Province of the
EASTERN CAPE
EDUCATION

Trends In Mathematics and Science Study (TIMSS)

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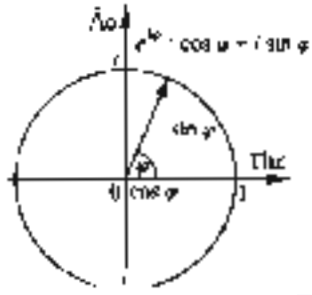
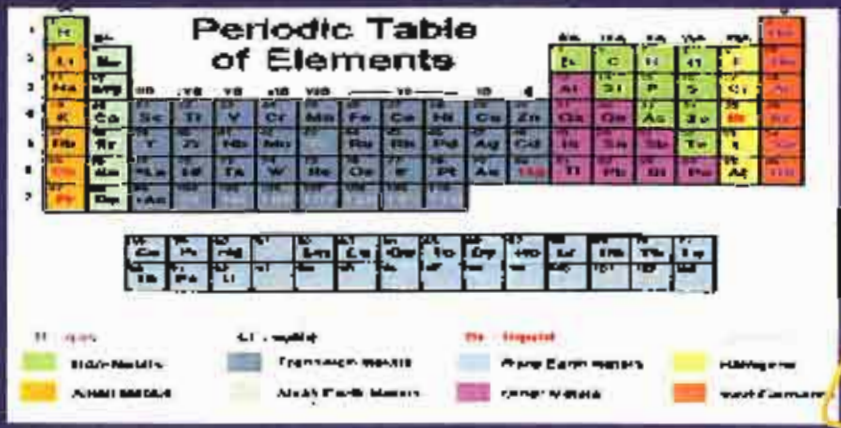


Provincial Report 2015/16
Directorate: Quality Promotion and Standards (QP & S)



FOREWORD

The National Development Plan's Education Vision embraces, *inter alia*, the following four (4) long-term goals for the Basic Education Sector, which should be achieved by 2030

- Improving literacy/languages, numeracy/mathematics and science outcomes to **90%**,
- Increasing the number of learners eligible to study mathematics and science-based degrees at university to 450 000 (of which the Eastern Cape's (EC) portion amounts to **58 500**);
- Improving performance in international comparative studies i.e. Southern African Consortium for measuring Educational Quality (SACMEQ) Grade 6 results from **495** to **600** points by **2022**, and TIMSS Grade 8 scores from **264** to **420** points by **2023**.
- Retaining more learners - between **80** to **90%** completion rate in secondary schools

According to the National Education Evaluation and Development Unit (NEEDU) report of 2014, it is widely known that South African schools perform below expectations. This could be due to a number of reasons for which each would need some form of intervention. If, for instance, the dominant cause of learner under-performance is linked to teachers being unable to deliver the curriculum, then the systemic focus should be on capacitating teachers, through strengthening their knowledge resources. The NEEDU evaluators further claim that any school can improve the average level of its own capacity merely by sharing the knowledge held by the best teachers. This is ideal for internal staff development, led by the School Management Team (SMT), where two teachers, together with others at the same grade level, learn from each other through lesson observation, team teaching and mentoring. Yet those practices were seen in a small minority of schools.

The onus is therefore on teachers to equip our learners adequately as their results represent learner performance in South Africa. To enable teachers to do this effectively, District Officials need to advocate the study at the schools and ensure that the exemplars provided to district offices, are delivered timeously. Failure to do this denies our learners a fair opportunity to write the tests with confidence as many of them may find themselves plunged into unfamiliar territory.

The World Economic Forum (WEF) 5th Financial Development Report states that the **greater** the number of South Africans who score well at mathematics and science, the **stronger** will be our human capital, and the **better** our **capacity** to drive economic growth in the country.

This study, TIMSS (Trends in International Mathematics and Science Study) is a cross-national assessment of Mathematics and Science knowledge conducted by the International Association for the Evaluation of Educational Achievement (IEA) since 1995. It uses results from achievement tests and questionnaires conducted with principals, teachers and learners to determine achievement scores and contextual factors relevant to learner's achievement. Schools are selected on the basis of their province, the Language of Learning and Teaching (LoLT) and public or private status by using a stratified sampling methodology. TIMSS offers participating nations the opportunity to compare educational achievement across borders and provides South Africa with the opportunity to benchmark itself against other countries. South African Grade 9 level scored 285 in 2002 and 352 in 2011. This shows that in 2011 there was an improvement which emanates from an effort by the Department of Education on the part of the learners and teachers. The level and the rate of progression gave some expectation to HSRC of a 30 points rise which will make 382 in 2015.To their surprise in TIMSS 2012 learners scored above 400 points. This is a significant development that opened a window for learners to follow science and technology careers.

Once again Grade 9 learners from sampled schools across the Districts participated in this study towards the end of 2015. The officials at Provincial level (specifically from the Sub-Directorate Comprehensive Systemic Evaluation) located in the Quality Promotion and

Standards Directorate) as well as officials at District level were required to support the Department of Basic Education (DBE) in the preparations to ensure the successful roll-out thereof by coordinating the study within the Province in Clusters A, B and C and the sampled schools.

Whilst we might have made some gains with regard to learner progress in mathematics and science, we still have a long way to go. Progress tends to be slow and unless a concerted effort is made to address this, some key goals will not be achieved. Averting that danger is crucial, not just because education is a basic human right, but because it is vital to create sound learning opportunities to prevent most of our learners from completing their schooling and therefore finding themselves trapped in a cycle of poverty. Furthermore, we need to help drive progress towards all the Millennium Developmental Goals.

