it changes their thoughts, perceptions, self-talk and, in some instances, it also helps them get rid of their fears. Reframing means taking a statement or question and saying it in a different way.

What teachers must accept nowadays as part of their profession is that there are problems everywhere. A few years ago a company called Accenture created an advertisement where Tiger Woods was preparing for a putt. The advertisement portrayed Tiger as if he was preparing to putt in extremely wet weather. In the foreground was a man in rain gear who was attempting to wipe away the water on the green. At the top of the page were the following words: 'Waiting for ideal conditions is rarely an option.' At the bottom of the page were the words: 'Go on. Be a Tiger.' This advertisement made me realise that to wait for ideal circumstances is futile. The same applies to education and schools. There are problems everywhere and to wait in the hope that these problems will disappear is a waste of time. Teachers must be happy where they are in spite of the many problems they experience. They need to be happy in the now, with a vision for the future. One way to do this is to reframe problems, to look at them from different angles. Teachers are creating frames for what they see, hear and experience every day and those frames both inform and limit the way they think. In most cases teachers don't even consider the frames, they just assume that they are looking at the world with a proper set of lenses. However, the actual problem is not the problem but the perspective they have on the problem. The perspective can be changed by reframing. Here are a few general examples of reframing the concept of a problem:

- There is no solution to this problem. vs There is a solution.
- A problem is permanent. vs A problem is temporary.
- Problems are not normal. vs Problems are a normal part of life.
- Problems lead to bitterness. vs Problems make us better people.
- Problems control us. vs Problems challenge us.
- Problems cripple us. vs Problems lead to growth.

Teachers sometimes choose to glorify the problems they experience in their classes, schools or in the schooling system and frame them as such. A valuable, alternative way to open the frame for possible solutions is to ask questions starting with why and then make use of the answers to reframe the original belief.

The following table provides further examples to explain the process of framing and reframing.

THE PROCESS OF FRAMING AND REFRAMING

No.	Framed – main belief	Question – Why?	Possible answer	Reframed – main belief
1	This learner is stupid.	Why do I have the perception that the learner is stupid?	He does not perform well.	Any learner can improve his/her marks if they have a growth mindset.
2	I am discouraged because the learners do not pay attention in class.	Why are the learners not paying attention?	The learners are bored.	Learners will pay more attention if and when I redevelop my lesson plans to teach in a more creative way.
3	To be a teacher sucks.	Why do I feel that teaching as a profession cannot be recommended?	Learners have no discipline and do not respect teachers anymore.	I need to build improved relationships with my learners. It will improve disciplinary matters and ultimately restore the joy and calling of teaching.
4	Teachers do not have any rights.	Why is there a perception that teachers do not have any rights?	It seems that learners are always right and teachers are always wrong.	Teachers need to exercise the rights that they have more effectively.

Being able to look at situations using different frames is critically important when tackling all types of problems or challenges. Consider the fact that before 1543 people believed that all the planets revolved around the Earth. But in 1543 Copernicus changed all of that by proposing that the sun is actually at the centre of the solar system. This was a radical change in perspective. It changed the way individuals thought about the universe, opened up the world of astronomy and provided a new platform for inquiry.

Reframing problems is not a luxury but a necessary skill that I believe teachers need to master. This will surely improve their personal happiness and ultimately also the morale of the school, as the teachers would have a more positive approach towards what they do.

Visit www.reframe.thnk.org for an online tool that will help you to determine what your current frame is, why it is that way and, more importantly, how to change it.

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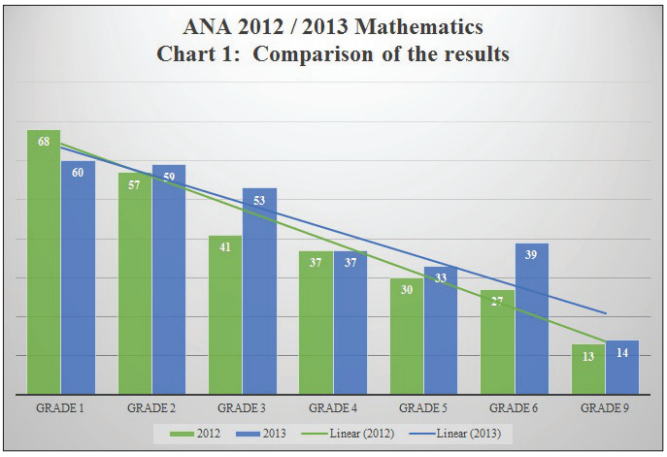
STOP the DERAILMENT of MATHEMATICS in Grade 4

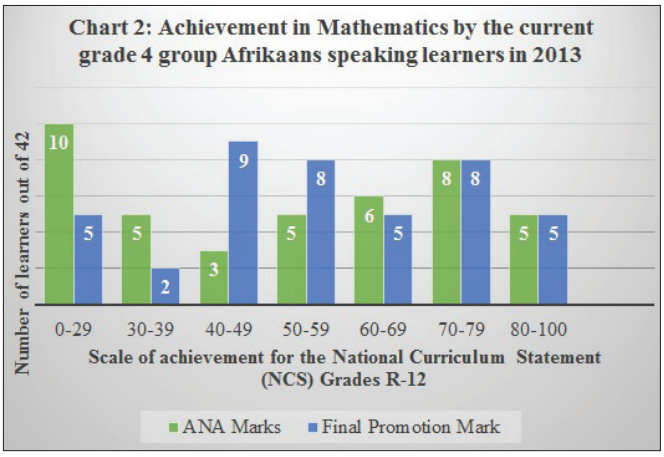
There is no doubt that performance in Mathematics is of paramount importance and it is clear that the complexities in South Africa's economy will require a high level of Mathematical skill in the future. Most professional fields of study that could increase employment after tertiary education, require at least an adequate (40%) or substantial (50%) competence in the subject.