This internal report offers an overview of the findings made during the monitoring and supporting period whilst the study was rolled out in the Province. It does not in any way aim to be a substitute for the comprehensive report that is being awaited from DBE in 2017.

As change agents, let us as teachers and officials continue to work diligently, both inside and outside the classroom, to improve learner performance across the grades. Remember "**hard work alone will accomplish remarkable results. But hard work with method and system will perform seeming miracles.**" (W.C. Holman)

G.F. MAC MASTER
ACTING DEPUTY DIRECTOR-GENERAL: EDUCATION PLANNING EVALUATION AND MONITORING

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ACRONYMS

CSE	Comprehensive Systemic Evaluation
DBE	Department of Basic Education
DST	District Support Team
ECD/GET	Early Childhood Development and general Education and Training
EC	Eastern Cape
HSRC	Human Sciences Research Council
IEA	International Association for the Evaluation of Educational Achievement
LoLT	Language of Learning and Teaching
NDP	National Development Plan
QLTC	Quality of Teaching and Learning Committee
QP&S	Quality Promotion and Standards
SACMEQ	South African Consortium for Measuring Educational Quality
TIMSS	Trends in International Mathematics and Science Study
WEF	World Economic Forum

BACKGROUND

1.1 WHAT IS TIMSS?

The Trends in International Mathematics and Science Study-Grade 9 (TIMSS) 2015 is an international study which assesses achievement of Grade 9 learners in Mathematics and Science. The Human Sciences Research Council (HSRC) is managing this study in South Africa on behalf of the Department of Basic Education (DBE).

1.2 THE PURPOSE OF TIMSS:

To allow South Africa to continue benchmarking learner performance at the Senior Phase (Grade 9) against learner performance in other countries in Mathematics. the Department of Basic education (DBE) decided that South Africa would participate in TIMSS 2015.

1.3 WHY IS THE STUDY IMPORTANT TO SOUTH AFRICAN SCHOOLS?

The results from the 300 main test schools will help DBE and HSRC to represent our country and "show off" its best. They will experience first-hand how a large study such as this is conducted. They will also learn how the items of achievement and contextual questionnaires are constructed and administered and see some of the curriculum contents that learners all over the world are expected to master. This experience should enhance their confidence and strengthen their future aspirations.

1.4HOWMANY SCHOOLS ARE PART OF THE STUDY IN THE EASTERN CAPE?

A sample of 36 schools for TIMSS across districts is identified in the Province of the Eastern Cape, The districts identified are as follows: Maluti, Sterkspruit, Port Elizabeth, Uitenhage. Lusikisiki. Libode, Queenstown, Mthatha. Dutywa. Qumbu. Mbizana. Graaff-Reinet. East London. King William's Town and Mount Frere.

1.VALUE OF TIMSS

The study provides an opportunity to see how our schooling system is performing overtime and in comparison with other systems. Note that the nature and the design of TIMSS as an international study does not allow giving any results to individual learners or schools afterwards. Overall findings become available in participating countries and international reports in due time. As these are important subjects in the schooling of our learners, the EC Provincial office, however, has seen it important to have a snap shot of the performance of learners, as well as the kind of support and development needed for the teachers of Mathematics and Natural Sciences by producing an internal provincial report.

2.TIMSS INSTRUMENTS USED IN COLLECTING INFORMATION

- **Achievement questionnaires**
- **Background: having questions on:-**
  - Demographic information
  - **Student** Language use
  - **Household** items (educational and socio-economic)
  - Attitudes to being at school
  - **Bullying**
  - Attitudes to mathematics and Science lessons

- **Home questionnaire for parents/ caregivers: having questions on:-**
  - Early childhood development activities
  - Language usage
  - Early childhood proficiency in written language
  - Attitudes to education and the school
  - Socio-economic information
  -

- **Teacher Questionnaire**
  This questionnaire was designed to check the knowledge as well as to assess challenges in teaching and learning of the subject

- **School Questionnaire**
  Collected data on all aspects of the school as an institute that has to offer teaching and learning

- **Curriculum Questionnaire**
  Collect data on knowledge relevance and the quality of teaching and learning.

3. SELECTED DISTRICTS AND SCHOOLS

A sample of 36 schools in 15 districts is identified in the Province of the Eastern Cape

SAMPLED DISTRICTS IN CLUSTERS

CLUSTER A

DISTRICTS	SCHOOLS
Mount Frere	Blorweni J.S.S Upper Mntwana J.S.S.
Lusikisiki	Hlwahlwazi J.S.S Ludiwane J.S.S Cabazana J.S.S
Libode	Ithombo J.S.S Jokwana J.S.S Moyakhe J.S.S Zamdola J.S.S.
Maluti	Mahlubi J.S.S Makhoba J.S.S Maluti J.S.S. Tsikarong J.S.S.
Mbizana	Nonkqubela J.S.S
Qumbu	Roseland Private School.

CLUSTER B

DISTRICTS	SCHOOLS
Mthatha	Edukid Independent School
	Siseko Private School
	Pangindlela J.S.S
Sterkspruit	Bishop Demont S.S.S
	Lady Grey Arts Academy
Dutywa	Ntlahlane J.S.S
Queenstown	Olivett Private School
	Queenstown Girls High

N.B. Fewer schools were sampled for Cluster B in comparison with Clusters A and C

CLUSTER C

DISTRICTS	SCHOOLS
East London	Alphendale S.S.S
	Beaconhurst School
	Wongalethu High School
Port Elizabeth	Chatty Secondary School
	Gelvandale S S S
	James Jolobe S.S.S
	Ncedo S S S
	Paterson High School
	St James (RC) S.S.S
	Westville S.S.S
King William's Town	Esigubudwini J S.S
Uitenhage	John Walton **S.S.S**
Graaff-Reinet	Willowmore S.S.S

4. TEST ADMINISTRATION AND MONITORING:

Once again the HSRC appointed service providers to deal with the administration of the tests

These administrators were expected to do the following:

- Arrange a pre-visit or a pre-meeting with the specific schools where they were required to administer the tests
- Agree on the date and time of the meeting

In this meeting, they were required to deal with the following aspects:

- Brief the staff on the study
- Explain different roles and responsibilities for different members of the staff
- Agree on the date of the actual administration
- Provide a brief explanation on the importance of filling in the contextual questionnaires
- Advise the staff of the importance of raising the awareness of all the relevant stakeholders who will be required to participate in or support the roll-out of the study
- Sensitize the phase or grade head and the grade teachers of whatever documents they will need from them on the day of administration
- Explain how the classroom to be used on that day should be arranged
- How learners should be organized/ prepared for the administration
- Importance of the presence of all learners, teachers and management on the day of administration.
- Discuss the time-table for the day of administration with the staff so as to accommodate other schools activities
- How many classes will participate in each school e.g. only one Grade 9 class to take part in the tests
- At least 90% of the selected class must participate in the test

On the day of administration:

- Prior to the actual day of administration, the Provincial office staff had to compile a monitoring instrument.
- Province and district staff had to monitor to check if the administration was done according to the prescripts and all observations had to be captured in the monitoring tool. e.g

  - Learner performance over the past three consecutive years (i.e. 2012-2014)
  - Qualifications of the Mathematics and Science teacher
  - Teacher development in Mathematics and Science
  - The status of resources in the school to support teaching and learning of Mathematics and Science.
  - Details of the school
  - Readiness for the study
  - Comments by the Principal or coordinator

- Observations done by the monitor during administration
- Administrators' comments
- Learners responses to questions
- General comments from the monitors about the day of administration

5. TIMELINES FOR TIMSS GRADE 9: 2015

- Main Data collection - 17 – 28 August 2015
- Data coding, capturing and cleaning
- Data back from IEA
- Release of international results
- Further Data analysis and reporting

6. TRENDS IN SOUTH AFRICAN MATHEMATICS AND SCIENCE ACHIEVEMENT

Much is written in the media about South Africa's mathematics and science skills – or lack thereof. In a recent report, the World Economic Forum (WEF) ranked South Africa 62nd out of 62 countries – alone last – on the pillar measuring the quality of mathematics and science education. This pillar, along with six others, makes up an index analyzing the competitiveness of a country's financial system.

Importantly, how well a country performs in mathematics and sciences is a predictor of economic growth, as it points to the quality of the human capital pool. This predicts a dismal picture. If, however, we look more closely, we see more than a faint glimmer of hope.

7. FACTORS SHAPING ACHIEVEMENT IN MATHEMATICS AND SCIENCE

Recently, the latest Trends in Mathematics and Science Study (TIMSS) highlighted South African learners' performance in relation to their overseas counterparts. While it is encouraging to see steady improvement in their scores on the scale, South African learners still rank at the **lowest end of the scale** for both mathematics and science.

TIMSS 2011 did not merely quantify scores, but also provided background to the learning environment, in particular, factors influencing academic achievement at school, including the school environment, teacher qualifications, and home language.

8. ACHIEVEMENT SCORES

While TIMSS gives us insight into how we are performing internationally, it's equally insightful into South Africa's unique situation on a national level. Scores reflect the dual nature of South African society – learners from well-resourced, more affluent schools produce better results than learners from under-resourced, less affluent schools. So, while the best performing South African learners remain competitive with top performing countries, those at the lower end of the spectrum fall short. However, TIMSS 2011 highlights a most encouraging sign. The greatest improvement in scores is observed at the lower end, in schools formerly designated for black children and in the lowest performing provinces. However, whilst these schools are showing decent improvement, South Africa's elite schools do not appear to be following suit. Thus, the gap between the highest scores and the lowest scores (the range) is closing, pointing out a small move towards more equitable educational outcomes, and proving the value in continued investment in interventions aimed at less-resourced schools and lower-income households.

9. THE SCHOOL ENVIRONMENT

A positive classroom environment, one in which children feel safe and nurtured, is essential to learning. Children also benefit from **order** and **structure**: free from disruptions and chaos, they're free to take in and think about what is being presented to them in class. Unfortunately, TIMSS 2011 indicates that **school safety** and the **degree of order** in South African schools are significant concerns for school principals.

Whilst just **18%** of principals in other countries rated school discipline and concern as a moderate problem, **41%** of South African principals indicated the same. Yet more evidence that the climate at South African schools is **less than ideal** for learning compared with **45%** of international mathematics teachers rating their schools as '**safe**', only **21%** of South African mathematics teachers feel the same way.

Then there's **bullying** – a scourge the world over. A staggering **75%** of South African children report being the victim of bullying at some stage in their school careers. According to the TIMSS report, only **41%** of children in other countries reported the same. Also, as the University of California's School Mental Health Project points out, **bullying can be a major barrier to learning.**

10. TEACHER QUALIFICATIONS

It seems elementary but, to promote effective learning, one needs to promote effective teaching. Central to this tenet is well-qualified teachers who not only understand their subject matter, but have the ability to put it across in an easy-to-grasp manner. A study by the UK's National Research and Development Centre for Adult Literacy and Numeracy supports the link between better-qualified teachers and learners who make the best progress. Furthermore, the study reveals that learners make more progress if their teachers have a degree or post-graduate degree in their subject of specialization.

Given this, how do South African teachers fare in the qualification stakes? Regrettably, we fall behind the international benchmark in terms of qualifications, with just 60% of mathematics learners and 53% of science learners being taught by degreed teachers. If we compare this to the international average of 87% for mathematics and 90% for science, we cannot ignore the need for urgent improvement in teacher upgrading.