Many experts and educationists are of the opinion that performance in Mathematical Literacy, which is a subject that uses mathematical concepts and applies them to everyday situations, is of limited value to the country's economic needs. The South African Department of Labour published a pamphlet entitled 'Scarce Skills' in July 2013. The pamphlet defines a scarce skill as a qualification or job for which there are too few people in South Africa doing the job. Although it indicates that all areas of the economy are short of skilled personnel it is clear that professionals are required by the hundreds in fields such as accountants, auditors, actuaries, architects, surveyors, engineers, school teachers who specialise in Mathematics and Science, scientists, medical practitioners, business system analysts and programmers, database and systems managers, solicitors and so on. Mathematics is a requirement for admission to these fields and the current levels of Mathematics performance in schools therefore raise serious concerns. These are not new concerns and have been raised in previous editions of SM&L. We also don't expect all learners to achieve 80% in Mathematics, but we believe that the majority of learners are able to achieve the required marks needed for their respective fields of study.

When we look at the data that is available from the ANA (2012/2013) in Mathematics, it is clear that achievement of learners weakens from Grade 1 to Grade 3. The achievement of the Grade 1 group of 2012 was 68% but weakened to 59% in Grade 2 in 2013, a drop of 9% in performance of the same learners who obtained 68% when they were in Grade 1. The same trend can be seen in the performance of the Grade 2 group in 2012 where they obtained an average of 57% but weakened to 53% in Grade 3 in 2013, a drop of 4%. Although the data confirms a decline in performance between Grade 1 and Grade 3, the average percentages for Mathematics in Grades 1, 2 and 3 are still much higher than the averages of the learners in Grades 4, 5 and 6. The steep decline of performance in Grades 4 to 6 causes the actual marks to be very low, with percentages in the 30s. The Department of Basic Education's report on the ANA of 2013 reports that only 27,1% of learners in Grade 4 were able to obtain acceptable levels of performance in Mathematics – that is 50% and above. The average mark obtained by Grade 4 learners nationally was only 37%.

Chart 1 lists the national average in Grades 1–9 for Mathematics in 2012 and 2013 for purposes of comparison. The downward trajectory in levels of performance of learners in Mathematics from Grade 1 to Grade 9 can clearly be seen. The conclusion that can be drawn from this is that Grade 8 learners enter high school totally unprepared and unable to meet the demands of the curriculum in respect of their performance in Mathematics. This contributes to the poor national ANA average of 13% and 14% in 2012 and 2013 respectively. The decline is also so steep that it will be very difficult to reverse the situation.





One of the more obvious solutions is to build a proper base in the Foundation Phase (Grades R–3) and ensure ongoing quality Mathematics tuition in Grade 4 that will prevent the start of the process of decline. Many will argue that this is easier said than done.

In search of a practical workable solution, we decided to identify a primary school in Pretoria and work with their Grade 4 group over the course of 2014 to see what practical everyday strategies and solutions could be implemented to prevent a decrease in their Mathematics marks at the end of the year, when they write the ANA.

We set specific criteria for our identification process of which one was to select a school whose Grade 3 learners obtained a 60% average in the ANA at the end of 2013. Another important consideration was that a decline in Mathematic performance from Grades 3–6, in line with the national trend, should have been observed for the past two years. We decided on this route because in spite of all the current recommendations on how to improve learner scores in Mathematics, it doesn't seem as if any of them promote a steady improvement. We hope to find workable solutions through the course of this year that we would be able to share with our SM&L readers. The main objective would be to find possible ways on how to keep levels of Mathematical performance within 3% of what the grade group scored in Grade 3. Also note that this is an informal study and the school would not make use of a test and a control group.

Chart 2 is an example of an analysis that we have done. It provides information according to the scale of achievement for the National Curriculum Statement (NCS) Grades R–12 on the current number of Afrikaans-speaking Grade 4 learners in the identified school with regard to their performance in Mathematics in 2013. We compared the number of learners out of 42, who reached specific levels in the ANA exam and the number of learners out of 42 who reached the same level in their final promotion mark. The same group wrote both. We did this to see what information we could gather to assist us with possible strategies. We have done the same analysis for the English-speaking learners.

Risk factors

We have identified a number of risk factors that may impact negatively on performance. These are not the only factors that may influence performance, but they will have to be managed appropriately to minimise the possible negative effect they may have on the individual's learner performance.

- Absenteeism of learners and teachers – it must be noted that when a teacher is absent it is equal to the absence of a whole class on a particular day or period
- Socio-Economic barriers – poor families and possible participation of learners in the feeding scheme of the school
- Percentage of learners being taught in English (LoLT) but whose home language is not English
- Knowledge and experience of teachers who are teaching these learners with regard to content knowledge and assessment
- Prior knowledge and performance of the learners – teachers must remember that few learners enter Grade 4 having obtained a mark of 80% or more for Mathematics in Grade 3
- The academic, social and emotional adjustment in the Grade 4 year as the first year of the Intermediate Phase
- Work rate of the learners – Grade 4 learners usually work very slowly in the beginning of the year as they are still adapting to the new phase
- Percentage of the group who came as new learners into the school and still need to adapt on a social and emotional level
- Change of teachers in Grade 3
- Class size – we recommended the appointment of an assistant in classes where the learner number exceeds 35 – this will also support the teachers who are struggling to maintain good discipline
- Ability of parents to assist learners at home especially where they struggle to complete homework exercises
- Attitude of parents towards Mathematics
- Lack of resources in the classroom
- The levels of anxiety that learners may experience – learners need to feel safe in their classrooms.