11. THE HOME ENVIRONMENT

Many studies indicate that parents' education boosts achievement in their children. The Institute for Social Research at the University of Michigan, USA, takes it one step further, reporting that children benefit more from their parents having a good education than they do from having parents in well-paid jobs.

TIMSS supports the findings of such research, reporting a strong positive correlation between the level of education of parents and their children's academic achievement, the higher qualified the parents are, the stronger a child's academic performance. Here, we are making inroads. In 2002, just 11% of South African learners had a parent or caregiver with a degree; in 2011 this figure had risen to 19%. However, it still falls short of the international average of 32%.

12. HOME LANGUAGE

Can you imagine trying to get your head around difficult subject matter when you are not fluent in the language of instruction? Sadly, this is the reality for many learners in South Africa.

Unsurprisingly, TIMSS shows that mathematics and science scores are lower in countries where the home language is different to the language in which one is

required to take tests (the test language) **Only 26%** of South African learners '***almost* always *or* always**' speak the test language at home.

13. GRADE 9 MATHEMATICS PERFORMANCE FROM 2013 TO 2015

Overall performance in this class, measured through **the mean score**, was **54, 4%** which was relatively acceptable but still leaves room for improvement. The **median** score for the class was **56%** which means that **half** of the learners obtained scores **above 56%** and another **half** obtained scores below **56%**.

Although the mean and median scores were both above 50%, learner scores ranged between eight percent **(8%)** and **100%** which is a fairly wide range that suggests **diverse abilities** in this class. This implies that **intervention strategies** will have to be **diversified** in order to meet the **learning** needs of different learners. i.e. a one-size-fits-all improvement strategy will not work in this class.

Individual learners who were identified to be particularly at risk have been indicated with red colour coding. They obtained **scores below 40%** and thus fall within the **"Not achieved"** and **"Elementary achievement"** levels. They require special attention in terms of teaching strategies and learning opportunities.

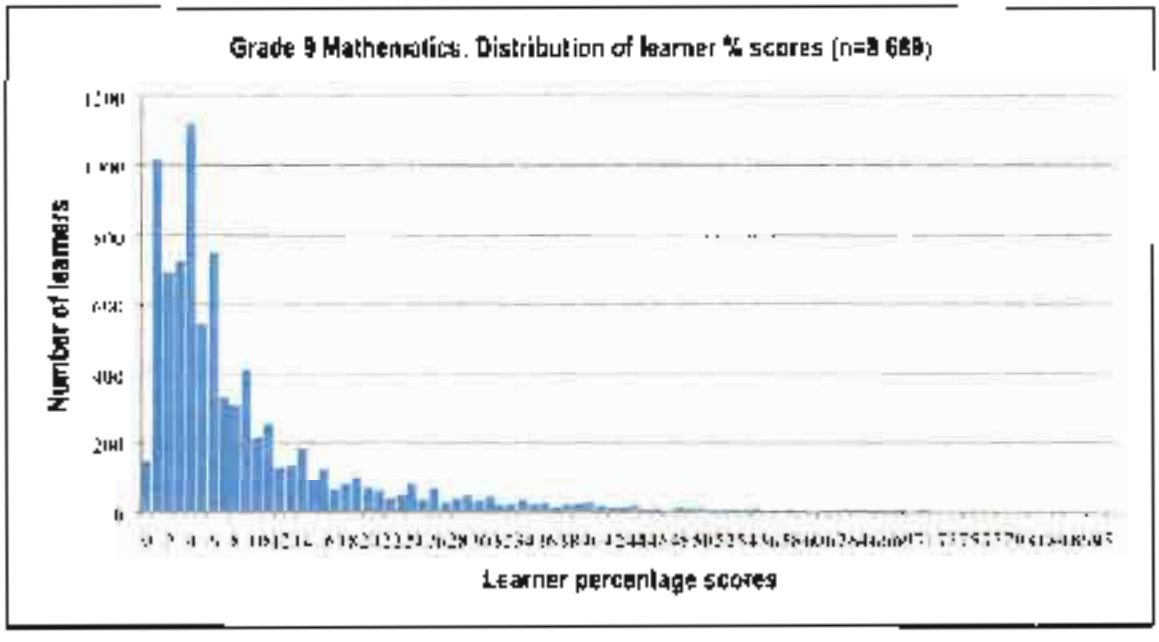

Figure 1: Grade 9 Mathematics: Distribution of learner%

The learner scores in Grade 9 Mathematics ranged from **0% to 99%** and the **modal** score (**i.e. the score most frequently attained by learners**) was 4%.

Overall, it can be observed that the distribution of learner scores in mathematics progressively shifts towards the **lower end of the scale**. All interventions must seek to correct this pattern.

The specific areas of strength and weakness displayed by Grade 9 learners have been summarised in Table 2.1.

14. Table1: Summary of learner strengths and weaknesses in Grade 9 mathematics

AREAS OF WEAKNESS	AREAS OF STRENGTH
Learner responses showed weaknesses in the following areas: • Circumference and area of a circle; • Perimeter and area of a trapezium; • Congruency and similarity deductions, • Angles opposite equal sides of a triangle; • Lowest Common Multiple; • Square root and Cube root; • Direct and indirect proportion; • Terminology and definitions in geometry, • Factorisation; • Multiplication of fractions, • Determination of the gradient and the equation of a straight line; • Squaring of binomials: • Products of binomials: • Quadratic equations: • Equations involving fractions; • Determination of the general term; • Determining the coordinates of a point; • Addition and subtraction of fractions; • Percentages; • Angle relationships in parallel lines; • Exponents; and, • Theorem of Pythagoras.	**Questions on the following areas were reasonably well answered:** Writing out in scientific notation: Finding the ratio of a given quantity; and Completing a number sequence.

From the above table, it is observed that there are a number of areas where learners require urgent support and remediation. As was the case in 2013, the learners found

topics on Geometry difficult to answer. There were only a few areas where questions were answered well

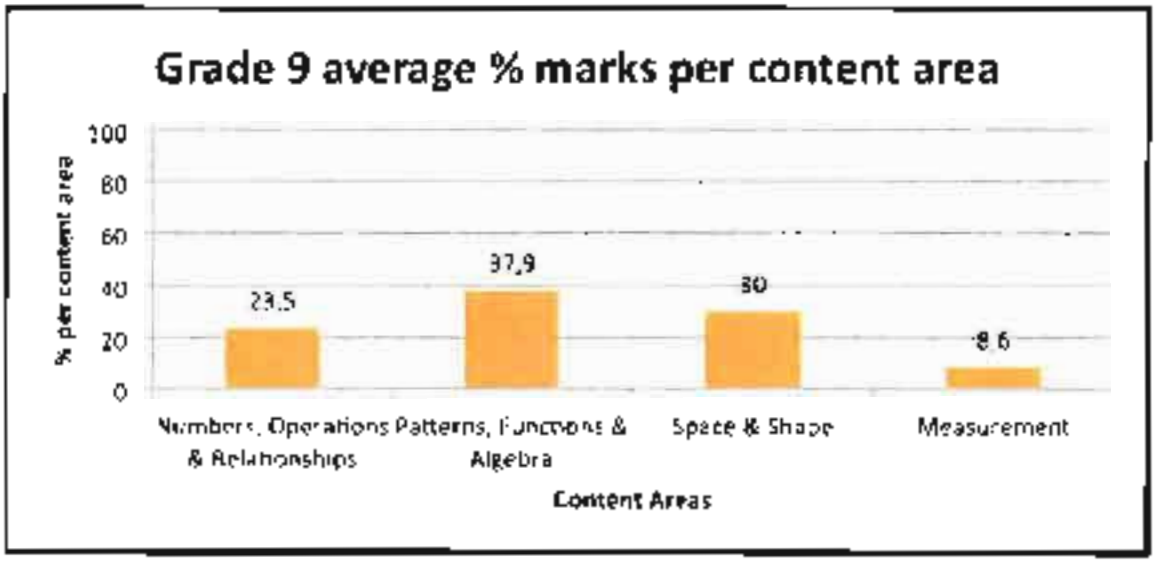

Figure 2: Grade 9 average % marks per content area

Figure 2 indicates that Grade 9 learners experienced the greatest difficulty in responding to questions on **"Measurement"**.

The second area of marked difficulty as experienced by learners was **"Numbers, Operations and Relationships"**. Learners found questions in **"Patterns, Functions and Algebra"** relatively easier to respond to. This pattern of performance ***has not changed*** since the diagnostic analysis that was done in ANA 2013, suggesting that any remediation strategies implemented in Grade 9 need to be **strengthened** and **perhaps extended across the phase.**

15. REMEDIATION

The purpose of this remediation is to establish a firm foundation on which to build further knowledge and the application thereof.

- Revise the concepts dealt with in Grade 8 and reinforce the understanding of **foundational skills and knowledge** including relationships between angles formed by perpendicular lines, intersecting lines, and parallel lines cut by a transversal

- **Geometry concepts** such as complementary, supplementary angles, adjacent complementary, adjacent supplementary, vertically opposite, corresponding, alternate, and co-interior angles should be clearly defined to enhance understanding before learners can apply them

- Make learners aware that the **skills** used in **Algebra** are also applicable in **Geometry** calculations, e.g. the mathematical procedures used to solve algebraic equations are also applicable when determining the size of an angle in Geometry

- Revise the angle relationships using relevant diagrams. Ensure that learners know how to **write** a reason, using **correct** Geometry language, for each statement

- The **practical use** of the Theorem of Pythagoras should be emphasized. More attention should be given to the **meaning** of the **perimeters** and **areas** of 2-D shapes. The **structure** of the **formulae** for determining the areas of the squares, rectangles, triangles, circles, parallelograms, trapeziums and rhomb should be dealt with in detail. This is essential pre-knowledge for calculating surface areas and volumes of 3-D prisms. Emphasize ***cm*** that is a unit of length, cm^2 is a unit of area and cm^3 is a unit of volume

16. RECOMMENDATIONS

- **Create safe and ordered** learning environments where children feel cared for and supported
- The **ongoing education** and **training** of teachers themselves to adequately equip them to teach the concepts learners struggle with
- **Language skills** in the medium of instruction (or promote mother tongue teaching – it is a contentious debate which has raged in South Africa for decades)
- **Promote adult literacy** and **numeracy**, since the effects of a good education 'rub off' on younger generations
- Good communication between teachers and learners must be established so that learners are not fearful to indicate when they do not understand aspects of the work done
- Parenting at home - parents have a responsibility to educate and socialize their children while teachers get on with the job of delivering a quality curriculum
- Allow learners the opportunity to discover and sharpen their skills through doing practical work or problem-solving in groups or sometimes as individuals
- Peer tutoring should be encouraged

- Schools are encouraged to form partnerships with other nearby schools so that educators are able to **share** their skills which would lead to better comprehension of aspects that are not easily understood by the learners
- Schools should implement consistently decisions arrived at by QTLCs as this could equip teachers with appropriate mathematics and science skills
- Involve parents and communities in the activities of the school. In South Africa, where parents and communities are involved, learner success is seen more frequently. Dr Al, from the Centre for the Community School at the Nelson Mandela Metropolitan University, expanded the definition of '**community**' to include universities such as his own, which works with the Eastern Cape's Manyano community schools network

17. SUCCESS STORIES WITHIN THE EASTERN CAPE

17.1 Quality teaching and learning

One such leader is Lamile Fatein, principal of Limekhaya High School in Uitenhage's Kwa-Langa township in the Eastern Cape. Faltein highlighted the challenges at the school, rebuilt in 1995 after a 1976 fire. Reviewing dismal Matric results, Faltein remembers thinking, "***there must be challenges I don't know about***". He asked previous learners to complete questionnaires about their experience at the school and learnt that many of them **were not able to complete their exams** because their **teachers were ill-equipped** to teach them.