A brief summary of our main recommendations: a focus on the basics to support this group

Classroom as smallest unit of change

The place where the change will happen is in the classroom. We therefore suggested that the school management team checked the quality and quantity of the chairs and tables, to ensure that they are in good condition and the appropriate size for Grade 4 learners. We also suggested that the school acquires all the appropriate resources needed, to teach the necessary concepts, as indicated in the CAPS document for Mathematics Grade 4. We emphasised the importance of creating a stress-free classroom. Mathematics in real life contributes to reducing the anxiety learners may experience. The following example will give more clarity. Instead of explaining to a learner that he walks for half an hour and runs for 15 minutes you may explain that he will be exercising for three quarters of an hour.

Effective tuition and use of tuition time

It is important that teaching time is used effectively. To support this we ensured that Mathematics was allocated double periods (60-minute periods) on the timetable, which eliminates the waste of time associated with changing classes and ensures more effective teaching time. We suggested that the Mathematics Head of Department (HOD) and subject teachers meet at least twice per week to discuss the content and possible creative ways in which the content can be presented. This is part of the strategy to ensure that the teachers gain a deeper understanding of the subject, are well prepared and have sufficient knowledge of the content they need to teach. It also gives the HOD an opportunity to monitor curriculum coverage and quality of activities according to the annual teaching plan.

Talk Mathematics as much as possible

Making sense of Mathematics often goes far beyond paper-and-pencil activities. It is a universal language. Talking maths with learners can help teachers quickly assess a learner's grasp of essential concepts, their reasoning skills, and their fluency in applying mathematical concepts to specific problems and solutions. Maths talk is also a way to encourage learners who may not yet have strong writing skills to express their understanding of core maths concepts and content. Learners who may not be strong readers or writers may still be strong thinkers and by giving them the opportunity to 'talk maths' teachers open the door for individual growth and success.

Assistants

We recommended that the School Governing Body (SGB) appointed an assistant if the Grade 4 Mathematics class has more than 35 learners and where the language of instruction (LoLT), but not the mother tongue of the learners, is English. We did this in an effort to try to individualise the tuition of Mathematics through means of a better teacher–learner ratio, and also to minimise the possible negative influence language and discipline could have as risk factors on the performance levels of this grade group.

The reading and comprehension ability of the Grade 4 child as a secondary focus that influences performance in Mathematics

Grade 4 is approximately the age at which learners experience a shift from learning to read to reading to learn. Learners who have not learnt to read by Grade 4 might have physical or personal issues hindering their ability to learn properly and will most likely face a host of struggles throughout life unless an effective intervention can take place. Although the focus will be on the stabilisation and improvement of Mathematics levels in Grade 4 we suggest that an eye be kept on the learners' reading skills and progress to ensure that this does not become an obstacle. Support and intervention in this regard will be provided by a newly established reading committee in collaboration with the school-based support team (SBST).

Parental involvement

We recommended to the HOD hosting a parents' meeting for parents of the Grade 4 learners. The main purpose would be to discuss the way in which parents need to support their children with regard to performance in Mathematics. It is important that parents believe in their children's ability to perform. Although not every learner is equally talented, parents' motivation and interest in their child's Mathematics performance plays a huge role. We provided the school with the following checklist that they could distribute to the parents to measure their commitment with regard to the support they are giving to their children.

One of the most important outcomes we hope to reach with this Grade 4 group in 2014 is to support them on their way to independence. It is of paramount importance that learners learn to do Mathematics themselves, to sometimes struggle with a concept but to try again and again until they get it right. Mathematics is a subject that you have to do every day in order to achieve success. We hope to support the school in such a way that the learners will become motivated and inspired and that they will acquire a deeper understanding and love for Mathematics that will lead to sustainable performance in Grades 5 and 6.

QUESTIONNAIRE FOR PARENTS OF MATHEMATICS LEARNERS			
NO.	**QUESTIONNAIRE:** Do I ...	**YES**	**NO**
1	Always speak positively about my child's Mathematics teacher?		
2	Allow my child to discover Mathematics solutions himself/herself?		
3	Go through my child's Mathematics tests and exams thoroughly and sign them?		
4	Communicate with my child's Mathematics teacher on a regular basis?		
5	Congratulate my child for any achievement he/she makes in Mathematics, regardless of how small it may be?		
6	Encourage my child to always do his/her best in Mathematics?		
7	Help my child to look for examples of where Mathematics is applied in reality?		
8	Make sure I know exactly what level of achievement to expect from my child?		
9	Facilitate, as far as possible, the best possible circumstances for my child to achieve in Mathematics?		
10	Attend parent evenings regularly?		
11	Always give my child constructive feedback concerning his/her Mathematics achievements?		
12	Listen to my child when he/she speaks about Mathematics or explains Mathematics to me?		
13	Allow my child to feel safe (make sure there is a peaceful atmosphere in my home)?		
14	Try to facilitate extra help when it seems that my child has a problem in Mathematics that he/she cannot overcome?		
	Total		
Allocate 1 mark for every yes and 0 for every no. Any score below 14 should receive attention.			
Adapted from Maree K (2005). Ontrafel Wiskunde, Pretoria: Lapa Publishers			