To remedy the situation, Faltein invited in experts to ensure his staff had the knowledge base necessary for their subjects. With these helping hands, teachers at the school are now formally accountable to the school's governing body and Faltein has instituted measures such as class visits to monitor teachers' lesson preparation.

Limekhaya High **School's vision reads:**

"We strive to provide a quality education service to produce balanced learners who will play a leading role in advancing the respect of human rights and the economic development of the country."

18. PERSONAL DEVELOPMENT MEANS PROFESSIONAL DEVELOPMENT

Welch, teacher education specialist at the South African Institute for Distance Education, supported this point by highlighting the *importance of teacher development in the overall improvement of the education system.*

"***It is on the professionalism of individual teachers and schools that system-wide improvement is built,***" she said.

She also pointed out that teacher development does not start and end with student teacher education. Rather, it's a process that should continue throughout a teacher's career, right up to retirement. For Welch, ***personal development of the teacher means development of the profession.***

There is a tension between those who favour system-wide improvement and those who want to leave to teachers the responsibility for determining the development they want," she said, "but these are not mutually exclusive."

19. ABOUT ADMINISTRATION AND MONITORING

The importance of conducting **advocacy** cannot be emphasized enough (both at Provincial, district and school level). Budget constraints to a certain extent impacted negatively on the smooth running of the administration of the tests as was evident at some of the schools that were monitored during this period.

There were instances where administrators arrived at the school and found that in terms of learner attendance, he/she was **unable to meet the target** in accordance with prescripts. The administrator was then obliged to ask the school coordinator to **fetch the absentees** from home or return to the school on another day to administer the test to learners who were absent on the original date which was targeted for the specific school. In one specific instance, **12 learners** were absent from the class of sampled learners on the original date. This could mean that parents were also unaware of what was going to take place.

At certain schools, it was evident that principals and teachers **did not understand** the **significance** of the study as the **noise level** outside the classroom where the learners were writing the tests was very high for extended periods of time. Furthermore the **lack of discipline** as displayed in learner behaviour when they change classes is a grave concern. It is unlikely that our learners who are representing South Africa in these tests would be able to give of their best if they are expected to write in such appalling conditions. In one examination venue at a specific school, the floor had **litter strewn** on it in places, some **windows** were broken and handles were missing from the frames. No effort had been made to sweep the venue to make it conducive to examination conditions. The school appears to be in dire need of general maintenance.

In one instance the administrator reported that he did not get much cooperation from the teachers at the school on his arrival. Teachers **refused** to complete the

questionnaires that were given to them. It was only after the officials from the Provincial office visited the school and explained what TIMSS was about and how our schools and learners would ultimately benefit from the study, that the exercise was viewed in a positive light. Initially, the teachers were unhappy about the fact that the class that was sampled at their school happened to consist mainly of those learners who were experiencing barriers to learning. The teachers felt that the outcome of their results would reflect badly on them as well as on the school.

In the absence of budget, the Comprehensive Systemic Sub-directorate had to depend on district officials who were attending a meeting in East London to take envelopes with exemplars and letters back to their respective districts, so that the relevant officials would be able to deliver and explain to the teachers at the sample schools the importance of working through these with the learners in preparation for this international test. Our learners were at a serious disadvantage in cases where the exemplars did not reach the schools.

20. GENERAL FINDINGS

20.1 Readiness for the study

The service providers contacted the schools telephonically. Most schools were contacted just a day before the actual administration. Many of the schools do not have classrooms that are conducive to learning. Some classrooms are overcrowded and the furniture is insufficient. A few schools held a briefing for the parents and others did not. Some schools have received the exemplars and some did not receive them.

20.2 Observations done by the monitor in and outside the classroom

In some schools a lack of discipline was observed as learners were making a noise and disturbing others. There were instances where learners from other classes were playing outside even during tuition time. A few schools had gross absenteeism. Administrators had to go back to those so as to administer questionnaires again. Instruments were written in the right Lolt that schools have chosen. Most learners could not finish their papers within the given time. The language used in the questionnaire was appropriate for the grade. In cases where learners tried to communicate with others, the test administrators intervened immediately as that was unacceptable in a test room. Test administrators conducted the administration efficiently. There were no disturbances except for cases of absenteeism on the part of both teachers and learners. A shortage of teachers has been observed in some schools e.g. a school starts from Grade R to 9 having a roll of 116 learners and only two teachers are employed in the school; two SGB posts and 1 Grade R teacher.

Possibly as a result of this throughout the two tests, only two learners out of nine managed to finish writing their tests.

20.3 Learners views about the papers

In most schools learners would complain about different questions that were difficult for them. Complaints differed amongst them as they were interacting with different questionnaires (meaning that although similar concepts were tested, questionnaires differed from one another). One learner complained about the parts of the body that she does not understand in Natural Science. Most of the learners complained that the allocated time given for NS was not enough.