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1. Maree K (2005). *Ontrafel Wiskunde*, Pretoria: Lapa Publishers
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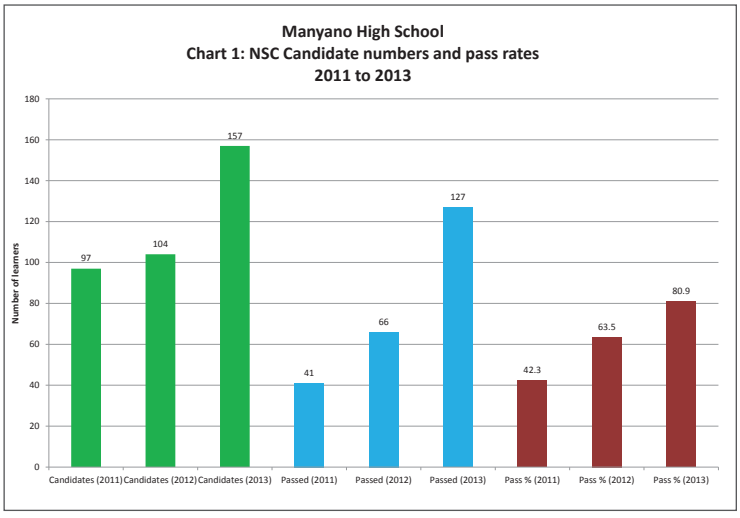
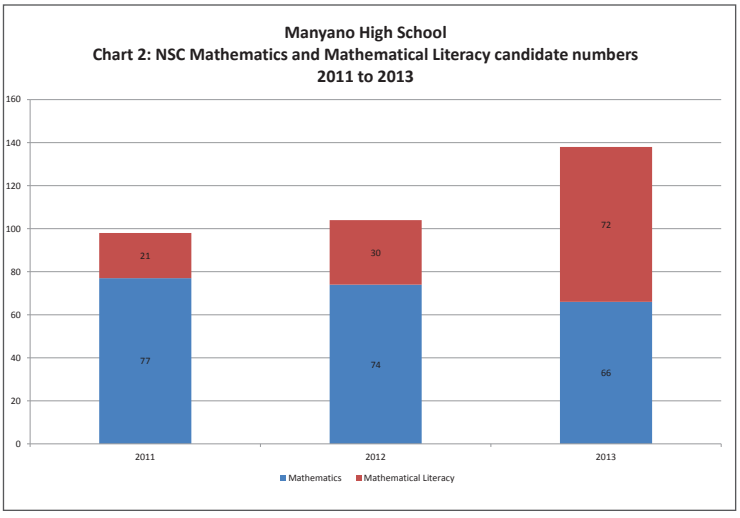
Manyano High School principal Zola Malgas

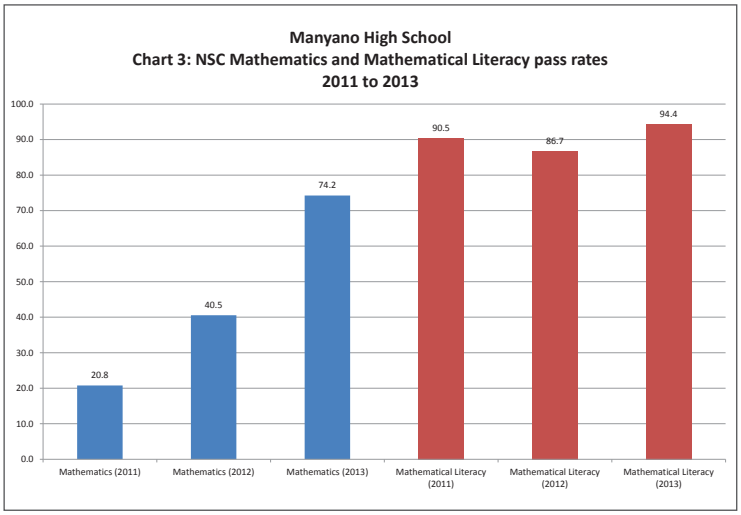
MANYANO HIGH SCHOOL gets a facelift

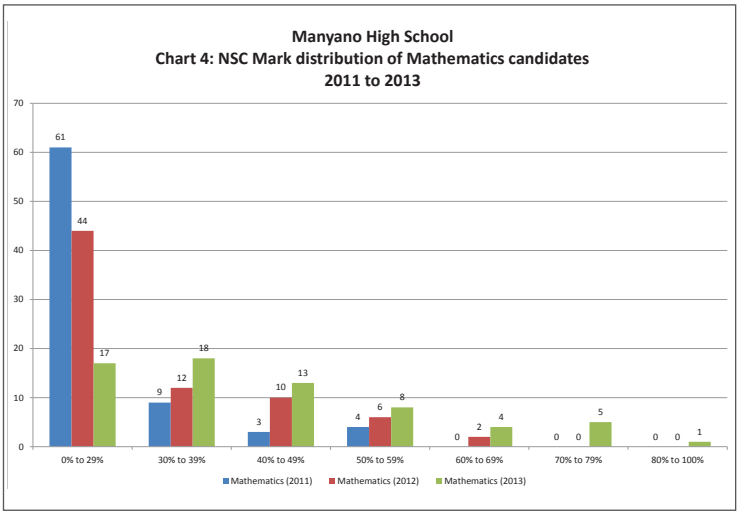
When they returned to school at the start of the 2014 school year the teachers and learners of Manyano High School were surprised and delighted to find not only that their school was spick and span, but that the outside walls had been freshly painted in a new colour. The fresh coat of paint and new colour scheme were not the only thing to get the learners and teachers smiling, there was also the news that their principal Zola Malgas had been invited to the Western Cape Premier's official residence at Leeuwenhof to receive an award for the good improvement in their NSC pass rate over the past three years. Chart 1 shows the positive trend in both NSC candidate numbers and pass rates for 2011 to 2013.

Chart 2 shows the number of learners who completed the NSC examinations in Mathematics and Mathematical Literacy for the period of 2011 to 2013, while Chart 3 shows how the pass rates for the two subjects increased in that period. Chart 4 shows the mark distribution of Mathematics candidates from 2011 to 2013, and illustrates how the average Mathematics marks of candidates increased over that period.









The idea of repainting the outside of the school was first conceived by Principal Zola Malgas while working on an assignment for her Post Graduate Diploma in Management Practice (PGDMP), which she is completing at UCT's Graduate School of Business. The project, one of several that students on the course are expected to complete as part of the qualification, includes a requirement that they increase their engagement with parents and community members as a way of drawing them into their school improvement efforts. Principal Malgas decided that the best way to do this was to provide them with a real project and one that would provide them with a visual reminder of their efforts.

The engagement process involved several stages. The first step was to get sufficient parents and community members together at the school so that she could share her views and vision for the school with them. As many principals of schools serving communities like those of Manyano have learned, getting parents and community members to attend a meeting at the school is not always an easy matter. Most parents avoid meetings apart from those that involve the release of their children's reports. While it is easy blame parent apathy on their failure to attend meetings called by their schools, this is not necessarily the true reason for their non-attendance. Many of the parents whose children attend township schools like Manyano in Khayelitsha live a long distance from the school and very few have their own transport. Many are also very poor and find the additional cost required to pay for the public transport that they need to get to and from a school meeting difficult to justify. Meeting times may also be inconvenient for them – evening meetings are mostly out because of the twin problems of crime and the availability of public transport – so many schools choose to call parent meetings for a Saturday or even a Sunday afternoon.

Inviting community members who are not parents to become involved in the school can be even more difficult, with most being indifferent to requests from the schools for support unless they are rewarded with a small stipend of some kind. In some of the schools that I have visited, parents and community members can be found working as cleaners and gardeners under the supervision of the school's caretaker. I have learnt that most of these 'volunteer' workers receive a small stipend from the school, often in the form of a cash payment and a meal courtesy of the school's feeding scheme. It was this group that was the target of Principal Malgas's plan.

Getting sufficient community volunteers to provide the labour force necessary to do the painting work was, however, just the first step in the process. Ladders, scaffolding and paint brushes and rollers would also be needed and in sufficient quantities to allow the painters to complete the job during the course of the five-and-a-half-week year-end school holidays. There was also, of course, the matter of the paint. Good-quality paint is expensive and there would need to be plenty of it to cover the entire exterior surface of the double-storey building as well as the entrance and administrative section, which the principal also felt needed some refurbishing.

Fortunately one the parent members of the School Governing Body was able to negotiate a sponsorship deal with Mr Danny Meyer, Logistics Manager of Kansai Plascon (Pty) Ltd, who generously agreed to provide the school with the paint that they needed at a reduced price and who also assisted with some of the other materials that they needed. Supervision of the team of volunteers and of the overall project was delegated to the school's two deputy principals, Mr Nthobeli Payi and Mr Peter Gordon, who spent most of their summer school holidays at the school ensuring that the project ran smoothly and that the painting was completed by the start of the new term.

Manyano High School's new coat of paint is symbolic of a deeper change that is happening within the school, change that has been brought about as a result of Zola Malgas's determination to ensure that learners who attend her school are provided with a quality education. She will be the first to admit that the school is not there yet and there is still a lot of work to be done. She will also acknowledge that things haven't always gone her way since her appointment as head of the school at the start of 2010, after having acted as head from October 2008. The poor results of her first Grade 12 class were such a shock to her that she had wanted to run away out of shame. Instead she set about the task of unpacking the reasons for their poor performance and then used this information to develop a school-improvement plan directed at improving the quality of teaching and learning at all levels in the school. Planning and communication systems were improved to ensure that everyone was clear about dates and deadlines; the duties and responsibilities of teachers and members of the School Management Team were more clearly defined so that everyone knew what was expected of him/her; and, equally importantly, new systems of monitoring teaching and learning were implemented. This monitoring process included regular classroom visits and checking of learners' books to ensure that teachers were covering the syllabus at the correct pace and that learners were given sufficient practice in reading, writing and calculating during class time and for homework.

Making changes of this kind is not always easy and as happens in most schools when new systems and processes are introduced, there were tensions and a reluctance on the part of some teachers to accept the notion that things were going to be done differently in the future. Malgas readily admits that the process of implementing some of the changes that she has introduced has been a challenge and that these challenges have tested her patience and her leadership skills. She attributes some of the success that she has achieved in dealing with these challenges to the experienced she gained through the course-work provided by UCT's Graduate School of Business as part of the PGDMP for which she enrolled in December 2012 and which she hopes to complete later this year. She found the course modules on Personal Mastery and Strategic Thinking of particular value and is now far more confident in her ability to deal with conflict; and in finding solutions to complex problems. Assistance, when she feels that she may need it, is also never far away as she receives weekly visits from her mentor, a retired principal with solid experience in running successful schools. Her mentor confirms how her confidence and leadership abilities have blossomed over the past 18 months and believes this is a direct consequence of the content and teaching methodology provided by the lecturers at the GSB. He is also convinced that she now has the leadership and management skills, and the confidence to turn her school into one of the top performing schools in the district, and perhaps even in the province, in the next three to five years.

The INTERNAL EFFICIENCY of the school system

The report 'The Internal Efficiency of the School System: a report on selected aspects of access to education, grade repetition and learner performance'[1] published by the DBE and dated October 2013, provides some useful insights into the overall efficiency – some would say inefficiency – of our public education system. Efficiency, in the context of this report, is defined by the authors as 'how available resources are used to achieve desired outcomes'. More efficient systems use fewer resources to produce more or better outcomes.