20.4 Principal and Monitors comments

Most principals reported that they did not know what was to be done. They did not get the exemplars or any information about the study from their district office. The service providers only called to tell them about the date they would be coming to administer the tests in their schools and nothing more. However, when the service provider reached the school, everything went well. Contextual questionnaires were filled and returned to the administrator's with exceptions for those teachers who were absent.

20.5 Monitors comments were:

- The administrators continued with administration as per time table and followed the prescripts of the tests
- Schools were not 100% prepared for the assessments
- Administrators attended to learners' questions in an appropriate manner
- All the schools that were in the sample participated
- The staff within the schools cooperated with the test administrators
- Data was collected within the internationally set time frame

20.6 HIGHLIGHTS

- Test Administrators were punctual at the schools that were monitored
- In some schools learners were able to finish long before the time expired
- Most schools had classrooms prepared for the tests
- Teachers are of the view that these tests will assist the learners in being exposed to different kinds of questioning
- Provincial officials fully assisted the HSRC in getting relevant data from sampled schools where they experience difficulty in accessing information.

20.7 CHALLENGES

- Advocacy was not done in many of the sample schools. This resulted in staff members not fully understanding the significance of the study
- Although schools were contacted telephonically, a physical pre- visit would have been of more value to ensure that the affected schools fully understood what was required of them in terms of readiness
- Exemplars sent by the provincial office did not reach all sampled schools for the study. This put the learners at a disadvantage
- Poor discipline displayed in some of the schools (which resulted in high noise levels) adversely affected the concentration of learners who were writing the tests
- Absenteeism in some schools to the extent that the Test Administrator had to revisit and allow them to write
- Instances of poor management and administration were observed in some schools
- Difficulty to access school documents was experienced in some schools
- There is noticeable poor record keeping in some schools e.g. record of performance for the previous years (and absence of a pass rate analysis)
- The absence of a copy of a test schedule from the HSRC prior to the actual administration of the tests negatively affected the monitoring plan

20.8 RECOMMENDATIONS

- District support staff need to ensure that the sampled schools get the exemplars in time so that the learners in sample schools are not disadvantaged in any way
- A meeting prior to the tests should be conducted for the sampled schools to ensure that they fully understand their roles and responsibilities and the purpose thereof
- The policy on discipline truancy and absenteeism should be fully implemented and monitored by the school and DSTs
- Filing systems in some schools are in dire need of improvement so that records requested are easily accessible
- School administration and management need to be prioritized as one of the areas of development for schools
- Constant monitoring on policy implementation is needed

21. CONCLUSION

- In summary diagnostic analysis of assessment data must be conducted regularly at all levels of the system, particularly at the classroom level. The purpose of the analysis and diagnosis is to assess whether learning goals are being achieved by all learners so that every learner has ample opportunity to succeed.

Sum of Qty				Symbol							
District	Subject Name Generic	Subject Grade	Term	1	2	3	4	5	6	7	Grand Total
LIBODE	Mathematics	9	Term 4	4,46%	3,79%	50,93%	27,67%	9,97%	2,51%	0,67%	100,00%
	Natural Sciences	9	Term 4	4,42%	11,33%	32,91%	29,30%	14,64%	5,78%	1,63%	100,00%
	Social Sciences	9	Term 4	6,96%	15,13%	38,40%	26,42%	9,47%	2,99%	0,63%	100,00%
LUSIKISIKI	Mathematics	9	Term 4	4,05%	1,99%	59,11%	25,79%	7,07%	1,54%	0,45%	100,00%
	Natural Sciences	9	Term 4	4,59%	15,18%	38,00%	25,37%	12,63%	3,22%	1,01%	100,00%
	Social Sciences	9	Term 4	6,20%	14,74%	43,01%	23,91%	8,66%	2,81%	0,66%	100,00%
MALUTI	Mathematics	9	Term 4	9,21%	6,29%	62,07%	15,23%	4,98%	1,61%	0,61%	100,00%
	Natural Sciences	9	Term 4	11,64%	21,55%	39,55%	17,42%	6,53%	2,52%	0,79%	100,00%
	Social Sciences	9	Term 4	14,60%	25,94%	35,40%	15,05%	6,47%	2,16%	0,39%	100,00%
MBIZANA	Mathematics	9	Term 4	8,48%	5,25%	60,01%	17,61%	5,84%	2,27%	0,56%	100,00%
	Natural Sciences	9	Term 4	6,85%	16,75%	36,59%	24,22%	11,43%	3,57%	0,59%	100,00%
	Social Sciences	9	Term 4	6,75%	19,69%	38,03%	23,51%	9,00%	2,62%	0,40%	100,00%
MT FLETCHER	Mathematics	9	Term 4	4,46%	3,60%	53,22%	24,13%	10,58%	3,05%	0,94%	100,00%
	Natural Sciences	9	Term 4	3,59%	11,67%	33,89%	28,31%	14,99%	6,60%	0,94%	100,00%
	Social Sciences	9	Term 4	4,12%	19,15%	36,59%	22,93%	10,95%	4,87%	1,40%	100,00%
MT FRERE	Mathematics	9	Term 4	6,03%	4,05%	59,26%	21,39%	6,54%	2,20%	0,52%	100,00%
	Natural Sciences	9	Term 4	7,40%	18,07%	38,20%	23,18%	9,25%	3,06%	0,84%	100,00%
	Social Sciences	9	Term 4	8,88%	25,08%	36,91%	19,57%	7,48%	1,75%	0,34%	100,00%
QUMBU	Mathematics	9	Term 4	8,68%	10,91%	54,02%	18,83%	6,16%	1,10%	0,30%	100,00%
	Natural Sciences	9	Term 4	9,51%	20,93%	34,97%	21,32%	9,75%	2,81%	0,72%	100,00%
	Social Sciences	9	Term 4	11,98%	23,57%	34,21%	19,41%	8,07%	2,10%	0,67%	100,00%
Grand Total				6,87%	13,09%	43,66%	23,43%	9,29%	2,92%	0,74%	100,00%

22.PROVINCIAL PERFORMANCE OF GRADE 9 LEARNERS IN MATHEMATICS AND SCIENCES PER CLUSTER.