The authors of the report make it clear in their introduction that they have not attempted to examine every element that may influence the internal efficiency of the system, neither have they attempted to determine the cost-effectiveness of the system. Their focus has rather been on efficiencies associated with the admission of learners to the system, their progress through the system and the potential value of their learning when they exit the system. Examples of inefficiencies in this regard would include such things as large numbers of talented children of school-going age not in school, or being enrolled in school for the first time when they are either over or under the age norm for first admission or incorrect subject choices leading either to future failure or to limiting the opportunities of those with the potential to succeed in subjects such as Mathematics but who are discouraged from selecting the subject.

For most of the world's developing nations, the initial primary focus of education policy is on achieving universal access to schooling, and post-1994 South Africa was no different in this regard. However, as the country has come closer to achieving the goal of universal access, there has been a shift in focus from universal access to the quality of the education that the public school system provides. The shift in emphasis from access to education, to quality education, has become a common theme in most developing nations.

The South African population is beginning to stabilise as a result of declining fertility rates and the current population growth rate of about 1% annually is predicted to reduce to 0,5% by 2030, according to the report. The declining birth rate will lead to a point when the school-going population will also stabilise and the need for more schools and teachers will also decline. This will make it possible for educational planners to redirect their focus from providing additional resources to meet the growth in demand to providing resources that will support improvements in quality.

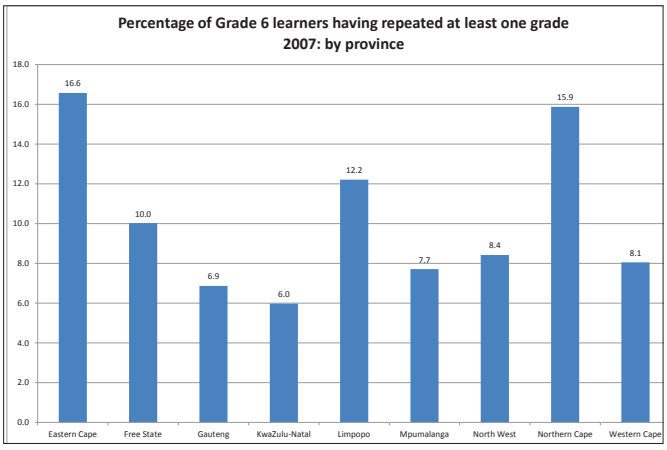
Although much of the focus of the past two decades has been directed mostly at the provision of more schools, classrooms, teachers and textbooks, there are a number of additional factors that have helped make schooling more accessible to the most socio-economically deprived portion of the school-going population. These include the provision of school meals, the introduction and expansion of no-fee schools and the introduction of Grade R classes at increasing numbers of primary schools. The percentage of 7-to-15-year olds in school is now fairly stable across all population groups, varying from a high of 99,2% for the white population to 97,7% for the coloured population group – a variance of just 1,5%. However, the figures for 16-to-18-year olds is rather different, with the proportion of each of the population groups from this age band in school standing at 86,3% for the black population group, 85,6% for the white and Indian population groups and a low 69,1% for the coloured population group in 2011. Interestingly, despite the large variation in the percentage of black and coloured 16-to-18-year olds in school, the proportion of these two population groups who attains matric is very similar at approximately 44%. The figure for whites and Indians is significantly better and stands at about 85%.

One of the major contributors to the inefficiency of the public schooling system is grade repetition. Grade repetition – the process of forcing weak learners to repeat a grade – is not a practice that is common to all education systems. Some countries, including England, Japan, Korea, Finland, Sweden and Norway, have policies that result in the automatic promotion of learners, with weaker learners being earmarked for additional support when they proceed to the next grade. Grade repetition, however, is the norm in many countries, including most African and Asian countries and Western countries such as Australia, France, Germany, the USA and Canada. Both the repeating systems and the automatic promotion systems justify their policy on the expectation that the weak learners will be provided with additional support in the year that follows.

While reducing the extent of repetition and in doing so reducing the numbers of over-age learners in schools may have advantages for the education system it doesn't solve the problem. Rather it shifts the problem from the school system to the labour market, with the learners who are progressed without passing soon joining the ranks of the unemployed and mostly unemployable because of their lack of basic skills.

The average percentage of repeaters across the school system is approximately 10% and there has been a slight decline in this national average from 11,0% in 2010 to 9,8% in 2012. Of concern, however, is the dramatic increase in the number of repeaters in Grades 9, 10 and 11, which for 2012 stood at 14,8% in Grade 9, 21,2% in Grade 10 and 18,0% in Grade 11. Interestingly, data collected from SACMEQ[2] 2 (2000) and SACMEQ 3 (2007) surveys, which test the performance levels of a representative sample of Grade 6 learners from participating countries, show that

South Africa has significantly fewer learners who had repeated at least once by the time they reached Grade 6 than was the case in other participating countries. The figures for SACMEQ 3, which assessed a sample of Grade 6 learners in 2007, gave the percentage of learners who had repeated at least one grade by Grade 6 as 40,3% for all countries other than South Africa, while the figure for South Africa was 28,5%. Within South Africa there are also significant variations provincially in the percentage of learners who repeat. These are illustrated in the below chart and are based on data drawn from the SACMEQ 3 survey.



One of the problematic issues to emerge from the authors' analysis of the SACMEQ 3 data was the weak correlation between learner performance in school Mathematics and grade repetition. One would expect learners who performed well in school Mathematics to be more likely to pass while those who performed poorly to have a greater likelihood of failing. This, however, was not the case, with the analysis of the results suggesting that in some provinces the decisions about which learners should pass and which should be made to repeat a grade were essentially random and completely unrelated to their competence when tested. The authors describe this unconscionable state of affairs as 'random grade repetition' and note that 'it creates a perverse incentive for children against working hard, and serves as an incentive for weak learners to remain longer in the school system in the false hope that they may eventually pass matric'.