Sum of Qty				Symbol							
District	Subject Name Generic	Subj Grade	Term	1	2	3	4	5	6	7	Grand Total
BUTTERWORTH	Mathematics	9	Term 4	5,83%	5,45%	47,12%	25,58%	11,24%	3,91%	0,87%	100,00%
	Natural Sciences	9	Term 4	4,06%	12,58%	31,60%	28,99%	16,45%	5,59%	0,74%	100,00%
	Social Sciences	9	Term 4	8,58%	14,06%	30,30%	28,39%	12,61%	4,30%	1,76%	100,00%
COFIMVABA	Mathematics	9	Term 4	3,74%	1,77%	59,12%	23,60%	7,48%	3,60%	0,69%	100,00%
	Natural Sciences	9	Term 4	4,10%	13,03%	38,27%	26,10%	13,16%	4,49%	0,85%	100,00%
	Social Sciences	9	Term 4	2,24%	16,27%	43,27%	23,93%	10,98%	2,86%	0,45%	100,00%
DUTYWA	Mathematics	9	Term 4	5,73%	6,28%	55,35%	23,43%	7,63%	1,21%	0,37%	100,00%
	Natural Sciences	9	Term 4	4,31%	14,44%	33,77%	31,70%	11,90%	3,30%	0,58%	100,00%
	Social Sciences	9	Term 4	7,58%	17,02%	42,61%	23,01%	7,66%	1,85%	0,28%	100,00%
LADY FRERE	Mathematics	9	Term 4	7,06%	3,48%	61,35%	21,04%	4,96%	1,74%	0,34%	100,00%
	Natural Sciences	9	Term 4	5,89%	22,05%	37,09%	22,51%	8,62%	3,05%	0,80%	100,00%
	Social Sciences	9	Term 4	9,74%	23,02%	39,78%	17,70%	7,42%	2,06%	0,28%	100,00%
MTHATHA	Mathematics	9	Term 4	9,18%	4,00%	51,76%	22,38%	9,28%	2,67%	0,73%	100,00%
	Natural Sciences	9	Term 4	8,34%	14,06%	29,55%	27,66%	14,78%	4,69%	0,72%	100,00%
	Social Sciences	9	Term 4	11,35%	19,22%	30,67%	22,39%	11,55%	3,73%	1,09%	100,00%
NGCOBO	Mathematics	9	Term 4	5,95%	3,05%	59,60%	20,75%	8,19%	2,00%	0,46%	100,00%
	Natural	9	Term 4	4,03%	12,26%	31,23%	28,67%	17,57%	4,84%	1,39%	100,00%

	Sciences										
	Social Sciences	9	Term 4	6.15%	16,45%	39,87%	27.00%	8,21%	2.00%	0,32%	100,00%
QUEENSTOWN	**Mathematics**	9	Term 4	11.54%	10,37%	59.72%	12.06%	4,18%	1.57%	0,56%	100,00%
	Natural Sciences	9	Term 4	22,64%	26,12%	25,60%	14,43%	6,83%	3.58%	0,81%	100.00%
	Social Sciences	9	Term 4	18,87%	31,38%	25.25%	13,70%	6,13%	3,35%	1,31%	100,00%
STERKSPRUIT	**Mathematics**	9	Term 4	19,31%	11,98%	53.70%	10,86%	2.87%	0,85%	0,41%	100.00%
	Natural Sciences	9	Term 4	17,23%	23.53%	28.76%	17,97%	8.72%	3,24%	0,55%	100.00%
	Social Sciences	9	Term 4	20,59%	30,99%	27.65%	13,14%	5.52%	1,82%	0,30%	100.00%
Grand Total				**8,34%**	**13,44%**	**41,00%**	**23,45%**	10,03%	**3,05%**	**0,68%**	**100,00%**

23.**Table 4: Codes and percentages for recording and reporting learner performance**

RATING CODE	ACHIEVEMENT DESCRIPTION	MARKS %
7	Outstanding Achievement	80 - 100
6	Meritorious Achievement	70 - 79
5	Substantial Achievement	60 - 69
4	Adequate Achievement	50 - 59
3	Moderate Achievement	40 - 49
2	Elementary Achievement	30 - 39
1	Not Achieved	0 - 29

Summary of performance in all clusters of the Eastern Cape Province as tabled above

In conclusion, Tables 1, 2 and 3 which shows the performance of learners in clusters A, B and C. The final analysis shows that most learners in Grade 9
operate within the levels 1, 2 and 3. These levels indicate **moderate** achievement, **elementary** achievement and **not achieving at all.** This further shows
the quality of **learners** that enter Grade 10 as the foundation of the FET **phase**. Reasons for this not so good performancevaries from **school**
to school havingsome of these aspecise.g. shortage of specialised **teachers**, resources and even non conducive classrooms to learning in some instances Some **learners** are being taught thesecritical subjects by teachers who are not relevant to the phase or the subject **itself**

"It is a deep-seated and universal desire to give your kids the best start in life, and clearly the "gift of a good education is a critical part of that good start.

It is a gift that once given that can never be taken away. It is never used up."

(Do It!: Motlatsi and Godsell: 2008)

"It is fine to celebrate success but it is more important to heed the lessons of failure."