Besides the inefficiencies created by poor and unreliable assessment standards and practices that we have described in the previous paragraphs, there are also significant inefficiencies resulting from weaknesses in the subject options available to learners when they progress from Grade 9 to Grade 10 and the factors that influence the subject choices that they make. In many cases these decisions determine whether a learner will exit the school system with a National Senior Certificate or whether they drop out or fail. Perhaps the most critical of these decisions is the choice learners must make between Mathematics and Mathematical Literacy. The authors' analysis of the results learners achieve in these two subjects and the extent to which these correlate with better pass prospects at the end of Grade 12 suggest that better guidance is being given to learners and that this represents an improvement in the efficiency of the schooling system.

Recommendations made in the report

The authors of the report make several recommendations directed at addressing some of the inefficiencies that they identified. These include:

- Guidance and training for teachers on how to use their ANA results as part of their formative assessment of learners and as a diagnostic tool.

- The use of ANA results at Grade 9 level to guide subject choices for Grades 10 to 12.

- The use of ANA results to provide parents with a realistic assessment of their children's performance and of the standard of teaching and learning provided by their school. The authors believe that providing parents with this information will help increase the level of accountability within the system by raising awareness of poor standards of teaching and assessment well before learners reach Grade 12. While the authors raise the possibility that the use of ANA in this way may result in teachers 'teaching to the test' rather than focussing their efforts on teaching to the broader curriculum they suggest that this may still be preferable to the current situation in most schools where curriculum coverage is generally poor.

- The in-service training of teachers to improve both their assessment practices and their content knowledge.

- Better guidance for schools and teachers on repetition decisions so as to ensure that learners who are required to repeat a grade are provided with the support they need to improve in areas where they have shown weaknesses. While the practice of streaming or 'tracking' learners – the term used to describe the process of allocating learners to class groups based on their ability – may be controversial, there is evidence that suggests that teaching learners according to their ability group has some advantages and that it should be considered as an alternative to grade repetition. In essence this would mean progressing learners who had failed into the next grade where they would be grouped together and provided with additional remedial support to address their shortcomings. The authors acknowledge that this approach is likely to be difficult to implement in practice. Problems that they foresee include the inability of teachers to correctly identify the varying proficiencies of these learners together with the extent to which the teachers are able to devote the necessary attention to the differing needs of the learners within this group. Large classes are likely to exacerbate this problem.

- The need to raise the status of non-academic pathways into the labour market. Here the focus needs to be on growing the educational opportunities that can be provided by the FET colleges, through learnerships and technical training.

In their final summing up the authors identify the root of the problem as the poor quality of teaching and learning in the pre-school years (ECD centres and Grade R) and in the Foundation Phase. They stress the importance of early interventions in the pre-school and primary school years so as to improve the acquisition of reading, of basic literacy and basic numeracy and see interventions at this level as being the most cost-effective way of improving educational outcomes in the latter years of schooling.

Notes and references

1. Taylor, S. et al. *The Internal Efficiency of the School System: A report on selected aspects of access to education, grade repetition and learner performance*, Department of Basic Education, October 2013.
2. SACMEQ is an abbreviation for the Southern and Eastern African Consortium for Monitoring Educational Quality. It surveys the Mathematics and reading achievement levels of Grade 6 learners from 15 Southern and Eastern African education systems.

Managing the implementation of school IMPROVEMENT EFFORTS

In an article published in SEEN[1] magazine, Jason La Turner and Dale Lewis[2] argue that for school improvement programmes to be successful school leaders need to do more than simply adopting the programme and training their staff in its use and methodology. From their work as consultants and evaluators of school improvement programmes they have identified five factors that they consider to be key elements in the successful implementation of any school improvement initiative, particularly those formulated at district level.

Their insights into some of the challenges associated with the introduction of school improvement initiatives, particularly those imposed on schools by officials at provincial and district level, resonated with some of our experience of why these kinds of interventions often fail to achieve their stated objectives. The factors that the authors consider to be essential elements of any school improvement efforts are listed below.

1. Adopting a programme is not enough, it needs to be implemented

The example that the authors offer as explanation for the need for an effective implementation strategy is particularly apt as it describes a project initiated by a district to provide all teachers with tablet computers. In their scenario, the district devotes a significant amount of time and money to the process of selecting the appropriate device, to purchasing the devices for schools and in providing training for teachers in the use of the tablets in the form of a one-day workshop. School principals are not involved in this process and assume when their teachers return to their schools with their tablets that they will be used in a way that will be of benefit to their students. Some months later when curriculum specialists from the districts return to the schools in a effort to assess the extent to which teachers have made use of the tablets in their teaching, and whether their students have benefitted from this, they are surprised to discover that in most schools very little has changed.

What I found fascinating about this scenario was that it mirrored almost exactly my experience of the decision by the WCED to provide their principals with tablet computers at the end of 2012 and how few of the principals that I encounter, now more than 12 months later, make use of them on a daily basis or even at all. There are a number of reasons for this including the absence of WiFi connectivity at many schools and, I was interested to discover, the absence of any kind of Internet access at the homes of these same principals. School principals, who are not used to using the Internet or mobile phone networks for anything other than social networking, are unlikely to change their ways in response to being provided with a tablet. The attempted but now stalled roll-out of subsidised laptops for teachers by the DBE, probably failed to deliver on its original purpose for the same reason.

For the implementation process to be successful, the purpose of the programme needs not only to be clearly articulated but also to be managed in a way that ensures that the leadership of the schools involved understand this purpose and are themselves trained on how to manage and guide the implementation of the programme at school level.

2. Understand that change is personal

Most people struggle with change, including those who are expected to implement new innovations or changed processes. The response of individuals to change varies greatly – those who dislike risk or fear failure tend to become anxious partly out of concern for how change may affect them personally. Even those who like to experiment and who enjoy the challenge of new ideas and approaches are likely

to experience increased levels of stress as they engage with unfamiliar ideas and practices and battle to master them in their schools and classrooms.

Learning to manage and drive change are critical skills that teachers and school leaders must be helped to acquire as part of their professional development. The support of an experienced mentor or coach who can provide guidance and allay fears can be helpful in this regard. Creating time for small group discussion where concerns can be aired and the challenges shared also help alleviate some of the fears that people may have about change and its impact on them and their work.

3. Define the change

It is important that individuals or groups involved in a change process have a clear idea of what the change will look like and/or how they will experience it once it is operational. Defining the change should include descriptions and explanations of the kinds of behaviours that will be expected, together with measures that may be used to assess the extent to which new processes and behaviours have been adopted.

So, for example, if a school or district decides to introduce new forms of assessment, teachers need to be provided with a range of practical examples of the assessment instrument together with examples of how and when it should be used to assess the performance of learners. They should also be given opportunities to test-drive the assessment instrument on their own classes and to evaluate their effectiveness relative to the forms of assessment that they have used in the past.

4. Use data, before, during and after implementation

It is impossible to properly evaluate the effectiveness of any intervention if you don't collect the data that you will need to assess the extent to which the intervention has produced measurable change, either in performance or in patterns of behaviour. Ongoing assessment and analysis of performance data through the various phases of an intervention also make it possible to identify systemic weaknesses and unexpected obstacles that may be encountered during the implementation process, and to deal with them before they derail the entire programme.

There are many examples of interventions that are abandoned in the early phases of their implementation when the expected change in behaviour or improvement in performance does not materialise. This is an error and reflects a lack of understanding of the varying factors that are likely to either support or hinder the change processes. A proper evaluation of progress in the implementation of an intervention and of its effectiveness needs to be based on hard evidence derived from an analysis of data drawn from a range of factors that are likely to impact on the implementation process and on the expected outcomes. So, for example, an intervention that has as its goal the improvement of learner performance in the Grade 4 Annual National Assessment (ANA) Mathematics tests and that aims to achieve this goal through off-site skills training of Grade 4 teachers would need to gather evidence not just of the learners' Mathematics scores but also of the extent to which their teachers are implementing the content knowledge and pedagogy that they have been taught in their training. We have used this example deliberately because the unwillingness of teachers to use what they have been taught in training is a common feature of this kind of intervention. This kind of failure can be avoided if the intervention process includes post-training classroom observation to assess the extent to which teachers are using what they have been taught.

Data-analysis also makes it possible to identify programme weaknesses and to act to remedy these through further linked interventions.

5. Commit for the long haul

Schools and school districts are notoriously difficult to change partly because their systems and processes are deeply entrenched in centuries-old bureaucratic traditions and rituals. To achieve sustained change, the systems and processes that are required to support any new programme need to be thoroughly bedded down to the point where they become an integral part of the school's or district's bureaucracy. This takes time and effort and is the reason why most quick-fix solutions fail and why it is important to rigorously interrogate the programmes and claims of those who seek to promote new ways of teaching and learning or of schooling. The disastrous impact of our failure to properly interrogate the outcomes-based curriculum model that was the basis of Curriculum 2005 together with our failure to fully appreciate the demands that its implementation would make on our structurally fragmented schooling system has cost this country dearly. One just hopes that lessons have been learnt and that any proposed future intervention whether at national, provincial, district or school level are thoroughly interrogated, in terms of their content, in terms of their structure and in terms of the effectiveness and cost of their implementation strategy.

Notes

1. *SEEN* is a magazine published by The South Eastern Education Network (SEEN), which has as its mission 'to invigorate the spirit of American education' with a focus on addressing the needs of educators who live and work in the southeastern states of the USA.
   For more information go to ***http://www.seenmagazine.us/***
2. Authors Jason La Turner and Dale Lewis work for SEDL as a research associate and project director, respectively. Originally named the Southwest Educational Development Laboratory, from which its new name 'SEDL' is derived, the organisation has been in operation for nearly 50 years. Its current focus is on strengthening the links between research, policy and practice as a means of improving learner outcomes.
   For more information go to ***http://www.sedl.org***

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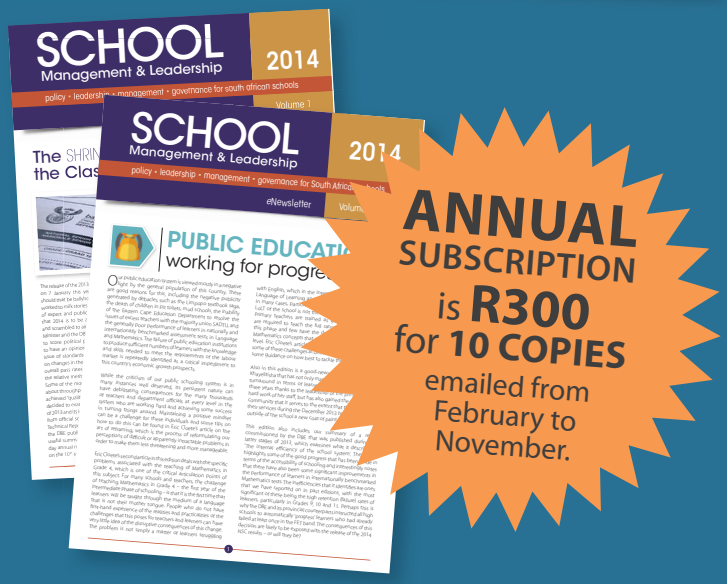

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